Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-17-3

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-04
File ID: H042717.seq-55
Sampled: 04/27/17 09:30
Prepared: 04/27/17 23:30
Analyzed: 04/28/17 07:01
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[D2789
Sequence: 1707490
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	83	1		EPA-300.0
14797-55-8	Nitrate as N	9.4	1		EPA-300.0
14808-79-8	Sulfate	120	1		EPA-300.0

5/31/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-17-4

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-05
File ID: H042717.seq-56
Sampled: 04/27/17 13:00
Prepared: 04/27/17 23:30
Analyzed: 04/28/17 07:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[D2789
Sequence: 1707490
Calibration: UNASSIGNED
Instrument: IC8

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	0.20	1		EPA-300.0
14808-79-8	Sulfate	22	1		EPA-300.0

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-17-5

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-06
File ID: H042717.seq-57
Sampled: 04/27/17 12:30
Prepared: 04/27/17 23:30
Analyzed: 04/28/17 07:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[D2789
Sequence: 1707490
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	9.7	1		EPA-300.0
14797-55-8	Nitrate as N	0.021	1	U	EPA-300.0
14808-79-8	Sulfate	19	1		EPA-300.0

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

EB-8-042717

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-07
File ID: H042717.seq-59
Sampled: 04/27/17 15:00
Prepared: 04/27/17 23:30
Analyzed: 04/28/17 08:13
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJD2789
Sequence: 1707490
Calibration: UNASSIGNED
Instrument: IC8

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.077	1	U	EPA-300.0
14797-55-8	Nitrate as N	0.021	1	U	EPA-300.0
14808-79-8	Sulfate	0.13	1	U	EPA-300.0

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-17-1

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-02
File ID: 170428 0916 NO2-039
Sampled: 04/27/17 14:35
Prepared: 04/28/17 09:16
Analyzed: 04/28/17 09:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0299
Sequence: 1707715
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-17-2

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-03
File ID: 170428 0916 NO2-042
Sampled: 04/27/17 14:00
Prepared: 04/28/17 09:16
Analyzed: 04/28/17 09:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0299
Sequence: 1707715
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.011	1	J	EPA-353.2

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Tidewater Inc.
3761 Attucks Drive
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Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-17-3

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-04
File ID: 170428 0916 NO2-043
Sampled: 04/27/17 09:30
Prepared: 04/28/17 09:16
Analyzed: 04/28/17 09:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0299
Sequence: 1707715
Calibration: UNASSIGNED
Instrument: KONE-1

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

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-17-4

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-05
File ID: 170428 0916 NO2-044
Sampled: 04/27/17 13:00
Prepared: 04/28/17 09:16
Analyzed: 04/28/17 09:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0299
Sequence: 1707715
Calibration: UNASSIGNED
Instrument: KONE-1

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

6/2/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-17-5

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-06
File ID: 170428 0916 NO2-045
Sampled: 04/27/17 12:30
Prepared: 04/28/17 09:16
Analyzed: 04/28/17 09:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0299
Sequence: 1707715
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

6/2/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

EB-8-042717

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-07
File ID: 170428 0916 NO2-046
Sampled: 04/27/17 15:00
Prepared: 04/28/17 09:16
Analyzed: 04/28/17 09:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0299
Sequence: 1707715
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

6/21/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-17-1

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-02
File ID: 170428 0824 CR6-010
Sampled: 04/27/17 14:35
Prepared: 04/28/17 08:24
Analyzed: 04/28/17 08:24
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0274
Sequence: 1707580
Calibration: UNASSIGNED
Instrument: KONE-1

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

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-17-2

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-03
File ID: 170428 0824 CR6-011
Sampled: 04/27/17 14:00
Prepared: 04/28/17 08:24
Analyzed: 04/28/17 08:24
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0274
Sequence: 1707580
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

5/26/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-17-3

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-04
File ID: 170428 0824 CR6-012
Sampled: 04/27/17 09:30
Prepared: 04/28/17 08:24
Analyzed: 04/28/17 08:24
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0274
Sequence: 1707580
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

6/21/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-17-4

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-05
File ID: 170428 0824 CR6-023
Sampled: 04/27/17 13:00
Prepared: 04/28/17 08:24
Analyzed: 04/28/17 08:40
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0274
Sequence: 1707580
Calibration: UNASSIGNED
Instrument: KONE-1

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

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-17-5

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-06
File ID: 170428 0824 CR6-024
Sampled: 04/27/17 12:30
Prepared: 04/28/17 08:24
Analyzed: 04/28/17 08:40
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0274
Sequence: 1707580
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00090	1	J	EPA-7196

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

EB-8-042717

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-07
File ID: 170428 0824 CR6-025
Sampled: 04/27/17 15:00
Prepared: 04/28/17 08:24
Analyzed: 04/28/17 08:40
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0274
Sequence: 1707580
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00078	1	J U	EPA-7196

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-17-1

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-02
File ID: F051517.seq-19.0000.txt
Sampled: 04/27/17 14:35
Prepared: 05/15/17 13:00
Analyzed: 05/15/17 16:03
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1680
Sequence: 1708617
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

6/21/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-17-2

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-03
File ID: F051517.seq-25.0000.txt
Sampled: 04/27/17 14:00
Prepared: 05/15/17 13:00
Analyzed: 05/15/17 17:24
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1680
Sequence: 1708617
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

6/2/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-17-3

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-04
File ID: F051517.seq-26.0000.txt
Sampled: 04/27/17 09:30
Prepared: 05/15/17 13:00
Analyzed: 05/15/17 17:38
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE1680
Sequence: 1708617
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	5.3	1		EPA-314.0

6/21/17 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-17-4

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-05
File ID: F051517.seq-27.0000.txt
Sampled: 04/27/17 13:00
Prepared: 05/15/17 13:00
Analyzed: 05/15/17 17:51
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1680
Sequence: 1708617
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.0	1	J	EPA-314.0

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-17-5

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-06
File ID: F051517.seq-28.0000.txt
Sampled: 04/27/17 12:30
Prepared: 05/15/17 13:00
Analyzed: 05/15/17 18:04
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1680
Sequence: 1708617
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

6/21/17 R

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

EB-8-042717

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-07
File ID: F051517.seq-29.0000.txt
Sampled: 04/27/17 15:00
Prepared: 05/15/17 13:00
Analyzed: 05/15/17 18:18
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BIE1680
Sequence: 1708617
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

6/21/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-17-1

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-02
File ID: Tiamo050117-075
Sampled: 04/27/17 14:35
Prepared: 05/01/17 08:00
Analyzed: 05/01/17 15:17
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0057
Sequence: 1707565
Calibration: UNASSIGNED
Instrument: MET-1

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

6/21/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-17-2

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-03
File ID: Tiamo050117-076
Sampled: 04/27/17 14:00
Prepared: 05/01/17 08:00
Analyzed: 05/01/17 15:23
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0057
Sequence: 1707565
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.13	1	J	EPA-150.1

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Tidewater Inc.
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Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-17-3

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-04
File ID: Tiamo050117-077
Sampled: 04/27/17 09:30
Prepared: 05/01/17 08:00
Analyzed: 05/01/17 15:29
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0057
Sequence: 1707565
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.11	1	J	EPA-150.1

6/2/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-17-4

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-05
File ID: Tiamo050117-083
Sampled: 04/27/17 13:00
Prepared: 05/01/17 08:00
Analyzed: 05/01/17 15:51
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0057
Sequence: 1707565
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.40	1	5	EPA-150.1

5/31/17 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-17-5

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-06
File ID: Tiamo050117-084
Sampled: 04/27/17 12:30
Prepared: 05/01/17 08:00
Analyzed: 05/01/17 16:03
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0057
Sequence: 1707565
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.30	1	J	EPA-150.1

6/21/17 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

EB-8-042717

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-07
File ID: Tiamo050117-090
Sampled: 04/27/17 15:00
Prepared: 05/01/17 08:00
Analyzed: 05/01/17 16:29
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0058
Sequence: 1707565
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	4.85	1	J	EPA-150.1

6/7/17 +

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-17-1

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-02
File ID:
Sampled: 04/27/17 14:35
Prepared: 05/03/17 14:00
Analyzed: 05/03/17 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0425
Sequence: 1708231
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	340	2	D	EPA-160.1

6/21/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-17-2

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-03
File ID:
Sampled: 04/27/17 14:00
Prepared: 05/03/17 14:00
Analyzed: 05/03/17 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0425
Sequence: 1708231
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	440	2	D	EPA-160.1

6/2/17 lf

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-17-3

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-04
File ID:
Sampled: 04/27/17 09:30
Prepared: 05/03/17 14:00
Analyzed: 05/03/17 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0425
Sequence: 1708231
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	620	3.33	D	EPA-160.1

5/26/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-17-4

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-05
File ID:
Sampled: 04/27/17 13:00
Prepared: 05/03/17 14:00
Analyzed: 05/03/17 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0425
Sequence: 1708231
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	230	2	D	EPA-160.1

6/31/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-17-5

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-06
File ID:
Sampled: 04/27/17 12:30
Prepared: 05/03/17 14:00
Analyzed: 05/03/17 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BJE0425
Sequence: 1708231
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	230	2	D	EPA-160.1

6/2/17 T

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 5/26/2017 3:54:11PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

EB-8-042717

Laboratory: BC Laboratories
SDG: 17-11382
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711382-07
File ID:
Sampled: 04/27/17 15:00
Prepared: 05/03/17 14:00
Analyzed: 05/03/17 14:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0425
Sequence: 1708231
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

6/31/17 Q

LDC #: 38820A6
SDG #: 17-11382
Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET
Level III

Date: 06/16/17
Page: 1 of 1
Reviewer: ATL
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.	Sample receipt/Technical holding times	A / SW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	
V	Field blanks	SW	6=EB
VI.	Matrix Spike/Matrix Spike Duplicates	A	
VII.	Duplicate sample analysis	A	
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	N	
X.	Sample result verification	N	
XI	Overall assessment of data	A	

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

	Client ID	Lab ID	Matrix	Date
1	MW-17-1	1711382-02	Water	04/27/17
2	MW-17-2	1711382-03	Water	04/27/17
3	MW-17-3	1711382-04	Water	04/27/17
4	MW-17-4	1711382-05	Water	04/27/17
5	MW-17-5	1711382-06	Water	04/27/17
6	EB-8-042717	1711382-07	Water	04/27/17
7	MW-17-1MS	1711382-02MS	Water	04/27/17
8	MW-17-1MSD	1711382-02MSD	Water	04/27/17
9	MW-17-1DUP	1711382-02DUP	Water	04/27/17
10	EB-8-042717DUP	1711382-07DUP	Water	04/27/17
11				
12				
13				
14				
15				

Notes:

LDC #: 38820AG

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: ATL
2nd reviewer: [signature]

All circled methods are applicable to each sample.

Sample ID	Parameter
1->6	pH TDS Cl F NO_3 NO_2 (N) SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4 NO3-N
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
QC	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
10	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
9	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4 NO3-N
7,8	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4 NO3-N
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4

Comments:

LDC #: 38820A6

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer: ATL
2nd reviewer: a

All circled dates have exceeded the technical holding time.
(Y) N N/A Were all samples preserved as applicable to each method ?
(Y) N N/A Were all cooler temperatures within validation criteria?

Method:	pH (EPA 150.1)		
Parameters:	water		
Technical holding time:	48 hrs.		

Sample ID	Sampling date	Analysis date	Total Time	Qualifier	Analysis date	Total Time	Qualifier
1	04/27/17 14:35	05/01/17 15:17	96.70 hrs	J/R/P (detect)			
2	04/27/17 14:00	05/01/17 15:23	97.38 hrs.				
3	04/27/17 9:30	05/01/17 15:29	101.98 hrs				
4	04/27/17 13:00	05/01/17 15:51	98.85 hrs				
5	04/27/17 12:30	05/01/17 16:03	99.55 hrs.				
6	04/27/17 15:00	05/01/17 16:29	97.48 hrs				

LDC #: 38820A6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: ATL
2nd Reviewer:

METHOD: Inorganics, Method See Cover

Conc. units: mg/L **Associated Samples:** All

Analyte	Blank ID	Blank ID	Blank Action Limit										
	PB (mg/L)	ICB/CCB (mg/L)		4	5	6							
Cr6+	0.000826		0.00413	0.0010	0.00090	0.00078							

Conc. units: mg/L **Associated Samples:** 1,2,3

Analyte	Blank ID	Blank ID	Blank Action Limit										
	PB (mg/L)	ICB/CCB (mg/L)											
Cr6+		0.000934	0.00467										

Conc. units: mg/L **Associated Samples:** 4,5,6

Analyte	Blank ID	Blank ID	Blank Action Limit										
	PB (mg/L)	ICB/CCB (mg/L)		4	5	6							
Cr6+		0.000814	0.00407	see above	see above	see above							

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

LDC #: 38820A6

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: ATL
2nd Reviewer: C

METHOD: Inorganics, EPA Method See Cover
Blank units: mg/L **Associated sample units:** mg/L
Sampling date: 04/27/17 Soil factor applied NA
Field blank type: (circle one) Field Blank / Rinsate / Other: EB Associated Samples: ~~none~~ 4 5 or (X repeat)

Analyte	Blank ID	Action Limit	Sample Identification							
	6		~~4~~ ~~5~~							
Cr6+	0.00078	0.0039	~~0.0010~~ ~~0.00090~~ or							

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

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

Tidewater, Inc.
3761 Attucks Drive
Powell, OH 43065
ATTN: Mr. David Conner

July 3, 2017

SUBJECT: NASA JPL, 2Q2017, Data Validation

Dear Mr. Conner,

Enclosed are the final validation reports for the fractions listed below. This SDG was received on June 13, 2017. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #38888:

SDG #	Fraction
17-11226	Volatiles, Semivolatiles, Metals, Wet Chemistry

The data validation was performed under 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, update V, July 2014

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

Sincerely,

Pei Geng
Project Manager/Senior Chemist

90/10 (client select)

LDC #38888 (Tidewater- Powell, OH / NASA JPL, 2Q2017)

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (524.2)		SVOA (8270C)		1,4-Dioxane (8270C)		Metals (200.7 /200.8)		Alk. (2320B)		Cl,SO_4 NO_3-N (300.0)		NO_2-N (353.2)		CLO_4 (314.0)		Cr(VI) (7196)		TDS (160.1)		pH (150.1)													
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	17-11226	06/13/17	07/05/17	10	0	1	0	1	0	9	0	9	0	9	0	9	0	9	0	9	0	9	0	9	0	9	0												
A	17-11226	06/13/17	07/05/17	1	0	0	0	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0												
Total	T/PG			11	0	1	0	1	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	10	0	0	0	0	0	0	0	0	0	0	0	0	93

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

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2017

LDC Report Date: June 28, 2017

Parameters: Volatiles

Validation Level: Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 17-11226

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TB-8-042617	1711226-01	Water	04/26/17
MW-4-1	1711226-02	Water	04/26/17
MW-4-2	1711226-03	Water	04/26/17
MW-4-3	1711226-04	Water	04/26/17
MW-4-4	1711226-05	Water	04/26/17
MW-4-5	1711226-06	Water	04/26/17
MW-21-1	1711226-07	Water	04/26/17
MW-21-2**	1711226-08**	Water	04/26/17
MW-21-3	1711226-09	Water	04/26/17
MW-21-5	1711226-10	Water	04/26/17
EB-7-042617	1711226-11	Water	04/26/17

**Indicates sample underwent Level IV review

Introduction

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

The analyses were performed by the following method:

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

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

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

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

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

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

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

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

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

I. Sample Receipt and Technical Holding Times

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

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For compounds where average relative response factors (RRFs) were utilized, the percent relative standard deviations (%RSD) were less than or equal to 20.0%.

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

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

Date	Compound	%D	Associated Samples	Flag	A or P
04/14/17	Pentachloroethane	45.4	All samples in SDG 17-11226	UJ (all non-detects)	P

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
04/27/17	trans-1,4-Dichloro-2-butene Methyl iodide Pentachloroethane	39.7 59.2 96.9	All samples in SDG 17-11226	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	P

V. Laboratory Blanks

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

VI. Field Blanks

Sample TB-8-042617 was identified as a trip blank. No contaminants were found.

Sample EB-7-042617 was identified as an equipment blank. No contaminants were found.

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

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

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

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

XII. Compound Quantitation

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

XIII. Target Compound Identifications

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

XIV. System Performance

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

XV. Overall Assessment of Data

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

Due ICV and continuing calibration %D, data were qualified as estimated in eleven samples.

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

NASA JPL, 2Q2017
Volatiles - Data Qualification Summary - SDG 17-11226

Sample	Compound	Flag	A or P	Reason
TB-8-042617 MW-4-1 MW-4-2 MW-4-3 MW-4-4 MW-4-5 MW-21-1 MW-21-2** MW-21-3 MW-21-5 EB-7-042617	Pentachloroethane	UJ (all non-detects)	P	Initial calibration verification (%D)
TB-8-042617 MW-4-1 MW-4-2 MW-4-3 MW-4-4 MW-4-5 MW-21-1 MW-21-2** MW-21-3 MW-21-5 EB-7-042617	trans-1,4-Dichloro-2-butene Methyl iodide Pentachloroethane	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	P	Continuing calibration (%D)

NASA JPL, 2Q2017
Volatiles - Laboratory Blank Data Qualification Summary - SDG 17-11226

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-8-042617

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-01	File ID:	27APR49.D
Sampled:	04/26/17 06:30	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 02:22
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence: 1707226	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-8-042617

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-01	File ID:	27APR49.D
Sampled:	04/26/17 06:30	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 02:22
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BID2631	Sequence: 1707226	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-8-042617

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-01	File ID:	27APR49.D
Sampled:	04/26/17 06:30	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 02:22
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence: 1707226	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.650	106	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.040	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.4700	94.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	193426	6.58	197293	6.58	
Chlorobenzene-d5 (IS)	69775	9.62	73254	9.62	
1,4-Difluorobenzene (IS)	280866	7.39	293261	7.39	

* Values outside of QC limits

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

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Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-8-042617

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-01	File ID:	27APR49.D
Sampled:	04/26/17 06:30	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 02:22
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BID2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

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Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-1

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-02	File ID:	27APR50.D
Sampled:	04/26/17 12:45	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 02:45
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BID2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

6/20/17 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-1

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-02	File ID:	27APR50.D
Sampled:	04/26/17 12:45	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 02:45
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence: 1707226	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-1

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-02	File ID:	27APR50.D
Sampled:	04/26/17 12:45	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 02:45
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	11.090	111	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.380	104	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.4100	94.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	185764	6.58	197293	6.58	
Chlorobenzene-d5 (IS)	65561	9.62	73254	9.62	
1,4-Difluorobenzene (IS)	263688	7.39	293261	7.39	

* Values outside of QC limits

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
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Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-1

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-02	File ID:	27APR50.D
Sampled:	04/26/17 12:45	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 02:45
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

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Project: JPL- GW Monitoring Wells
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Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-2

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-03	File ID:	27APR51.D
Sampled:	04/26/17 08:30	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 03:08
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BID2631	Sequence: 1707226	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.88	
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.27	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.21	J
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
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MW-4-2

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-03	File ID:	27APR51.D
Sampled:	04/26/17 08:30	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 03:08
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	1.3	
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	5.2	
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-2

Laboratory: BC Laboratories | SDG: 17-11226
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711226-03 | File ID: 27APR51.D
Sampled: 04/26/17 08:30 | Prepared: 04/27/17 07:00 | Analyzed: 04/28/17 03:08
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: BID2631 | Sequence: 1707226 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.670	107	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9000	99.0	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.4700	94.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	186740	6.58	197293	6.58	
Chlorobenzene-d5 (IS)	72040	9.62	73254	9.62	
1,4-Difluorobenzene (IS)	275099	7.39	293261	7.39	

* Values outside of QC limits

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-2

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-03	File ID:	27APR51.D
Sampled:	04/26/17 08:30	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 03:08
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[D2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

6/30/17 q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-3

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-04	File ID:	27APR52.D
Sampled:	04/26/17 12:15	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 03:31
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BID2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-3

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-04	File ID:	27APR52.D
Sampled:	04/26/17 12:15	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 03:31
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	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	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	1.1	
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/5/17 q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-3

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-04	File ID:	27APR52.D
Sampled:	04/26/17 12:15	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 03:31
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence: 1707226	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	11.680	117	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.220	102	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.9800	99.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	173681	6.58	197293	6.58	
Chlorobenzene-d5 (IS)	62851	9.62	73254	9.62	
1,4-Difluorobenzene (IS)	258643	7.39	293261	7.39	

* Values outside of QC limits

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-3

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-04	File ID:	27APR52.D
Sampled:	04/26/17 12:15	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 03:31
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

4/30/17 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-4

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-05	File ID:	27APR53.D
Sampled:	04/26/17 11:50	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 03:54
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

6/20/17 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-4

Laboratory:	BC Laboratories			SDG:	17-11226
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1711226-05	File ID:	27APR53.D
Sampled:	04/26/17 11:50	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 03:54
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BID2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.31	J
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	1.2	
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/30/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-4

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-05	File ID:	27APR53.D
Sampled:	04/26/17 11:50	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 03:54
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BID2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	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	10.300	103	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.0900	90.9	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	181950	6.58	197293	6.58	
Chlorobenzene-d5 (IS)	69530	9.61	73254	9.62	
1,4-Difluorobenzene (IS)	258044	7.39	293261	7.39	

* Values outside of QC limits

6/30/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-4

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-05	File ID:	27APR53.D
Sampled:	04/26/17 11:50	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 03:54
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[D2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

6/30/17 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-5

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-06	File ID:	27APR54.D
Sampled:	04/26/17 11:25	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 04:18
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence: 1707226	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-5

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-06	File ID:	27APR54.D
Sampled:	04/26/17 11:25	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 04:18
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BID2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	J
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	1.2	
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

4/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-5

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-06	File ID:	27APR54.D
Sampled:	04/26/17 11:25	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 04:18
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	11.770	118	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8900	98.9	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.8600	98.6	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	176811	6.58	197293	6.58	
Chlorobenzene-d5 (IS)	66124	9.62	73254	9.62	
1,4-Difluorobenzene (IS)	261550	7.38	293261	7.39	

* Values outside of QC limits

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-4-5

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-06	File ID:	27APR54.D
Sampled:	04/26/17 11:25	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 04:18
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-1

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-07	File ID:	27APR55.D
Sampled:	04/26/17 15:50	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 04:41
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.72	
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-1

Laboratory:	BC Laboratories			SDG:	17-11226
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1711226-07	File ID:	27APR55.D
Sampled:	04/26/17 15:50	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 04:41
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.30	J
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-1

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-07	File ID:	27APR55.D
Sampled:	04/26/17 15:50	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 04:41
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[D2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U LS
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U LS
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U LS
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	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	10.350	104	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	10.610	106	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	178277	6.58	197293	6.58	
Chlorobenzene-d5 (IS)	60422	9.62	73254	9.62	
1,4-Difluorobenzene (IS)	246232	7.38	293261	7.39	

* Values outside of QC limits

6/20/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-1

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-07	File ID:	27APR55.D
Sampled:	04/26/17 15:50	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 04:41
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BID2631	Sequence: 1707226	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-2

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-08	File ID:	27APR56.D
Sampled:	04/26/17 15:30	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 05:04
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BID2631	Sequence: 1707226	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.31	J
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-2

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-08	File ID:	27APR56.D
Sampled:	04/26/17 15:30	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 05:04
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.63	
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/30/17 CL

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-2

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-08	File ID:	27APR56.D
Sampled:	04/26/17 15:30	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 05:04
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence: 1707226	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	11.850	118	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.050	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	10.240	102	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	169990	6.58	197293	6.58	
Chlorobenzene-d5 (IS)	62508	9.62	73254	9.62	
1,4-Difluorobenzene (IS)	256483	7.38	293261	7.39	

* Values outside of QC limits

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-2

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-08	File ID:	27APR56.D
Sampled:	04/26/17 15:30	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 05:04
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

4/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-3

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-09	File ID:	27APR57.D
Sampled:	04/26/17 15:10	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 05:27
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.47	J
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.19	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-3

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-09	File ID:	27APR57.D
Sampled:	04/26/17 15:10	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 05:27
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BID2631	Sequence: 1707226	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.86	
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	1.0	
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-3

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-09	File ID:	27APR57.D
Sampled:	04/26/17 15:10	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 05:27
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BID2631	Sequence: 1707226	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	11.910	119	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8300	98.3	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	10.520	105	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	173511	6.58	197293	6.58	
Chlorobenzene-d5 (IS)	62561	9.62	73254	9.62	
1,4-Difluorobenzene (IS)	262044	7.39	293261	7.39	

* Values outside of QC limits

6/20/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-3

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-09	File ID:	27APR57.D
Sampled:	04/26/17 15:10	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 05:27
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-5

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-10	File ID:	27APR58.D
Sampled:	04/26/17 14:45	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 05:50
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BID2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	11	
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.18	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-5

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-10	File ID:	27APR58.D
Sampled:	04/26/17 14:45	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 05:50
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence: 1707226	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	2.0	
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.36	J
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

4/30/17 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-5

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-10	File ID:	27APR58.D
Sampled:	04/26/17 14:45	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 05:50
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence: 1707226	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	11.790	118	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.7900	97.9	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	10.010	100	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	179281	6.58	197293	6.58	
Chlorobenzene-d5 (IS)	66372	9.62	73254	9.62	
1,4-Difluorobenzene (IS)	271737	7.38	293261	7.39	

* Values outside of QC limits

6/30/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-21-5

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-10	File ID:	27APR58.D
Sampled:	04/26/17 14:45	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 05:50
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-7-042617

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-11	File ID:	27APR59.D
Sampled:	04/26/17 16:10	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 06:13
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-7-042617

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-11	File ID:	27APR59.D
Sampled:	04/26/17 16:10	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 06:13
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/20/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-7-042617

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-11	File ID:	27APR59.D
Sampled:	04/26/17 16:10	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 06:13
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	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	10.090	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	10.130	101	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	179572	6.58	197293	6.58	
Chlorobenzene-d5 (IS)	64597	9.62	73254	9.62	
1,4-Difluorobenzene (IS)	267847	7.39	293261	7.39	

* Values outside of QC limits

4/26/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:57:42PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-7-042617

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-11	File ID:	27APR59.D
Sampled:	04/26/17 16:10	Prepared:	04/27/17 07:00	Analyzed:	04/28/17 06:13
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJD2631	Sequence:	1707226	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

6/30/17

LDC #: 38888A1 **VALIDATION COMPLETENESS WORKSHEET** Date: 6/21/17
SDG #: 17-11226 Level III/IV Page: 1 of 1
Laboratory: BC Laboratories, Inc. Reviewer: V
2nd Reviewer: NC

METHOD: GC/MS Volatiles (EPA Method 524.2)

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

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/W	RSD ≤ 20% . r² ICV ≤ 30%
IV.	Continuing calibration	A/W	CCV ≤ 30%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB=1 . EB=11
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level III validation.
XIII.	Target compound identification	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank
** Indicates sample was underwent Level IV review

	Client ID	Lab ID	Matrix	Date
1	TB-8-042617	1711226-01	Water	04/26/17
2	MW-4-1	1711226-02	Water	04/26/17
3	MW-4-2	1711226-03	Water	04/26/17
4	MW-4-3	1711226-04	Water	04/26/17
5	MW-4-4	1711226-05	Water	04/26/17
6	MW-4-5	1711226-06	Water	04/26/17
7	MW-21-1	1711226-07	Water	04/26/17
8	MW-21-2**	1711226-08**	Water	04/26/17
9	MW-21-3	1711226-09	Water	04/26/17
10	MW-21-5	1711226-10	Water	04/26/17
11	EB-7-042617	1711226-11	Water	04/26/17
12				
13				

LDC #: 38888A1

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: JB

Method: Volatiles (EPA Method 524.2)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS Instrument performance check				
Was a tune check performed prior to establishing and/or re-establishing an initial calibration?	✓			
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
III. Initial calibration				
Did the laboratory perform at least 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
IIIa. Initial Calibration Verification calibration				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 30%?		✓		
IV. Continuing calibration				
Was a continuing calibration standard analyzed at the beginning of each analysis batch?	✓			
Were all percent differences (%D) of continuing calibration ≤ 30%?		✓		
V.Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed with each analysis batch?	✓			
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		
VII. Surrogate spikes				
Were all surrogate %R within the 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?			✓	
VIII. Matrix spike/Matrix spike duplicates				
Was a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for this SDG?		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
IX. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			

LDC #: 38888A1

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: NB

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) within 70-130%?	✓			
X. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	
XI. Internal standards				
Were internal standard area counts within +/-30% of the area of the most recent continuing calibration standard and +/-50% of the average peak area in the initial calibration?	✓			
Were retention times within +/-30 seconds of the associated calibration standard?	✓			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) or regression equations used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane
C. Vinyl choride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO.1,1-Difluoroethane	O1. 3-Methylpentane
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.

LDC #: 30883A1

VALIDATION FINDINGS WORKSHEET
Initial Calibration Verification

Reviewer: Q
2nd Reviewer: JNG

METHOD: GC/MS VOA (EPA Method 524.2)

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

Y N N/A Was an initial calibration verification standard analyzed after each ICAL for each instrument?

Y N N/A Were all %D within the validation criteria of ≤30 %D?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0%)	Associated Samples	Qualifications
	4/14/17	170228-ICV2	2222	45.4	All (ND)	Y/N/P

LDC #: 38888A1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: 9
2nd Reviewer: JR

METHOD: GC/MS VOA (EPA Method 524.2)

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

N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y N N/A Were all percent differences (%D) ≤ 30% ?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0%)	Associated Samples	Qualifications
	4/27/17	27APR33	YYYY	39.7	All (NO)	J/UJ/A
			Methyl iodide	59.2		
			ZZZZ	96.9		↓

CONCAL.1S5

LDC #: 38888A1

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: FT
2nd Reviewer:

METHOD: GCMS 524.2

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

RRF = (Ax)(Cis)/(Ais)(Cx)
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

Where:

Ax = Area of compound
Cx = Concentration of compound
S = Standard deviation of the RRFs
X = Mean of the RRFs
Ais = Area of associated internal standard
Cis = Concentration of internal Standard

#	Standard ID	Calibration Date	Compound	Reported (RRF 10 std)	Recalculated (RRF 10 std)	Reported AverageRRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
	ICAL	4/13/2017	C	0.6738509	0.6738509	0.6507252	0.6507252	5.77474	5.77474
			CC	0.7608310	0.7608310	0.7401395	0.7401395	4.89008	4.89008
			EE	1.7287610	1.7287610	1.6995870	1.6995870	8.26667	8.26667

#	Standard ID	Calibration Date	Compound	Reported (RRF 160/40/8 std)	Recalculated (RRF160/40/8 std)	Reported AverageRRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
	ICAL	4/13/2017	F	0.0343799	0.0343799	0.03573499	0.03573499	12.094280	12.094280
			VVVV	0.0704187	0.0704187	0.07240331	0.07240331	11.825840	11.825840
			ZZZZ	0.5104179	0.5104179	0.48355100	0.48355100	10.086370	10.086370

LDC #: 38883A1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: JG

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

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

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	27APR17	4/27/17	C (1st Internal Standard)	0.650752	0.683536 1.747823	0.683535	5.0	5.0
			CC (2nd Internal Standard)	0.740395	0.784805	0.784805	6.0	6.0
			ZZ (3rd Internal Standard)	1.699587	1.747823	1.747823	2.8	2.8
2	27APR17	4/27/17	F (1st Internal Standard)	0.035349	0.0345938	0.0345932	3.2	3.2
			VVVV (2nd Internal Standard)	0.0724031	0.071172	0.071172	1.7	1.7
			ZZZ (3rd Internal Standard)	0.4835510	0.014913	0.014913	96.9	96.9
3			(1st Internal Standard)					
			(2nd Internal Standard)					
			(3rd Internal Standard)					
4			(1st Internal Standard)					
			(2nd Internal Standard)					
			(3rd Internal Standard)					

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

LDC #: 38888A1

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: Q
2nd reviewer: aVG

METHOD: GC/MS VOA (EPA Method 524.2)

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

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 8

	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
			Reported	Recalculated	
Toluene-d8	10.00	10.05	100	100	0
Bromofluorobenzene	↓	10.24	102	102	↓
1,2-Dichlorobenzene-d4	↓	11.85	118	118	↓
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					

LDC #: 38888A1

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer: 9
2nd Reviewer: JVC

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

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

LCS ID: BI02631-BS1

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	25.000	NA	27.300	NA	109	109				
Trichloroethene	↓	↓	26.840	↓	107	107				
Benzene	↓	↓	24.930	↓	99.7	99.7				
Toluene	↓	↓	25.450	↓	102	102				
Chlorobenzene	↓	↓	25.760	↓	103	103				

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

LDC #: 38888A1

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd reviewer: JV6

METHOD: GC/MS VOA (EPA Method 524.2)

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

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

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. 8 , K :

Conc. = (4177)(10.0)(1) / (169990)(0.8006886)( )( )

= 0.31 µg/L

#	Sample ID	Compound	Reported Concentration (µg/L)	Calculated Concentration ( )	Qualification
	8	K	0.31		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2017

LDC Report Date: June 28, 2017

Parameters: Semivolatiles

Validation Level: Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 17-11226

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-4-2	1711226-03	Water	04/26/17

Introduction

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

The analyses were performed by the following method:

Semivolatile Organic Compounds (SVOCs) by Environmental Protection Agency (EPA) SW 846 Method 8270C

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

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

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

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

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

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

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

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

I. Sample Receipt and Technical Holding Times

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

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For compounds where average relative response factors (RRFs) were utilized, 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 with the following exceptions:

Date	Compound	r^2	Associated Samples	Flag	A or P
05/08/17	Benzidine	0.989853	All samples in SDG 17-11226	UJ (all non-detects)	A

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
05/08/17 (08MAY21)	Benzidine Bis(2-chloroisopropyl) ether Endrin aldehyde	60.6 27.5 20.9	All samples in SDG 17-11226	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A
05/08/17 (08MAY22)	Dimethyoate Methapyrilene	26.5 26.9	All samples in SDG 17-11226	UJ (all non-detects) UJ (all non-detects)	A

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
05/09/17 (09MAY12)	Benzidine	54.2	All samples in SDG 17-11226	UJ (all non-detects)	A
	Benzyl alcohol	44.2		UJ (all non-detects)	
	Bis(2-chloroisopropyl) ether	30.2		UJ (all non-detects)	
	Endrin aldehyde	22.4		UJ (all non-detects)	
	N-Nitroso-di-n-propylamine	20.1		UJ (all non-detects)	
	2-Methylphenol	24.7		UJ (all non-detects)	
	Carbazole	22.2		UJ (all non-detects)	
05/09/17 (09MAY13)	Acetophenone	27.4	All samples in SDG 17-11226	UJ (all non-detects)	A
	2-Acetylaminofluorene	43.2		UJ (all non-detects)	
	Aramite	30.2		UJ (all non-detects)	
	1,3-Dinitrobenzene	27.2		UJ (all non-detects)	
	Dinoseb	42.5		UJ (all non-detects)	
	Ethyl methanesulfonate	22.9		UJ (all non-detects)	
	Methyl methansulfonate	33.1		UJ (all non-detects)	
	1,4-Naphthoquinone	24.1		UJ (all non-detects)	
	1-Naphthylamine	26.7		UJ (all non-detects)	
	4-Nitroquinoline-1-oxide	53.7		UJ (all non-detects)	
	N-Nitrosodi-n-butylamine	35.9		UJ (all non-detects)	
	N-Nitrosomorpholine	55.6		UJ (all non-detects)	
	N-Nitrosopyrrolidine	64.2		UJ (all non-detects)	
	1,4-Phenylenediamine	61.7		UJ (all non-detects)	
	2,3,4,6-Tetrachlorophenol	26.8		UJ (all non-detects)	

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

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

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

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

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Affected Compound	Flag	A or P
MW-4-2	1,4-Dichlorobenzene-d4	271953 (275805.5-1103222)	Phenol	UJ (all non-detects)	P
			Bis(2-chloroethyl)ether	UJ (all non-detects)	
			2-Chlorophenol	UJ (all non-detects)	
			1,3-Dichlorobenzene	UJ (all non-detects)	
			1,4-Dichlorobenzene	UJ (all non-detects)	
			1,2-Dichlorobenzene	UJ (all non-detects)	
			2-Methylphenol	UJ (all non-detects)	
			Bis(2-chloroisopropyl)ether	UJ (all non-detects)	
			3+4-Methylphenol	UJ (all non-detects)	
			N-Nitroso-d-n-propylamine	UJ (all non-detects)	
			Hexachoroethane	UJ (all non-detects)	
			Benzyl alcohol	UJ (all non-detects)	
			Aniline	UJ (all non-detects)	
			N-Nitrosodimethylamine	UJ (all non-detects)	
			Pyridine	UJ (all non-detects)	
			2-Picoline	UJ (all non-detects)	
			N-Nitrosomethylethylamine	UJ (all non-detects)	
			Methyl methanesulfonate	UJ (all non-detects)	
			N-Nitrosodiethylamine	UJ (all non-detects)	
			N-Nitrosomorpholine	UJ (all non-detects)	
			Ethyl methanesulfonate	UJ (all non-detects)	
			2-Toluidine	UJ (all non-detects)	
			Acetophenone	UJ (all non-detects)	
			Ethyl Methacrylate	UJ (all non-detects)	
			Pentachloroethane	UJ (all non-detects)	
			N-Nitrosopyrrolidine	UJ (all non-detects)	
			a,a-Dimethylphenethylamine	UJ (all non-detects)	
			Methyl methacrylate	UJ (all non-detects)	

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

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

Due to initial calibration r^2 and ICV and continuing calibration %D, and internal standards %R, data were qualified as estimated in one sample.

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

NASA JPL, 2Q2017
Semivolatiles - Data Qualification Summary - SDG 17-11226

Sample	Compound	Flag	A or P	Reason
MW-4-2	Benzidine	UJ (all non-detects	A	Initial calibration (r^2)
MW-4-2	Benzidine Bis(2-chloroisopropyl) ether Endrin aldehyde	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A	Initial calibration verification (%D)
MW-4-2	Dimethyoate Methapyrilene	UJ (all non-detects) UJ (all non-detects)	A	Initial calibration verification (%D)
MW-4-2	Benzidine Benzyl alcohol Bis(2-chloroisopropyl) ether Endrin aldehyde N-Nitroso-di-n-propylamine 2-Methylphenol Carbazole	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A	Continuing calibration (%D)
MW-4-2	Acetophenone 2-Acetylaminofluorene Aramite 1,3-Dinitrobenzene Dinoseb Ethyl methanesulfonate Methyl methansulfonate 1,4-Naphthoquinone 1-Naphthylamine 4-Nitroquinoline-1-oxide N-Nitrosodi-n-butylamine N-Nitrosomorpholine N-Nitrosopyrrolidine 1,4-Phenylenediamine 2,3,4,6-Tetrachlorophenol	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	A	Continuing calibration (%D)

Sample	Compound	Flag	A or P	Reason
MW-4-2	Phenol	UJ (all non-detects)	P	Internal standards (%R)
	Bis(2-chloroethyl)ether	UJ (all non-detects)		
	2-Chlorophenol	UJ (all non-detects)		
	1,3-Dichlorobenzene	UJ (all non-detects)		
	1,4-Dichlorobenzene	UJ (all non-detects)		
	1,2-Dichlorobenzene	UJ (all non-detects)		
	2-Methylphenol	UJ (all non-detects)		
	Bis(2-chloroisopropyl)ether	UJ (all non-detects)		
	3+4-Methylphenol	UJ (all non-detects)		
	N-Nitroso-d-n-propylamine	UJ (all non-detects)		
	Hexachoroethane	UJ (all non-detects)		
	Benzyl alcohol	UJ (all non-detects)		
	Aniline	UJ (all non-detects)		
	N-Nitrosodimethylamine	UJ (all non-detects)		
	Pyridine	UJ (all non-detects)		
	2-Picoline	UJ (all non-detects)		
	N-Nitrosomethylethylamine	UJ (all non-detects)		
	Methyl methanesulfonate	UJ (all non-detects)		
	N-Nitrosodiethylamine	UJ (all non-detects)		
	N-Nitrosomorpholine	UJ (all non-detects)		
	Ethyl methanesulfonate	UJ (all non-detects)		
	2-Toluidine	UJ (all non-detects)		
	Acetophenone	UJ (all non-detects)		
	Ethyl Methacrylate	UJ (all non-detects)		
	Pentachloroethane	UJ (all non-detects)		
	N-Nitrosopyrrolidine	UJ (all non-detects)		
	a,a-Dimethylphenethylamine	UJ (all non-detects)		
	Methyl methacrylate	UJ (all non-detects)		

NASA JPL, 2Q2017
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG 17-11226

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/8/2017 3:04:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-8270C

MW-4-2

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-03	File ID:	09MAY21.D
Sampled:	04/26/17 08:30	Prepared:	04/28/17 12:00	Analyzed:	05/09/17 23:02
Solids:		Preparation:	EPA 3510B	Initial/Final:	1000 ml / 0.97 ml
Batch:	B[E0320	Sequence:	1708156	Calibration:	1705021
Instrument:	MS-B1				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
83-32-9	Acenaphthene	0.97	0.40	U
208-96-8	Acenaphthylene	0.97	0.34	U
309-00-2	Aldrin	0.97	0.45	U
62-53-3	Aniline	0.97	0.71	U UJ
120-12-7	Anthracene	0.97	0.32	U
92-87-5	Benzidine	0.97	2.7	U UJ
56-55-3	Benzo[a]anthracene	0.97	0.37	U
205-99-2	Benzo[b]fluoranthene	0.97	0.88	U
207-08-9	Benzo[k]fluoranthene	0.97	0.96	U
50-32-8	Benzo[a]pyrene	0.97	0.87	U
191-24-2	Benzo[g,h,i]perylene	0.97	1.2	U
65-85-0	Benzoic acid	0.97	2.0	U
100-51-6	Benzyl alcohol	0.97	0.44	U UJ
85-68-7	Benzyl butyl phthalate	0.97	0.77	U
319-84-6	alpha-BHC	0.97	1.8	U
319-85-7	beta-BHC	0.97	1.4	U
319-86-8	delta-BHC	0.97	1.8	U
58-89-9	gamma-BHC (Lindane)	0.97	1.2	U
111-91-1	bis(2-Chloroethoxy)methane	0.97	0.45	U
111-44-4	bis(2-Chloroethyl) ether	0.97	0.86	U UJ
39638-32-9	bis(2-Chloroisopropyl)ether	0.97	0.58	U UJ
117-81-7	bis(2-Ethylhexyl)phthalate	0.97	0.67	U
101-55-3	4-Bromophenyl phenyl ether	0.97	0.42	U
106-47-8	4-Chloroaniline	0.97	0.40	U
91-58-7	2-Chloronaphthalene	0.97	0.34	U
7005-72-3	4-Chlorophenyl phenyl ether	0.97	0.46	U
218-01-9	Chrysene	0.97	0.42	U
72-54-8	4,4'-DDD	0.97	0.74	U
72-55-9	4,4'-DDE	0.97	1.2	U
50-29-3	4,4'-DDT	0.97	1.1	U
53-70-3	Dibenzo[a,h]anthracene	0.97	1.6	U
132-64-9	Dibenzofuran	0.97	0.32	U

6/30/17 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/8/2017 3:04:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-8270C

MW-4-2

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-03	File ID:	09MAY21.D
Sampled:	04/26/17 08:30	Prepared:	04/28/17 12:00	Analyzed:	05/09/17 23:02
Solids:		Preparation:	EPA 3510B	Initial/Final:	1000 ml / 0.97 ml
Batch:	BJE0320	Sequence: 1708156	Calibration:	1705021	Instrument: MS-B1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
95-50-1	1,2-Dichlorobenzene	0.97	0.39	U UJ
541-73-1	1,3-Dichlorobenzene	0.97	0.50	U
106-46-7	1,4-Dichlorobenzene	0.97	0.55	U
91-94-1	3,3-Dichlorobenzidine	0.97	0.65	U
60-57-1	Dieldrin	0.97	0.68	U
84-66-2	Diethyl phthalate	0.97	0.35	U
131-11-3	Dimethyl phthalate	0.97	0.40	U
84-74-2	Di-n-butyl phthalate	0.97	0.33	U
121-14-2	2,4-Dinitrotoluene	0.97	0.75	U
606-20-2	2,6-Dinitrotoluene	0.97	0.56	U
117-84-0	Di-n-octyl phthalate	0.97	0.61	U
122-66-7	1,2-Diphenylhydrazine	0.97	0.43	U
959-98-8	Endosulfan I	0.97	3.2	U
33213-65-9	Endosulfan II	0.97	3.1	U
1031-07-8	Endosulfan sulfate	0.97	2.5	U
72-20-8	Endrin	0.97	1.4	U
7421-93-4	Endrin aldehyde	0.97	2.6	U UJ
206-44-0	Fluoranthene	0.97	0.61	U
86-73-7	Fluorene	0.97	0.54	U
76-44-8	Heptachlor	0.97	0.94	U
1024-57-3	Heptachlor epoxide	0.97	0.69	U
118-74-1	Hexachlorobenzene	0.97	0.48	U
87-68-3	Hexachlorobutadiene	0.97	0.48	U
77-47-4	Hexachlorocyclopentadiene	0.97	0.52	U
67-72-1	Hexachloroethane	0.97	0.90	U UJ
193-39-5	Indeno[1,2,3-cd]pyrene	0.97	1.2	U
78-59-1	Isophorone	0.97	0.31	U
91-57-6	2-Methylnaphthalene	0.97	0.38	U
91-20-3	Naphthalene	0.97	0.27	U
91-59-8	2-Naphthylamine	0.97	0.83	U
88-74-4	2-Nitroaniline	0.97	0.60	U
99-09-2	3-Nitroaniline	0.97	0.92	U

6/30/17 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/8/2017 3:04:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-8270C

MW-4-2

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-03	File ID:	09MAY21.D
Sampled:	04/26/17 08:30	Prepared:	04/28/17 12:00	Analyzed:	05/09/17 23:02
Solids:		Preparation:	EPA 3510B	Initial/Final:	1000 ml / 0.97 ml
Batch:	B[E0320	Sequence:	1708156	Calibration:	1705021
Instrument:	MS-B1				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
100-01-6	4-Nitroaniline	0.97	1.3	U
98-95-3	Nitrobenzene	0.97	0.37	U
62-75-9	N-Nitrosodimethylamine	0.97	1.2	U
621-64-7	N-Nitrosodi-N-propylamine	0.97	0.58	U
86-30-6	N-Nitrosodiphenylamine	0.97	0.57	U
85-01-8	Phenanthrene	0.97	0.50	U
129-00-0	Pyrene	0.97	0.45	U
120-82-1	1,2,4-Trichlorobenzene	0.97	0.87	U
59-50-7	4-Chloro-3-methylphenol	0.97	0.48	U
95-57-8	2-Chlorophenol	0.97	0.44	U
120-83-2	2,4-Dichlorophenol	0.97	0.63	U
105-67-9	2,4-Dimethylphenol	0.97	0.60	U
534-52-1	4,6-Dinitro-2-methylphenol	0.97	1.8	U
51-28-5	2,4-Dinitrophenol	0.97	2.5	U
95-48-7	2-Methylphenol	0.97	0.55	U
15831-10-4	3- & 4-Methylphenol	0.97	0.72	U
1319-77-3	Total Methylphenol	0.97	1.3	U
88-75-5	2-Nitrophenol	0.97	0.68	U
100-02-7	4-Nitrophenol	0.97	1.9	U
87-86-5	Pentachlorophenol	0.97	1.8	U
108-95-2	Phenol	0.97	0.49	U
95-95-4	2,4,5-Trichlorophenol	0.97	0.66	U
88-06-2	2,4,6-Trichlorophenol	0.97	0.51	U
98-86-2	Acetophenone	0.97	3.0	U
53-96-3	2-Acetylaminofluorene	0.97	0.38	U
6044-68-4	Acrolein, dimethyl acetal	0.97	7.7	U
92-67-1	4-Aminobiphenyl	0.97	5.2	U
140-57-8	Aramite	0.97	2.3	U
100-52-7	Benzaldehyde	0.97	0.98	U
1861-40-1	Benefin	0.97	0.88	U
92-52-4	1,1-Biphenyl	0.97	0.69	U
105-60-2	Caprolactam	0.97	0.61	U

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/8/2017 3:04:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-8270C

MW-4-2

Laboratory: BC Laboratories | SDG: 17-11226
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711226-03 | File ID: 09MAY21.D
Sampled: 04/26/17 08:30 | Prepared: 04/28/17 12:00 | Analyzed: 05/09/17 23:02
Solids: | Preparation: EPA 3510B | Initial/Final: 1000 ml / 0.97 ml
Batch: B[E0320 | Sequence: 1708156 | Calibration: 1705021 | Instrument: MS-B1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
86-74-8	Carbazole	0.97	0.36	U UJ
5103-71-9	cis-Chlordane	0.97	0.30	U
5103-74-2	trans-Chlordane	0.97	0.40	U
510-15-6	Chlorobenzilate	0.97	0.29	U
90-13-1	1-Chloronaphthalene	0.97	0.28	U
17708-57-5	cis-Diallate	0.97	0.21	U
17708-58-6	trans-Diallate	0.97	0.22	U
2303-16-4	Diallate	0.97	0.42	U
87-65-0	2,6-Dichlorophenol	0.97	1.3	U
60-51-5	Dimethoate	0.97	0.46	U UJ
60-11-7	p-(Dimethylamino)azobenzene	0.97	0.54	U
57-97-6	7,12-Dimethylbenz[a]anthracene	0.97	0.41	U
119-93-7	3,3'-Dimethylbenzidine	0.97	5.4	U
122-09-8	a,a-Dimethylphenethylamine	0.97	2.5	U UJ
67-68-5	Dimethyl sulfoxide (DMSO)	0.97	1.0	U
99-65-0	1,3-Dinitrobenzene	0.97	0.23	U UJ
88-85-7	Dinoseb	0.97	0.61	U UJ
122-39-4	Diphenylamine	0.97	0.20	U
298-04-4	Disulfoton	0.97	0.44	U
97-63-2	Ethyl methacrylate	0.97	0.19	U UJ
62-50-0	Ethyl methanesulfonate	0.97	0.26	U UJ
56-38-2	Ethyl Parathion	0.97	0.31	U
52-85-7	Famphur	0.97	8.3	U
70-30-4	Hexachlorophene	0.97	35	U
1888-71-7	Hexachloropropene	0.97	0.46	U
465-73-6	Isodrin	0.97	0.31	U
17627-76-8	cis-Isosafrole	0.97	0.41	U
4043-71-4	trans-Isosafrole	0.97	0.36	U
120-58-1	Isosafrole	0.97	0.76	U
143-50-0	Kepone	0.97	1.5	U
91-80-5	Methapyrilene	0.97	1.5	U UJ
72-43-5	Methoxychlor	0.97	0.82	U

6/30/17 D

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/8/2017 3:04:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-8270C

MW-4-2

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-03	File ID:	09MAY21.D
Sampled:	04/26/17 08:30	Prepared:	04/28/17 12:00	Analyzed:	05/09/17 23:02
Solids:		Preparation:	EPA 3510B	Initial/Final:	1000 ml / 0.97 ml
Batch:	BJE0320	Sequence: 1708156	Calibration:	1705021	Instrument: MS-B1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
56-49-5	3-Methylcholanthrene	0.97	0.56	U
80-62-6	Methyl methacrylate	0.97	22	U
66-27-3	Methyl methanesulfonate	0.97	0.42	U
90-12-0	1-Methylnaphthalene	0.97	0.41	U
298-00-0	Methyl parathion	0.97	0.32	U
872-50-4	N-Methyl-2-pyrrolidinone	0.97	1.6	U
130-15-4	1,4-Naphthoquinone	0.97	2.1	U
134-32-7	1-Naphthylamine	0.97	5.3	U
99-55-8	5-Nitro-o-toluidine	0.97	0.44	U
56-57-5	4-Nitroquinoline 1-oxide	0.97	12	U
924-16-3	N-Nitrosodibutylamine	0.97	0.41	U
55-18-5	N-Nitrosodiethylamine	0.97	0.43	U
10595-95-6	N-Nitrosomethylethylamine	0.97	0.37	U
59-89-2	N-Nitrosomorpholine	0.97	0.35	U
100-75-4	N-Nitrosopiperidine	0.97	0.44	U
930-55-2	N-Nitrosopyrrolidine	0.97	0.44	U
608-93-5	Pentachlorobenzene	0.97	0.25	U
76-01-7	Pentachloroethane	0.97	1.0	U
82-68-8	Pentachloronitrobenzene	0.97	0.30	U
62-44-2	Phenacetin	0.97	0.20	U
106-50-3	1,4-Phenylenediamine	0.97	2.2	U
298-02-2	Phorate	0.97	0.34	U
109-06-8	2-Picoline	0.97	0.23	U
12674-11-2	PCB-1016	0.97	25	U
11104-28-2	PCB-1221	0.97	25	U
11141-16-5	PCB-1232	0.97	25	U
53469-21-9	PCB-1242	0.97	25	U
12672-29-6	PCB-1248	0.97	25	U
11097-69-1	PCB-1254	0.97	25	U
11096-82-5	PCB-1260	0.97	25	U
37324-23-5	PCB-1262	0.97	25	U
11100-14-4	PCB-1268	0.97	25	U

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/8/2017 3:04:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-8270C

MW-4-2

Laboratory: BC Laboratories | SDG: 17-11226
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711226-03 | File ID: 09MAY21.D
Sampled: 04/26/17 08:30 | Prepared: 04/28/17 12:00 | Analyzed: 05/09/17 23:02
Solids: | Preparation: EPA 3510B | Initial/Final: 1000 ml / 0.97 ml
Batch: BJE0320 | Sequence: 1708156 | Calibration: 1705021 | Instrument: MS-B1

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
1336-36-3	Total PCB's (Summation)	0.97	25	U
7287-19-6	Prometryn	0.97	1.7	U
23950-58-5	Pronamide	0.97	0.29	U
108-65-6	Propyleneglycol monomethyl ether acetate	0.97	4.2	U
40487-42-1	Prowl	0.97	0.83	U
110-86-1	Pyridine	0.97	0.84	U UJ
94-59-7	Safrole	0.97	0.33	U
3689-24-5	Sulfotep	0.97	0.43	U
95-94-3	1,2,4,5-Tetrachlorobenzene	0.97	0.39	U
4901-51-3	2,3,4,5-Tetrachlorophenol	0.97	5.0	U
58-90-2	2,3,4,6-Tetrachlorophenol	0.97	4.7	U UJ
297-97-2	Thionazin	0.97	0.21	U
95-53-4	2-Toluidine	0.97	0.49	U UJ
8001-35-2	Toxaphene	0.97	50	U
126-68-1	o,o,o-Triethylphosphorothioate	0.97	0.42	U
99-35-4	1,3,5-Trinitrobenzene	0.97	0.30	U
126-11-4	Tris(hydroxymethyl)nitromethane	0.97	5.0	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
2-Fluorophenol (Surrogate)	40.000	21.340	53.4	30 - 120	
Phenol-d5 (Surrogate)	40.000	20.962	52.4	12 - 110	
Nitrobenzene-d5 (Surrogate)	40.000	40.672	102	50 - 130	
2-Fluorobiphenyl (Surrogate)	40.000	46.977	117	55 - 125	
2,4,6-Tribromophenol (Surrogate)	40.000	27.868	69.7	40 - 150	
p-Terphenyl-d14 (Surrogate)	20.000	15.976	79.9	40 - 150	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Phenanthrene-d10 (IS)	856390	10	1330953	10.01	
Chrysene-d12 (IS)	534924	13.5	819643	13.51	
Acenaphthene-d10 (IS)	501801	8.55	881570	8.56	
1,4-Dichlorobenzene-d4 (IS)	271953	5.61	551611	5.62	*
Perylene-d12 (IS)	482506	15.71	818257	15.73	
Naphthalene-d8 (IS)	961202	6.84	1825580	6.85	

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/8/2017 3:04:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-8270C

MW-4-2

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-03	File ID:	09MAY21.D
Sampled:	04/26/17 08:30	Prepared:	04/28/17 12:00	Analyzed:	05/09/17 23:02
Solids:		Preparation:	EPA 3510B	Initial/Final:	1000 ml / 0.97 ml
Batch:	B[E0320	Sequence:	1708156	Calibration:	1705021
Instrument:	MS-B1				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
591-08-2	1-Acetyl-2-thiourea	0.97		U
117-79-3	2-Aminoanthraquinone	0.97		U
132-32-1	3-Amino-9-ethylcarbazole	0.97		U
101-05-3	Anilazine	0.97		U
90-04-0	o-Anisidine	0.97		U
86-50-0	Azinphos methyl	0.97		U
101-27-9	Barban	0.97		U
106-51-4	p-Benzoquinone	0.97		U
1689-84-5	Bromoxynil	0.97		U
2939-80-2	Captafol	0.97		U
133-06-2	Captan	0.97		U
63-25-2	Carbaryl	0.97		U
1563-66-2	Carbofuran	0.97		U
786-19-6	Carbophenothion	0.97		U
470-90-6	Chlorfenvinphos	0.97		U
95-79-4	5-Chloro-2-methylaniline	0.97		U
6959-48-4	3-(Chloromethyl) pyridine hydrochloride	0.97		U
95-83-0	4-Chloro-1,2-phenylenediamine	0.97		U
5131-60-2	4-Chloro-1,3-phenylenediamine	0.97		U
56-72-4	Coumaphos	0.97		U
120-71-8	p-Cresidine	0.97		U
7700-17-6	Crotoxyphos	0.97		U
131-89-5	2-Cyclohexyl-4,6-dinitrophenol	0.97		U
298-03-3	Demeton-O	0.97		U
126-75-0	Demeton-S	0.97		U
95-80-7	2,4-Diaminotoluene	0.97		U
224-42-0	Dibenz[a,j]acridine	0.97		U
192-65-4	Dibenzo[a,e]pyrene	0.97		U
96-12-8	1,2-Dibromo-3-chloropropane	0.97		U
117-80-6	Dichlone	0.97		U
62-73-7	Dichlorvos	0.97		U
141-66-2	Dicrotophos	0.97		U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/8/2017 3:04:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-8270C

MW-4-2

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-03	File ID:	09MAY21.D
Sampled:	04/26/17 08:30	Prepared:	04/28/17 12:00	Analyzed:	05/09/17 23:02
Solids:		Preparation:	EPA 3510B	Initial/Final:	1000 ml / 0.97 ml
Batch:	B[E0320	Sequence:	1708156	Calibration:	1705021
Instrument:	MS-B1				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
56-53-1	Diethylstilbestrol	0.97		U
64-67-5	Diethyl sulfate	0.97		U
94-58-6	Dihydrosafrole	0.97		U
119-90-4	3,3'-Dimethoxybenzidine	0.97		U
528-29-0	1,2-Dinitrobenzene	0.97		U
100-25-4	1,4-Dinitrobenzene	0.97		U
39300-45-3	Dinocap	0.97		U
78-34-2	Dioxathion	0.97		U
57-41-0	5,5-Diphenylhydantoin	0.97		U
53494-70-5	Endrin ketone	0.97		U
2104-64-5	EPN	0.97		U
563-12-2	Ethion	0.97		U
51-79-6	Ethyl carbamate	0.97		U
115-90-2	Fensulfothion	0.97		U
55-38-9	Fenthion	0.97		U
33245-39-5	Fluchloralin	0.97		U
680-31-9	Hexamethylphosphoramide	0.97		U
123-31-9	Hydroquinone	0.97		U
21609-90-5	Leptophos	0.97		U
121-75-5	Malathion	0.97		U
108-31-6	Maleic Anhydride	0.97		U
72-33-3	Mestranol	0.97		U
101-14-4	4,4'-Methylenebis(2-chloroaniline)	0.97		U
101-61-1	4,4'-Methylenebis[N,N-dimethylaniline]	0.97		U
7786-34-7	Mevinphos	0.97		U
315-18-4	Mexacarbate	0.97		U
2385-85-5	Mirex	0.97		U
6923-22-4	Monocrotophos	0.97		U
300-76-5	Naled	0.97		U
54-11-5	Nicotine	0.97		U
602-87-9	5-Nitroacenaphthene	0.97		U
99-59-2	5-Nitro-o-anisidine	0.97		U

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/8/2017 3:04:06PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-8270C

MW-4-2

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-03	File ID:	09MAY21.D
Sampled:	04/26/17 08:30	Prepared:	04/28/17 12:00	Analyzed:	05/09/17 23:02
Solids:		Preparation:	EPA 3510B	Initial/Final:	1000 ml / 0.97 ml
Batch:	B[E0320	Sequence:	1708156	Calibration:	1705021
Instrument:	MS-B1				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
92-93-3	4-Nitrobiphenyl	0.97		U
1836-75-5	Nitrophen	0.97		U
152-16-9	Octamethylpyrophosphoramide	0.97		U
101-80-4	4,4'-Oxydianiline	0.97		U
50-06-6	Phenobarbital	0.97		U
2310-17-0	Phosalone	0.97		U
732-11-6	Phosmet	0.97		U
13171-21-6	Phosphamidon	0.97		U
85-44-9	Phthalic anhydride	0.97		U
120-62-7	Piperonyl sulfoxide	0.97		U
51-52-5	Propylthiouracil	0.97		U
108-46-3	Resorcinol	0.97		U
57-24-9	Strychnine	0.97		U
95-06-7	Sulfallate	0.97		U
13071-79-9	Terbufos	0.97		U
961-11-5	Tetrachlorvinphos	0.97		U
107-49-3	TEPP	0.97		U
108-98-5	Thiophenol (Benzenethiol)	0.97		U
584-84-9	Toluene 2,4-diisocyanate	0.97		U
1582-09-8	Trifluralin	0.97		U
137-17-7	2,4,5-Trimethylaniline	0.97		U
512-56-1	Trimethyl phosphate	0.97		U
126-72-7	Tris(2,3-dibromopropyl) phosphate	0.97		U
78-32-0	Tri-p-tolyl phosphate	0.97		U

* Values outside of QC limits

6/30/17

LDC #: 38888A2a

SDG #: 17-11226

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III

Date: 6/30/17

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

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

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

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	SW	RSD ≤ 30/15%. r² ICV ≤ 20%
IV.	Continuing calibration	SW	CCV ≤ 20%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	SW	
VIII.	Matrix spike/Matrix spike duplicates	N	CS
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	N	
XI.	Internal standards	SW	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

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

	Client ID	Lab ID	Matrix	Date
1	MW-4-2	1711226-03	Water	04/26/17
2				
3				
4				
5				
6				
7				
8				

Notes:

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	AA. 2-Chloronaphthalene	AAA. Butylbenzylphthalate	AAAA. Dibenzothiophene	A1. N-Nitrosodiethylamine
B. Bis (2-chloroethyl) ether	BB. 2-Nitroaniline	BBB. 3,3'-Dichlorobenzidine	BBBB. Benzo(a)fluoranthene	B1. N-Nitrosodi-n-butylamine
C. 2-Chlorophenol	CC. Dimethylphthalate	CCC. Benzo(a)anthracene	CCCC. Benzo(b)fluorene	C1. N-Nitrosomethylethylamine
D. 1,3-Dichlorobenzene	DD. Acenaphthylene	DDD. Chrysene	DDDD. cis/trans-Decalin	D1. N-Nitrosomorpholine
E. 1,4-Dichlorobenzene	EE. 2,6-Dinitrotoluene	EEE. Bis(2-ethylhexyl)phthalate	EEEE. Biphenyl	E1. N-Nitrosopyrrolidine
F. 1,2-Dichlorobenzene	FF. 3-Nitroaniline	FFF. Di-n-octylphthalate	FFFF. Retene	F1. Phenacetin
G. 2-Methylphenol	GG. Acenaphthene	GGG. Benzo(b)fluoranthene	GGGG. C30-Hopane	G1. 2-Acetylaminofluorene
H. 2,2'-Oxybis(1-chloropropane)	HH. 2,4-Dinitrophenol	HHH. Benzo(k)fluoranthene	HHHH. 1-Methylphenanthrene	H1. Pronamide
I. 4-Methylphenol	II. 4-Nitrophenol	III. Benzo(a)pyrene	IIII. 1,4-Dioxane	I1. Methyl methanesulfonate
J. N-Nitroso-di-n-propylamine	JJ. Dibenzofuran	JJJ. Indeno(1,2,3-cd)pyrene	JJJJ. Acetophenone	J1. Ethyl methanesulfonate
K. Hexachloroethane	KK. 2,4-Dinitrotoluene	KKK. Dibenz(a,h)anthracene	KKKK. Atrazine	K1. o,o',o''-Triethylphosphorothioate
L. Nitrobenzene	LL. Diethylphthalate	LLL. Benzo(g,h,i)perylene	LLLL. Benzaldehyde	L1. n-Phenylene diamine
M. Isophorone	MM. 4-Chlorophenyl-phenyl ether	MMM. Bis(2-Chloroisopropyl)ether	MMMM. Caprolactam	M1. 1,4-Naphthoquinone
N. 2-Nitrophenol	NN. Fluorene	NNN. Aniline	NNNN. 2,6-Dichlorophenol	N1. N-Nitro-o-toluidine
O. 2,4-Dimethylphenol	OO. 4-Nitroaniline	OOO. N-Nitrosodimethylamine	OOOO. 1,2-Diphenylhydrazine	O1. 1,3,5-Trinitrobenzene
P. Bis(2-chloroethoxy)methane	PP. 4,6-Dinitro-2-methylphenol	PPP. Benzoic Acid	PPPP. 3-Methylphenol	P1. Pentachlorobenzene
Q. 2,4-Dichlorophenol	QQ. N-Nitrosodiphenylamine	QQQ. Benzyl alcohol	QQQQ. 3&4-Methylphenol	Q1. 4-Aminobiphenyl
R. 1,2,4-Trichlorobenzene	RR. 4-Bromophenyl-phenylether	RRR. Pyridine	RRRR. 4-Dimethyldibenzothiophene (4MDT)	R1. 2-Naphthylamine
S. Naphthalene	SS. Hexachlorobenzene	SSS. Benzidine	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	S1.
T. 4-Chloroaniline	TT. Pentachlorophenol	TTT. 1-Methylnaphthalene	TTTT. 1-Methyldibenzothiophene (1MDT)	T1.
U. Hexachlorobutadiene	UU. Phenanthrene	UUU.Benzo(b)thiophene	UUUU.. 2,3,4,6-Tetrachlorophenol	U1.
V. 4-Chloro-3-methylphenol	VV. Anthracene	VVV.Benzonaphthothiophene	VVVV. 1,2,4,5-Tetrachlorobenzene	V1.
W. 2-Methylnaphthalene	WW. Carbazole	WWW.Benzo(e)pyrene	WWWW.. 2-Picoline	W1.
X. Hexachlorocyclopentadiene	XX. Di-n-butylphthalate	XXX. 2,6-Dimethylnaphthalene	XXXX. 3-Methylcholanthrene	X1.
Y. 2,4,6-Trichlorophenol	YY. Fluoranthene	YYY. 2,3,5-Trimethylnaphthalene	YYYY. a,a-Dimethylphenethylamine	Y1.
Z. 2,4,5-Trichlorophenol	ZZ. Pyrene	ZZZ. Perylene	ZZZZ. Hexachloropropene	Z1.

LDC #: 38888A29

VALIDATION FINDINGS WORKSHEET
Initial Calibration

Page: 1 of 1
Reviewer: 9
2nd Reviewer: JG

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

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

Y N N/A Did the laboratory conduct an acceptable 5 point calibration prior to sample analysis?
Y N N/A Were percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCC's and SPCC's?
Y N N/A Was a curve fit used for evaluation? If yes, what was the acceptance criteria used for evaluation?_____
Y N N/A Did the initial calibration meet the acceptance criteria?
Y N N/A Were all %RSDs and RRFs within the validation criteria of ≤30/15 %RSD and ≥0.05 RRF ?

#	Date	Standard ID	Compound	Finding %RSD (Limit: ≤30.0/15%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
	3/8/17	ICAL	SSS	r^2=0.989853		All (ND)	J/UJ/A

INICAL.2S

LDC #: 38888A29

VALIDATION FINDINGS WORKSHEET
Initial Calibration Verification

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

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

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

Y N N/A Was an initial calibration verification standard analyzed after each ICAL for each instrument?

Y N N/A Were all %D within the validation criteria of ≤30 %D ?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0%)	Associated Samples	Qualifications
	5/8/17	08MAY21	SSS	60.6	All (ND)	J/UJ/A
			MMM	27.5		
			endrin aldehyde	20.9		
	5/8/17	08MAY22	Dimethoate	26.5	All (ND)	J/UJ/A
			methapyrilene	26.9		

ICVsvoa_8270D.wpd

LDC #: 38888A29

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

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

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

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

(Y) N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y (N) N/A Were percent differences (%D) ≤20 % and relative response factors (RRF) within the method criteria?

#	Date	Standard ID	Compound	Finding %D (Limit: <20.0%)	Finding RRF (Limit)	Associated Samples	Qualifications
	5/9/17	09MAX12	SSS	54.2		All (ND)	J/UJ/A
			QQQ	44.2			
			MMM	30.2			
			Endrin aldehyde	22.4			
			J	20.1			
			G	24.7			
			WW	22.2			
	5/9/17	09MAX13	NNN	27.4		All (ND)	J/UJ/A
			2-Acetylaminofluorene	43.2			
			Aramite	30.2			
			1,3-Dinitrobenzene	27.2			
			Dinoseb	42.5			
			J1	22.9			
			I1	33.1			
			M1	24.1			
			1-Naphthylamine	26.7			
			4-Nitroquinoline-1-oxide	53.7			
			B1	35.9			
			D1	55.6			
			E1	64.2			
			1,4-Phenylenediamine	61.7			
			UUUU	26.8			

LDC #: 38888A29

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Reviewer: Q
2nd Reviewer: JVG

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

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

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

#	Date	Sample ID	Surrogate	%R (Limits)	Qualifications
		B1E0320-BK1	FBP	142 (55-125)	No qual
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
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				( )	
				( )	
				( )	

(NBZ) = Nitrobenzene-d5
(FBP) = 2-Fluorobiphenyl
(TPH) = Terphenyl-d14
(PHL) = Phenol-d5

(2FP)= 2-Fluorophenol
(TBP) = 2,4,6-Tribromophenol
(2CP) = 2-Chlorophenol-d4
(DCB) = 1,2-Dichlorobenzene-d4

LDC #: 38888A29

VALIDATION FINDINGS WORKSHEET
Internal Standards

Page: 1 of 1
Reviewer: 9
2nd Reviewer: JG

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

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

Y (N) N/A Were all internal standard area counts within -50 to +100 of the associated calibration standard?

(Y) N N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
		1	DCB	271953 (75805.5 - 1103222)		J (ND)

(DCB) = 1,4-Dichlorobenzene-d4
(NPT) = Naphthalene-d8
(ANT) = Acenaphthene-d10
(PHN) = Phenanthrene-d10
(CRY) = Chrysene-d12
(PRY) = Perylene-d12

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2017

LDC Report Date: June 28, 2017

Parameters: 1,4-Dioxane

Validation Level: Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 17-11226

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-4-1	1711226-02	Water	04/26/17

Introduction

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

The analyses were performed by the following method:

1,4-Dioxane by Environmental Protection Agency (EPA) SW 846 Method 8270D

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

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

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

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

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

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

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

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

I. Sample Receipt and Technical Holding Times

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

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

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

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

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

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

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

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

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

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

NASA JPL, 2Q2017
1,4-Dioxane - Data Qualification Summary - SDG 17-11226

No Sample Data Qualified in this SDG

NASA JPL, 2Q2017
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 17-11226

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 2:55:54PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-8270D

MW-4-1

Laboratory:	BC Laboratories		SDG:	17-11226	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711226-02	File ID:	03MAY015.D
Sampled:	04/26/17 12:45	Prepared:	05/01/17 07:30	Analyzed:	05/03/17 14:50
Solids:		Preparation:	EPA 3510B	Initial/Final:	1000 ml / 0.99 ml
Batch:	BIE0312	Sequence:	1707813	Calibration:	1705002	Instrument:	MS-B4

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
123-91-1	1,4-Dioxane	0.99	0.10	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Naphthalene-d8 (Surrogate)	40.000	42.263	106	70 - 130	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
1,4-Dioxane-d8 (IS)	449052	3.13	644930	3.14	

* Values outside of QC limits

4/30/17

LDC #: 38888A2c **VALIDATION COMPLETENESS WORKSHEET** Date: 6/20/17
SDG #: 17-11226 Level III Page: 1 of 1
Laboratory: BC Laboratories, Inc. Reviewer: Q
2nd Reviewer: JNE

METHOD: GC/MS 1,4-Dioxane (EPA SW846 Method 8270C)

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

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	RSD ≤ 15%, ICV ≤ 20%
IV.	Continuing calibration	A	CCV ≤ 20%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	ES
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

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

	Client ID	Lab ID	Matrix	Date
1	MW-4-1	1711226-02	Water	04/26/17
2				
3				
4				
5				
6				
7				
8				

Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2017

LDC Report Date: June 29, 2017

Parameters: Metals

Validation Level: Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 17-11226

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-4-1	1711226-02	Water	04/26/17
MW-4-2	1711226-03	Water	04/26/17
MW-4-3	1711226-04	Water	04/26/17
MW-4-4	1711226-05	Water	04/26/17
MW-4-5	1711226-06	Water	04/26/17
MW-21-1	1711226-07	Water	04/26/17
MW-21-2**	1711226-08**	Water	04/26/17
MW-21-3	1711226-09	Water	04/26/17
MW-21-5	1711226-10	Water	04/26/17
EB-7-042617	1711226-11	Water	04/26/17
MW-4-1MS	1711226-02MS	Water	04/26/17
MW-4-1MSD	1711226-02MSD	Water	04/26/17
MW-4-1DUP	1711226-02DUP	Water	04/26/17
MW-21-2MS	1711226-08MS	Water	04/26/17
MW-21-2MSD	1711226-08MSD	Water	04/26/17
MW-21-2DUP	1711226-08DUP	Water	04/26/17

**Indicates sample underwent Level IV validation

Introduction

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

The analyses were performed by the following methods:

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

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

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

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

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

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

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

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

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

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. ICPMS Tune

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

III. Instrument Calibration

Initial and continuing calibrations were performed as required by the methods.

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

IV. ICP Interference Check Sample Analysis

ICP interference check sample analyses were not required by the methods.

V. Laboratory Blanks

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

VI. Field Blanks

Sample EB-6-042517 was identified as an equipment blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-7-042617	Calcium Magnesium	0.023 mg/L 0.022 mg/L

VII. Matrix Spike/Matrix Spike Duplicates

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

VIII. Duplicate Sample Analysis

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

IX. Serial Dilution

Serial dilution analysis was performed on an associated project sample. Percent differences (%D) were within QC limits.

X. Laboratory Control Samples

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

XI. Field Duplicates

No field duplicates were identified in this SDG.

XII. Internal Standards (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIII. Sample Result Verification

All sample result verifications were acceptable for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIV. Overall Assessment of Data

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

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

NASA JPL, 2Q2017
Metals - Data Qualification Summary - SDG 17-11226

No Sample Data Qualified in this SDG

NASA JPL, 2Q2017
Metals - Laboratory Blank Data Qualification Summary - SDG 17-11226

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-4-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-02
File ID: PE2_170504-146
Sampled: 04/26/17 12:45
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 18:41
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	73	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	24	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	21	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.5	1		EPA-200.7

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-4-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-03
File ID: PE2_170504-152
Sampled: 04/26/17 08:30
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 18:57
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
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	51	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	38	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.2	1		EPA-200.7

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-4-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-04
File ID: PE2_170504-156
Sampled: 04/26/17 12:15
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 19:06
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
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	51	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	38	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.3	1		EPA-200.7

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-4-4

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-05
File ID: PE2_170504-157
Sampled: 04/26/17 11:50
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 19:09
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	120	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	51	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	38	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.2	1		EPA-200.7

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-4-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-06
File ID: PE2_170504-158
Sampled: 04/26/17 11:25
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 19:12
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
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	52	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	38	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.3	1		EPA-200.7

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-21-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-07
File ID: PE2_170504-159
Sampled: 04/26/17 15:50
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 19:14
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	86	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	27	1		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

6/20/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-21-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-08
File ID: PE2_170504-160
Sampled: 04/26/17 15:30
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 19:17
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	160	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	54	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	56	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.1	1		EPA-200.7

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-21-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-09
File ID: PE2_170504-161
Sampled: 04/26/17 15:10
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 19:19
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	140	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	46	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	56	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.6	1		EPA-200.7

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-21-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-10
File ID: PE2_170504-162
Sampled: 04/26/17 14:45
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 19:22
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	87	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	29	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	36	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.6	1		EPA-200.7

6/20/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

EB-7-042617

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-11
File ID: PE2_170504-163
Sampled: 04/26/17 16:10
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 19:25
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.023	1	J	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.022	1	J	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.051	1	U	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-02
File ID: PE_EL2_170501-207
Sampled: 04/26/17 12:45
Prepared: 05/01/17 11:30
Analyzed: 05/01/17 23:01
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0124
Sequence: 1707506
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
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-02
File ID: PE_EL2_170502-091
Sampled: 04/26/17 12:45
Prepared: 05/01/17 11:30
Analyzed: 05/02/17 13:00
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0124
Sequence: 1707558
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

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-03
File ID: PE_EL2_170501-208
Sampled: 04/26/17 08:30
Prepared: 05/01/17 11:30
Analyzed: 05/01/17 23:05
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0124
Sequence: 1707506
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	1.7	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-03
File ID: PE_EL2_170502-092
Sampled: 04/26/17 08:30
Prepared: 05/01/17 11:30
Analyzed: 05/02/17 13:04
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0124
Sequence: 1707558
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

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-04
File ID: PE_EL2_170501-209
Sampled: 04/26/17 12:15
Prepared: 05/01/17 11:30
Analyzed: 05/01/17 23:08
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BJE0124
Sequence: 1707506
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	55	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.11	1	J	EPA-200.8

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-04
File ID: PE_EL2_170502-093
Sampled: 04/26/17 12:15
Prepared: 05/01/17 11:30
Analyzed: 05/02/17 13:07
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0124
Sequence: 1707558
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

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-4

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-05
File ID: PE_EL2_170501-210
Sampled: 04/26/17 11:50
Prepared: 05/01/17 11:30
Analyzed: 05/01/17 23:12
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0124
Sequence: 1707506
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
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-4

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-05
File ID: PE_EL2_170502-094
Sampled: 04/26/17 11:50
Prepared: 05/01/17 11:30
Analyzed: 05/02/17 13:11
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0124
Sequence: 1707558
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

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-06
File ID: PE_EL2_170501-211
Sampled: 04/26/17 11:25
Prepared: 05/01/17 11:30
Analyzed: 05/01/17 23:15
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0124
Sequence: 1707506
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
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-4-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-06
File ID: PE_EL2_170502-095
Sampled: 04/26/17 11:25
Prepared: 05/01/17 11:30
Analyzed: 05/02/17 13:14
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BJE0124
Sequence: 1707558
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

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-21-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-07
File ID: PE_EL2_170501-212
Sampled: 04/26/17 15:50
Prepared: 05/01/17 11:30
Analyzed: 05/01/17 23:19
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0124
Sequence: 1707506
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
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

Tidewater Inc.
3761 Attucks Drive
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Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-21-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-07
File ID: PE_EL2_170502-096
Sampled: 04/26/17 15:50
Prepared: 05/01/17 11:30
Analyzed: 05/02/17 13:18
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BJE0124
Sequence: 1707558
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

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-21-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-08
File ID: PE_EL2_170501-197
Sampled: 04/26/17 15:30
Prepared: 05/01/17 11:30
Analyzed: 05/01/17 22:27
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0124
Sequence: 1707506
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
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-21-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-08
File ID: PE_EL2_170502-081
Sampled: 04/26/17 15:30
Prepared: 05/01/17 11:30
Analyzed: 05/02/17 12:23
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0124
Sequence: 1707558
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

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-21-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-09
File ID: PE_EL2_170501-213
Sampled: 04/26/17 15:10
Prepared: 05/01/17 11:30
Analyzed: 05/01/17 23:22
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BIE0124
Sequence: 1707506
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
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-21-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-09
File ID: PE_EL2_170502-097
Sampled: 04/26/17 15:10
Prepared: 05/01/17 11:30
Analyzed: 05/02/17 13:21
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0124
Sequence: 1707558
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

6/30/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-21-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-10
File ID: PE_EL2_170501-214
Sampled: 04/26/17 14:45
Prepared: 05/01/17 11:30
Analyzed: 05/01/17 23:25
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0124
Sequence: 1707506
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
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/30/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-21-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-10
File ID: PE_EL2_170502-098
Sampled: 04/26/17 14:45
Prepared: 05/01/17 11:30
Analyzed: 05/02/17 13:24
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0124
Sequence: 1707558
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

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

EB-7-042617

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-11
File ID: PE_EL2_170501-215
Sampled: 04/26/17 16:10
Prepared: 05/01/17 11:30
Analyzed: 05/01/17 23:29
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0124
Sequence: 1707506
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
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

EB-7-042617

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-11
File ID: PE_EL2_170502-099
Sampled: 04/26/17 16:10
Prepared: 05/01/17 11:30
Analyzed: 05/02/17 13:28
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0124
Sequence: 1707558
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

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-4-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-02
File ID: PE2_170504-146
Sampled: 04/26/17 12:45
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 18:41
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
Calibration: UNASSIGNED
Instrument: PE-OP2

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

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-4-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-03
File ID: PE2_170504-152
Sampled: 04/26/17 08:30
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 18:57
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	1000	1		EPA-200.7

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-4-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-04
File ID: PE2_170504-156
Sampled: 04/26/17 12:15
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 19:06
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	45000	1		EPA-200.7

6/30/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-4-4

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-05
File ID: PE2_170504-157
Sampled: 04/26/17 11:50
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 19:09
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	10000	1		EPA-200.7

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-4-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-06
File ID: PE2_170504-158
Sampled: 04/26/17 11:25
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 19:12
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	4100	1		EPA-200.7

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-21-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-07
File ID: PE2_170504-159
Sampled: 04/26/17 15:50
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 19:14
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	150	1		EPA-200.7

4/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-21-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-08
File ID: PE2_170504-160
Sampled: 04/26/17 15:30
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 19:17
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	150	1		EPA-200.7

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-21-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-09
File ID: PE2_170504-161
Sampled: 04/26/17 15:10
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 19:19
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	190	1		EPA-200.7

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-21-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-10
File ID: PE2_170504-162
Sampled: 04/26/17 14:45
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 19:22
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0345
Sequence: 1707832
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	240	1		EPA-200.7

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:07:49PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

EB-7-042617

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-11
File ID: PE2_170504-163
Sampled: 04/26/17 16:10
Prepared: 05/03/17 11:00
Analyzed: 05/04/17 19:25
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BJE0345
Sequence: 1707832
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	30	1	U	EPA-200.7

6/30/17

LDC #: 38888A4a

SDG #: 17-11226

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 06/28/17

Page: 1 of 2

Reviewer: ATC

2nd Reviewer:

METHOD: Metals (EPA Method 200.7/200.8)

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

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	SW A	
VI.	Field Blanks	SW	10 = EB
VII.	Matrix Spike/Matrix Spike Duplicates	A	
VIII.	Duplicate sample analysis	A	
IX.	Serial Dilution	A	
X.	Laboratory control samples	A	LCS
XI.	Field Duplicates	N	
XII.	Internal Standard (ICP-MS)	A	
XIII.	Sample Result Verification	A	Not reviewed for Level III validation.
XIV.	Overall Assessment of Data	A	

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

** Indicates sample was underwent Level IV review

	Client ID	Lab ID	Matrix	Date
1	MW-4-1	1711226-02	Water	04/26/17
2	MW-4-2	1711226-03	Water	04/26/17
3	MW-4-3	1711226-04	Water	04/26/17
4	MW-4-4	1711226-05	Water	04/26/17
5	MW-4-5	1711226-06	Water	04/26/17
6	MW-21-1	1711226-07	Water	04/26/17
7	MW-21-2**	1711226-08**	Water	04/26/17
8	MW-21-3	1711226-09	Water	04/26/17
9	MW-21-5	1711226-10	Water	04/26/17
10	EB-7-042617	1711226-11	Water	04/26/17
11	MW-4-1MS	1711226-02MS	Water	04/26/17
12	MW-4-1MSD	1711226-02MSD	Water	04/26/17
13	MW-4-1DUP	1711226-02DUP	Water	04/26/17
14	MW-21-2MS	1711226-08MS	Water	04/26/17
15	MW-21-2MSD	1711226-08MSD	Water	04/26/17

LDC #: 38888A4a

SDG #: 17-11226

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 06/28/17

Page: 2 of 2

Reviewer: ATL

2nd Reviewer:

METHOD: Metals (EPA Method 200.7/200.8)

	Client ID	Lab ID	Matrix	Date
16	MW-21-2DUP	1711226-08DUP	Water	04/26/17
17				
18				
19				
20				
21				

Notes:

LDC #: 38888A4a

VALIDATION FINDINGS CHECKLIST

Reviewer: ATL
2nd Reviewer: a

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

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution ≤5%?	✓			
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were the low standard checks within 70-130%			✓	
Were all initial calibration correlation coefficients within limits as specified by the method?			✓	
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were ≤ 5X the RL.	✓			
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

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

LDC #: 38888A4a

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

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

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1->10	W	Al, Sb, (As), Ba, Be, Cd, (Ca), (Cr), Co, Cu, (Fe), (Pb), (Mg), Mn, Hg, Ni, (K), Se, Ag, (Na), Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
QC		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
13, 11, 12	W	Al, Sb, As, Ba, Be, Cd, (Ca), Cr, Co, Cu, (Fe), Pb, (Mg), Mn, Hg, Ni, (K), Se, Ag, (Na), Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
14, 15, 16	↓	Al, Sb, (As), Ba, Be, Cd, Ca, (Cr), Co, Cu, Fe, (Pb), Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
Analysis Method		
ICP	1->10	Al, Sb, As, Ba, Be, Cd, (Ca), Cr, Co, Cu, (Fe), Pb, (Mg), Mn, Hg, Ni, (K), Se, Ag, (Na), Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
ICP-MS	1->10	Al, Sb, (As), Ba, Be, Cd, Ca, (Cr), Co, Cu, Fe, (Pb), Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, ___ ___
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti,

Comments: Mercury by CVAA if performed

LDC #: 38888A4a

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: ATL
2nd Reviewer:

METHOD: Trace Metals (EPA SW846 6010B/7000)

Blank units: mg/L **Associated sample units:**
Sampling date: 04/26/17 Soil factor applied
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: ~~None~~ (X template)

Analyte	Blank ID	Sample Identification											
	10	Action Limit											
Ca	0.023	0.115											
Mg	0.022	0.110											

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

LDC #: 38888A4a

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: AR
2nd Reviewer:

METHOD: Trace Metals (See cover)

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

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

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
ICV	ICP (Initial calibration)	K	49.58	50	99.2	99.2	Y
CCV4	ICP (Continuing calibration) (05/04/17 @ 18:59)	Fe	49.24	50	98.5	98.5	Y
ICV	ICP-MS (Initial calibration)	Pb	131	125	105	105	Y
CCV6	ICP-MS (Continuing calibration) (05/02/17 @ 12:51)	As	101	100	101	101	Y
	CVAA (Initial calibration)						
	CVAA (Contining calibration)						

Comments: _____

LDC #: 38888A4Q

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: ATC
2nd Reviewer: a

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

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

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

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

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

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

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

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
1707832-IFA1	ICP interference check (05/04 @ 17:16)	Mg	490.9	500	98.2	98.2	Y
LCS	Laboratory control sample	Cr	41.4	40	104	104	Y
11	Matrix spike	Na	(SSR-SR) 9.92	10	99.1	99.1	Y
11/12	Duplicate	Na	31.40	30.586	2.63	2.63	Y
7	ICP serial dilution	pb	ND	ND			Y

Comments: _____

LDC #: 38888A4a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

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

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

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

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

Detected analyte results for Fe were recalculated and verified using the following equation:

Concentration = $\frac{(RD)(FV)(Dil)}{(In.\ Vol.)}$

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

Recalculation:

0.1504 mg/L = 150.4 µg/L

#	Sample ID	Analyte	Reported Concentration (µg/L)	Calculated Concentration (µg/L)	Acceptable (Y/N)
	7	Fe	150	150	Y
	7	Pb	ND	ND	Y

Note:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2017

LDC Report Date: June 30, 2017

Parameters: Wet Chemistry

Validation Level: Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 17-11226

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-4-1	1711226-02	Water	04/26/17
MW-4-2	1711226-03	Water	04/26/17
MW-4-3	1711226-04	Water	04/26/17
MW-4-4	1711226-05	Water	04/26/17
MW-4-5	1711226-06	Water	04/26/17
MW-21-1	1711226-07	Water	04/26/17
MW-21-2**	1711226-08**	Water	04/26/17
MW-21-3	1711226-09	Water	04/26/17
MW-21-5	1711226-10	Water	04/26/17
EB-7-042617	1711226-11	Water	04/26/17
MW-4-1MS	1711226-02MS	Water	04/26/17
MW-4-1MSD	1711226-02MSD	Water	04/26/17
MW-4-1DUP	1711226-02DUP	Water	04/26/17
MW-4-2DUP	1711226-03DUP	Water	04/26/17
MW-21-2MS	1711226-08MS	Water	04/26/17
MW-21-2MSD	1711226-08MSD	Water	04/26/17
MW-21-2DUP	1711226-08DUP	Water	04/26/17

**Indicates sample underwent Level IV validation

Introduction

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

The analyses were performed by the following methods:

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

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

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

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

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

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

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

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

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

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. Initial Calibration

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

III. Continuing Calibration

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

IV. Laboratory Blanks

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

V. Field Blanks

Sample EB-7-042617 was identified as an equipment blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-7-042617	Chloride	0.14 mg/L

VI. Matrix Spike/Matrix Spike Duplicates

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

VII. Duplicate Sample Analysis

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

VIII. Laboratory Control Samples

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

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Sample Result Verification

All sample result verifications were acceptable for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XI. Overall Assessment of Data

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

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

NASA JPL, 2Q2017
Wet Chemistry - Data Qualification Summary - SDG 17-11226

No Sample Data Qualified in this SDG

NASA JPL, 2Q2017
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 17-11226

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-4-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-02
File ID: Tiamo042717-048
Sampled: 04/26/17 12:45
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 12:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[D2562
Sequence: 1707346
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	300	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	250	1		SM-2320B

6/30/17 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-4-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-03
File ID: Tiamo042717-091
Sampled: 04/26/17 08:30
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 15:59
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJD2564
Sequence: 1707346
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

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-4-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-04
File ID: Tiamo042717-094
Sampled: 04/26/17 12:15
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 16:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJD2564
Sequence: 1707346
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

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-4-4

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-05
File ID: Tiamo042717-095
Sampled: 04/26/17 11:50
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 16:22
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJD2564
Sequence: 1707346
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	300	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	250	2	D	SM-2320B

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-4-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-06
File ID: Tiamo042717-096
Sampled: 04/26/17 11:25
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 16:28
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BID2564
Sequence: 1707346
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	320	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	260	2	D	SM-2320B

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-21-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-07
File ID: Tiamo042717-097
Sampled: 04/26/17 15:50
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 16:34
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[D2564
Sequence: 1707346
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	190	1		SM-2320B
3812-32-6	Carbonate	2.5	1	U	SM-2320B
---	Total Alkalinity as CaCO3	150	1		SM-2320B

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-21-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-08
File ID: Tiamo042717-098
Sampled: 04/26/17 15:30
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 16:41
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJD2564
Sequence: 1707346
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

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-21-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-09
File ID: Tiamo042717-099
Sampled: 04/26/17 15:10
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 16:47
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJD2564
Sequence: 1707346
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	360	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	290	2	D	SM-2320B

4/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-21-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-10
File ID: Tiamo042717-100
Sampled: 04/26/17 14:45
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 16:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJD2564
Sequence: 1707346
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

4/30/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

EB-7-042617

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-11
File ID: Tiamo042717-102
Sampled: 04/26/17 16:10
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 17:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BID2564
Sequence: 1707346
Calibration: UNASSIGNED
Instrument: MET-1

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

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-4-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-02
File ID: 170426 2028 CR6-021
Sampled: 04/26/17 12:45
Prepared: 04/26/17 22:33
Analyzed: 04/26/17 22:33
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[D2624
Sequence: 1707409
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

6/30/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-4-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-03
File ID: 170426 2028 CR6-022
Sampled: 04/26/17 08:30
Prepared: 04/26/17 22:33
Analyzed: 04/26/17 22:33
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJD2624
Sequence: 1707409
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

6/30/17 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-4-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-04
File ID: 170426 2028 CR6-023
Sampled: 04/26/17 12:15
Prepared: 04/26/17 22:33
Analyzed: 04/26/17 22:33
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJD2624
Sequence: 1707409
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

6/30/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-4-4

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-05
File ID: 170426 2028 CR6-024
Sampled: 04/26/17 11:50
Prepared: 04/26/17 22:33
Analyzed: 04/26/17 22:33
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BID2624
Sequence: 1707409
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

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-4-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-06
File ID: 170426 2028 CR6-027
Sampled: 04/26/17 11:25
Prepared: 04/26/17 22:33
Analyzed: 04/26/17 22:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BID2624
Sequence: 1707409
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

6/20/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-21-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-07
File ID: 170426 2028 CR6-042
Sampled: 04/26/17 15:50
Prepared: 04/26/17 22:33
Analyzed: 04/26/17 23:04
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJD2624
Sequence: 1707409
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0014	1	J	EPA-7196

6/30/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-21-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-08
File ID: 170426 2028 CR6-017
Sampled: 04/26/17 15:30
Prepared: 04/26/17 22:33
Analyzed: 04/26/17 22:33
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BID2624
Sequence: 1707409
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

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-21-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-09
File ID: 170426 2028 CR6-037
Sampled: 04/26/17 15:10
Prepared: 04/26/17 22:33
Analyzed: 04/26/17 22:52
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BID2624
Sequence: 1707409
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00080	1	J	EPA-7196

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-21-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-10
File ID: 170426 2028 CR6-030
Sampled: 04/26/17 14:45
Prepared: 04/26/17 22:33
Analyzed: 04/26/17 22:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJD2624
Sequence: 1707409
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

6/30/17 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

EB-7-042617

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-11
File ID: 170426 2028 CR6-031
Sampled: 04/26/17 16:10
Prepared: 04/26/17 22:33
Analyzed: 04/26/17 22:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BID2624
Sequence: 1707409
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

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-4-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-02
File ID: 170427 0756 NO2-046
Sampled: 04/26/17 12:45
Prepared: 04/27/17 07:56
Analyzed: 04/27/17 09:15
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0109
Sequence: 1707512
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

6/30/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-4-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-03
File ID: 170427 0756 NO2-050
Sampled: 04/26/17 08:30
Prepared: 04/27/17 07:56
Analyzed: 04/27/17 09:15
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0109
Sequence: 1707512
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

6/8/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-4-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-04
File ID: 170427 0756 NO2-051
Sampled: 04/26/17 12:15
Prepared: 04/27/17 07:56
Analyzed: 04/27/17 09:15
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BIE0109
Sequence: 1707512
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

6/7/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-4-4

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-05
File ID: 170427 0756 NO2-052
Sampled: 04/26/17 11:50
Prepared: 04/27/17 07:56
Analyzed: 04/27/17 09:15
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0109
Sequence: 1707512
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

6/3/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-4-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-06
File ID: 170427 0756 NO2-053
Sampled: 04/26/17 11:25
Prepared: 04/27/17 07:56
Analyzed: 04/27/17 09:15
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0109
Sequence: 1707512
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

6/30/17 8

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-21-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-07
File ID: 170427 0756 NO2-056
Sampled: 04/26/17 15:50
Prepared: 04/27/17 07:56
Analyzed: 04/27/17 09:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0109
Sequence: 1707512
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

6/30/17 D

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-21-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-08
File ID: 170427 0756 NO2-065
Sampled: 04/26/17 15:30
Prepared: 04/27/17 07:56
Analyzed: 04/27/17 09:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0109
Sequence: 1707512
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.26	1		EPA-353.2

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-21-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-09
File ID: 170427 0756 NO2-066
Sampled: 04/26/17 15:10
Prepared: 04/27/17 07:56
Analyzed: 04/27/17 09:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0109
Sequence: 1707512
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.082	1		EPA-353.2

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-21-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-10
File ID: 170427 0756 NO2-059
Sampled: 04/26/17 14:45
Prepared: 04/27/17 07:56
Analyzed: 04/27/17 09:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0109
Sequence: 1707512
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

6/30/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

EB-7-042617

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-11
File ID: 170427 0756 NO2-060
Sampled: 04/26/17 16:10
Prepared: 04/27/17 07:56
Analyzed: 04/27/17 09:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0109
Sequence: 1707512
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

6/30/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-4-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-02
File ID: F051317.seq-38.0000.txt
Sampled: 04/26/17 12:45
Prepared: 05/13/17 22:00
Analyzed: 05/14/17 02:40
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1550
Sequence: 1708498
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

4/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-4-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-03
File ID: F051317.seq-39.0000.txt
Sampled: 04/26/17 08:30
Prepared: 05/13/17 22:00
Analyzed: 05/14/17 02:54
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1550
Sequence: 1708498
Calibration: UNASSIGNED
Instrument: IC6

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

6/30/17 R

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-4-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-04
File ID: F051317.seq-40.0000.txt
Sampled: 04/26/17 12:15
Prepared: 05/13/17 22:00
Analyzed: 05/14/17 03:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1550
Sequence: 1708498
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

6/20/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-4-4

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-05
File ID: F051317.seq-41.0000.txt
Sampled: 04/26/17 11:50
Prepared: 05/13/17 22:00
Analyzed: 05/14/17 03:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1550
Sequence: 1708498
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-4-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-06
File ID: F051317.seq-42.0000.txt
Sampled: 04/26/17 11:25
Prepared: 05/13/17 22:00
Analyzed: 05/14/17 03:34
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1550
Sequence: 1708498
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

6/20/17 Y

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-21-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-07
File ID: F051317.seq-43.0000.txt
Sampled: 04/26/17 15:50
Prepared: 05/13/17 22:00
Analyzed: 05/14/17 03:47
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1550
Sequence: 1708498
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	6.5	1		EPA-314.0

6/30/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-21-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-08
File ID: F051317.seq-46.0000.txt
Sampled: 04/26/17 15:30
Prepared: 05/13/17 22:00
Analyzed: 05/14/17 04:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1550
Sequence: 1708498
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.8	1	J	EPA-314.0

6/30/17 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-21-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-09
File ID: F051317.seq-47.0000.txt
Sampled: 04/26/17 15:10
Prepared: 05/13/17 22:00
Analyzed: 05/14/17 04:41
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1550
Sequence: 1708498
Calibration: UNASSIGNED
Instrument: IC6

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

6/30/17 JK

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-21-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-10
File ID: F051317.seq-48.0000.txt
Sampled: 04/26/17 14:45
Prepared: 05/13/17 22:00
Analyzed: 05/14/17 04:54
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1550
Sequence: 1708498
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	2.6	1	J	EPA-314.0

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

EB-7-042617

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-11
File ID: F051317.seq-49.0000.txt
Sampled: 04/26/17 16:10
Prepared: 05/13/17 22:00
Analyzed: 05/14/17 05:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1550
Sequence: 1708498
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

6/30/17 R

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-4-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-02
File ID: A042617.seq-54
Sampled: 04/26/17 12:45
Prepared: 04/26/17 17:00
Analyzed: 04/27/17 10:11
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJD2602
Sequence: 1707491
Calibration: UNASSIGNED
Instrument: IC1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	8.9	1		EPA-300.0
14797-55-8	Nitrate as N	2.2	1		EPA-300.0
14808-79-8	Sulfate	50	1		EPA-300.0

6/30/17

Tidewater Inc.
3761 Attucks Drive
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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-4-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-03RE1
File ID: A042617.seq-55
Sampled: 04/26/17 08:30
Prepared: 04/26/17 17:00
Analyzed: 04/27/17 10:28
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJD2602
Sequence: 1707491
Calibration: UNASSIGNED
Instrument: IC1

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	190	1		EPA-300.0

6/30/17

Tidewater Inc.
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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-4-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-04RE1
File ID: A042617.seq-56
Sampled: 04/26/17 12:15
Prepared: 04/26/17 17:00
Analyzed: 04/27/17 10:44
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[D2602
Sequence: 1707491
Calibration: UNASSIGNED
Instrument: IC1

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	0.12	1		EPA-300.0
14808-79-8	Sulfate	180	1		EPA-300.0

6/30/17

Tidewater Inc.
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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-4-4

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-05RE1
File ID: A042617.seq-61
Sampled: 04/26/17 11:50
Prepared: 04/26/17 17:00
Analyzed: 04/27/17 13:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJD2602
Sequence: 1707491
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	0.021	1	U	EPA-300.0
14808-79-8	Sulfate	150	1		EPA-300.0

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Tidewater Inc.
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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-4-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-06
File ID: A042617.seq-46
Sampled: 04/26/17 11:25
Prepared: 04/26/17 17:00
Analyzed: 04/27/17 05:34
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJD2602
Sequence: 1707491
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	0.021	1	U	EPA-300.0
14808-79-8	Sulfate	100	1		EPA-300.0

6/30/17

Tidewater Inc.
3761 Attucks Drive
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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-21-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-07RE1
File ID: A042617.seq-62
Sampled: 04/26/17 15:50
Prepared: 04/26/17 17:00
Analyzed: 04/27/17 14:09
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJD2602
Sequence: 1707491
Calibration: UNASSIGNED
Instrument: IC1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	67	1		EPA-300.0
14797-55-8	Nitrate as N	9.0	1		EPA-300.0
14808-79-8	Sulfate	120	1		EPA-300.0

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Tidewater Inc.
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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-21-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-08RE1
File ID: A042617.seq-63
Sampled: 04/26/17 15:30
Prepared: 04/26/17 17:00
Analyzed: 04/27/17 14:26
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[D2602
Sequence: 1707491
Calibration: UNASSIGNED
Instrument: IC1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	170	1		EPA-300.0
14797-55-8	Nitrate as N	6.5	1		EPA-300.0
14808-79-8	Sulfate	180	1		EPA-300.0

6/30/17

Tidewater Inc.
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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-21-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-09
File ID: A042617.seq-67
Sampled: 04/26/17 15:10
Prepared: 04/26/17 17:00
Analyzed: 04/27/17 15:32
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[D2602
Sequence: 1707491
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	10	1		EPA-300.0
14808-79-8	Sulfate	160	1		EPA-300.0

6/20/17

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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-21-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-10
File ID: A042617.seq-68
Sampled: 04/26/17 14:45
Prepared: 04/26/17 17:00
Analyzed: 04/27/17 15:48
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[D2602
Sequence: 1707491
Calibration: UNASSIGNED
Instrument: IC1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	80	1		EPA-300.0
14797-55-8	Nitrate as N	6.5	1		EPA-300.0
14808-79-8	Sulfate	130	1		EPA-300.0

6/30/17

Tidewater Inc.
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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

EB-7-042617

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-11
File ID: A042617.seq-70
Sampled: 04/26/17 16:10
Prepared: 04/26/17 17:00
Analyzed: 04/27/17 16:21
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[D2602
Sequence: 1707491
Calibration: UNASSIGNED
Instrument: IC1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.14	1	J	EPA-300.0
14797-55-8	Nitrate as N	0.021	1	U	EPA-300.0
14808-79-8	Sulfate	0.13	1	U	EPA-300.0

6/30/17

Tidewater Inc.
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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-4-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-02
File ID:
Sampled: 04/26/17 12:45
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 09:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0181
Sequence: 1707936
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	340	2	D	EPA-160.1

6/8/17

Tidewater Inc.
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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-4-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-03
File ID:
Sampled: 04/26/17 08:30
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 09:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0181
Sequence: 1707936
Calibration: UNASSIGNED
Instrument: MANUAL

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

6/20/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-4-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-04
File ID:
Sampled: 04/26/17 12:15
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 09:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0181
Sequence: 1707936
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	680	5	D	EPA-160.1

6/30/17

Tidewater Inc.
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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-4-4

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-05
File ID:
Sampled: 04/26/17 11:50
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 09:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0181
Sequence: 1707936
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	680	3.33	D	EPA-160.1

6/8/17

Tidewater Inc.
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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-4-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-06
File ID:
Sampled: 04/26/17 11:25
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 09:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0181
Sequence: 1707936
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	660	3.33	D	EPA-160.1

6/8/17 ✓

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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-21-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-07
File ID:
Sampled: 04/26/17 15:50
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 09:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BJE0181
Sequence: 1707936
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	570	3.33	D	EPA-160.1

Tidewater Inc.
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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-21-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-08
File ID:
Sampled: 04/26/17 15:30
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 09:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BJE0181
Sequence: 1707936
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	860	5	D	EPA-160.1

6/30/17

Tidewater Inc.
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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-21-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-09
File ID:
Sampled: 04/26/17 15:10
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 09:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BJE0181
Sequence: 1707936
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	720	5	D	EPA-160.1

6/30/17

Tidewater Inc.
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Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-21-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-10
File ID:
Sampled: 04/26/17 14:45
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 09:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0181
Sequence: 1707936
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	570	3.33	D	EPA-160.1

6/30/17

Tidewater Inc.
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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

EB-7-042617

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-11
File ID:
Sampled: 04/26/17 16:10
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 09:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BJE0181
Sequence: 1707936
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

6/30/17

Tidewater Inc.
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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-4-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-02
File ID: Tiamo042717-048
Sampled: 04/26/17 12:45
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 12:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJD2562
Sequence: 1707346
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.25	1		EPA-150.1

6/28/17

Tidewater Inc.
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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-4-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-03
File ID: Tiamo042717-091
Sampled: 04/26/17 08:30
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 15:59
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BID2564
Sequence: 1707346
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.45	1		EPA-150.1

Tidewater Inc.
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Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-4-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-04
File ID: Tiamo042717-094
Sampled: 04/26/17 12:15
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 16:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BFD2564
Sequence: 1707346
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.82	1		EPA-150.1

4/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-4-4

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-05
File ID: Tiamo042717-095
Sampled: 04/26/17 11:50
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 16:22
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJD2564
Sequence: 1707346
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.98	1		EPA-150.1

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-4-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-06
File ID: Tiamo042717-096
Sampled: 04/26/17 11:25
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 16:28
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJD2564
Sequence: 1707346
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.95	1		EPA-150.1

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-21-1

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-07
File ID: Tiamo042717-097
Sampled: 04/26/17 15:50
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 16:34
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJD2564
Sequence: 1707346
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.19	1		EPA-150.1

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-21-2

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-08
File ID: Tiamo042717-098
Sampled: 04/26/17 15:30
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 16:41
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJD2564
Sequence: 1707346
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.52	1		EPA-150.1

4/20/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-21-3

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-09
File ID: Tiamo042717-099
Sampled: 04/26/17 15:10
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 16:47
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJD2564
Sequence: 1707346
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.71	1		EPA-150.1

4/30/17 q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-21-5

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-10
File ID: Tiamo042717-100
Sampled: 04/26/17 14:45
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 16:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[D2564
Sequence: 1707346
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.19	1		EPA-150.1

6/30/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/7/2017 3:00:28PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

EB-7-042617

Laboratory: BC Laboratories
SDG: 17-11226
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711226-11
File ID: Tiamo042717-102
Sampled: 04/26/17 16:10
Prepared: 04/27/17 08:00
Analyzed: 04/27/17 17:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJD2564
Sequence: 1707346
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	4.66	1		EPA-150.1

6/30/17

LDC #: 38888A6 **VALIDATION COMPLETENESS WORKSHEET** Date: 06/28/17
SDG #: 17-11226 Level III/IV Page: 1 of 1
Laboratory: BC Laboratories, Inc. Reviewer: ATL
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.	Sample receipt/Technical holding times	A / A	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	SW	ID = EB
VI.	Matrix Spike/Matrix Spike Duplicates	A	
VII.	Duplicate sample analysis	A	
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	N	
X.	Sample result verification	A	Not reviewed for Level III validation.
XI.	Overall assessment of data	A	

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

** Indicates sample was underwent Level IV review

	Client ID	Lab ID	Matrix	Date
1	MW-4-1	1711226-02	Water	04/26/17
2	MW-4-2	1711226-03	Water	04/26/17
3	MW-4-3	1711226-04	Water	04/26/17
4	MW-4-4	1711226-05	Water	04/26/17
5	MW-4-5	1711226-06	Water	04/26/17
6	MW-21-1	1711226-07	Water	04/26/17
7	MW-21-2**	1711226-08**	Water	04/26/17
8	MW-21-3	1711226-09	Water	04/26/17
9	MW-21-5	1711226-10	Water	04/26/17
10	EB-7-042617	1711226-11	Water	04/26/17
11	MW-4-1MS	1711226-02MS	Water	04/26/17
12	MW-4-1MSD	1711226-02MSD	Water	04/26/17
13	MW-4-1DUP	1711226-02DUP	Water	04/26/17
14	MW-4-2DUP	1711226-03DUP	Water	04/26/17
15	MW-21-2MS	1711226-08MS	Water	04/26/17
16	MW-21-2MSD	1711226-08MSD	Water	04/26/17
17	MW-21-2DUP	1711226-08DUP	Water	04/26/17

DC #: 38888A6

VALIDATION FINDINGS CHECKLIST

Reviewer: ATV
2nd Reviewer:

Method: Inorganics (EPA Method)

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

LDC #: 38888A6

VALIDATION FINDINGS CHECKLIST

Reviewer: ATL
2nd Reviewer: CW

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
X. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			

LDC #: 38888A6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

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

All circled methods are applicable to each sample.

Sample ID	Parameter
1->10	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
QC	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
13,14	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
14	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
17,16,15	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
11,12,13	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4

Comments:

LDC #: 38888A6

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: ATL
2nd Reviewer:

METHOD: Inorganics, EPA Method See Cover
Blank units: mg/L **Associated sample units:** mg/L
Sampling date: 04/26/17 Soil factor applied NA
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: ~~none~~ X repeat

Analyte	Blank ID	Action Limit	Sample Identification							
	10									
Cl	0.14	0.70								

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

LDC #: 38888A6

Validation Findings Worksheet
Initial and Continuing Calibration Calculation Verification

Reviewer: ATL
2nd Reviewer:

Method: Inorganics, Method See cover

The correlation coefficient (r) for the calibration of NO3-N was recalculated.Calibration date: 04/25/17

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

%R = Found X 100 / True Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution; True = concentration of each analyte in the ICV or CCV source

Type of analysis	Analyte	Standard	Conc. (mg/l)	Area	Recalculated r or r^2	Reported r or r^2	Acceptable (Y/N)
Initial Calibration Verification	NO3-N	s1	0.1	0.037	*0.999944*	0.999980	Y
		s2	0.5	0.16			
		s3	2	0.67			
		s4	5	1.784			
		s5	10	3.851			
		s6	20	8.344			
CCVC (04/27 @ 9:36) Calibration verification	NO2-N	FOUND 0.5	TRUE 0.5		100	100	Y
CCV3 (04/26 @ 22:33) Calibration verification	Cr6+	0.05	0.05		103	103	Y
CCV4 (05/14 @ 04:01) Calibration verification	ClO4-	9.70	10		97	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.

LDC #: 38888A6

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: ATL
2nd Reviewer: a

METHOD: Inorganics, Method See cover

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

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

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

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

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
LCS	Laboratory control sample	TDS	605	586	103	103	Y
15	Matrix spike sample	Cl-	(SSR-SR) 49	50,505	97	98.2	Y
15/16	Duplicate sample	Cl-	218	218.73	0.3343	0.332 ~~0.00412~~	Y

Comments: _____

LDC #: 38888A6

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

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

METHOD: Inorganics, Method See cover

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

(Y) N N/A Have results been reported and calculated correctly?
(Y) N N/A Are results within the calibrated range of the instruments?
(Y) N N/A Are all detection limits below the CRQL?

Compound (analyte) results for NO_2-N reported with a positive detect were recalculated and verified using the following equation:

Concentration = $Ax\ 1.88679077 - 0.007132$

Recalculation: $0.139 \times 1.88679077 - 0.007132 = 0.2551$

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
	7	Alkalinity	290	290	Y
	7	SO_4^-	180	180	Y
	7	NO_2-N	0.26	0.26	Y
	7	$Cr6+$	0.0010	0.0010	Y
	7	ClO_4^-	1.8 (µg/L)	2.0 (µg/L)	Y
	7	pH	7.52	7.52	Y
	7	TDS	860	860	Y

Note:

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

Tidewater, Inc.
3761 Attucks Drive
Powell, OH 43065
ATTN: Mr. David Conner

July 7, 2017

SUBJECT: NASA JPL, 2Q2017, Data Validation

Dear Mr. Conner,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on June 22, 2017. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #38952:

SDG #	Fraction
17-10954/7D26017, 17-11226/7D28011 17-11382/7E03006, 17-11629/7E04018 17-11489	Volatiles, 1-4-Dioxane, Metals, Wet Chemistry

The data validation was performed under 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, update V, July 2014

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

Sincerely,

Pei Geng
Project Manager/Senior Chemist

90/10 (client select)

LDC #38952 (Tidewater- Powell, OH / NASA JPL, 2Q2017)

LDC	SDG#	DATE REC'D	(3) DATE DUE	VOA (524.2)		NDMA (1625M)		1,4-Dioxane (8270C)		Metals (200.7 /200.8)		Alk. (2320B)		Cl,SO_4 NO_3-N (300.0)		NO_2-N (353.2)		O-PO_4 (365.1)		CLO_4 (314.0)		Cr(VI) (7196)		TDS (160.1)		pH (150.1)											
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	17-10954/7D26017	06/22/17	07/14/17	-	-	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-										
B	17-11226/7D28011	06/22/17	07/14/17	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-										
C	17-11382/7E03006	06/22/17	07/14/17	-	-	1	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-										
D	17-11489	06/22/17	07/14/17	12	0	-	-	-	-	11	0	11	0	11	0	11	0	-	-	11	0	11	0	11	0	11	0										
D	17-11489	06/22/17	07/14/17	2	0	-	-	-	-	2	0	2	0	2	0	2	0	-	-	2	0	2	0	2	0	2	0										
E	17-11629/7E04018	06/22/17	07/14/17	12	0	1	0	1	0	11	0	11	0	11	0	11	0	2	0	11	0	11	0	11	0	11	0										
E	17-11629/7E04018	06/22/17	07/14/17	1	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	1	0	1	0	1	0	1	0										
Total	T/PG			27	0	5	0	1	0	25	0	25	0	25	0	25	0	2	0	25	0	25	0	25	0	25	0	0	0	0	0	0	0	0	0	0	235

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, 2Q2017

LDC Report Date: July 6, 2017

Parameters: N-Nitrosodimethylamine

Validation Level: Level III

Laboratory: BC Laboratories, Inc./Weck Laboratories, Inc.

Sample Delivery Group (SDG): 17-10954/7D26017

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-13	1710954-05/7D26017-01	Water	04/24/17
MW-16	1710954-06/7D26017-02	Water	04/24/17

Introduction

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

The analyses were performed by the following method:

N-Nitrosodimethylamine by Environmental Protection Agency (EPA) Method 1625M

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

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

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

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

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

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

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

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

I. Sample Receipt and Technical Holding Times

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

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

Instrument performance was not required by the method.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

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

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

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

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

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

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were not required by the method.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

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

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

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

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

NASA JPL, 2Q2017
N-Nitrosodimethylamine - Data Qualification Summary - SDG 17-10954/7D26017

No Sample Data Qualified in this SDG

NASA JPL, 2Q2017
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 17-10954/7D26017

No Sample Data Qualified in this SDG

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 7D26017

Project: 1710954

Attn: Misty Orton

Client: BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

Report Date: 5/03/2017
Received Date: 4/26/2017
Turnaround Time: Normal
Phones: (661) 327-4911
Fax: (661) 327-1918
P.O. #:
Billing Code:

Dear Misty Orton,

Enclosed are the results of analyses for samples received 4/26/17 with the Chain-of-Custody document. The samples were received in good condition, at 4.1 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: 1710954-05 — Sampled: 04/24/17 7:22 by Client
7D26017-01 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 1625M **Batch ID:** W7D1442 **Instr:** GCMS09 **Prepared:** 04/27/17 08:22 **Analyst:** mld						
N-Nitrosodimethylamine	ND	2.0	ng/l	1	05/02/17 05:59	

Sample: 1710954-06 — Sampled: 04/24/17 9:20 by Client
7D26017-02 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 1625M **Batch ID:** W7D1442 **Instr:** GCMS09 **Prepared:** 04/27/17 08:22 **Analyst:** mld						
N-Nitrosodimethylamine	ND	2.0	ng/l	1	05/02/17 06:27	

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LDC #: 38952A2b **VALIDATION COMPLETENESS WORKSHEET** Date: 6/30/17
SDG #: 17-10954/7D26017 Level III Page: 1 of 1
Laboratory: BC Laboratories, Inc./Weck Laboratories, Inc. Reviewer: 9
2nd Reviewer: RK

METHOD: GC/MS N-Nitrosodimethylamine (EPA Method 1625M)

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

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	N	
III.	Initial calibration/ICV	A/A	r², ICV ≤ 30%
IV.	Continuing calibration	A	CCV ≤ 20%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	A	LCS/D
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

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

	Client ID	Sub Lab ID	Lab ID	Matrix	Date
1	MW-13	7D26017-01	1710954-05	Water	04/24/17
2	MW-16	02	1710954-06	Water	04/24/17
3					
4					
5					
6					
7					
8					

Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2017

LDC Report Date: July 6, 2017

Parameters: N-Nitrosodimethylamine

Validation Level: Level III

Laboratory: BC Laboratories, Inc./Weck Laboratories, Inc.

Sample Delivery Group (SDG): 17-11226/7D28011

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-4-1	1711226-02/7D28011-01	Water	04/26/17

Introduction

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

The analyses were performed by the following method:

N-Nitrosodimethylamine by Environmental Protection Agency (EPA) Method 1625M

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

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

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

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

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

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

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

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

I. Sample Receipt and Technical Holding Times

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

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

Instrument performance was not required by the method.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

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

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

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

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

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

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were not required by the method.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

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

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

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

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

NASA JPL, 2Q2017
N-Nitrosodimethylamine - Data Qualification Summary - SDG 17-11226/7D28011

No Sample Data Qualified in this SDG

NASA JPL, 2Q2017
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 17-11226/7D28011

No Sample Data Qualified in this SDG

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 7D28011

Project: 1711226

Attn: Misty Orton

Client: BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

Report Date: 5/08/2017
Received Date: 4/28/2017
Turnaround Time: Normal
Phones: (661) 327-4911
Fax: (661) 327-1918
P.O. #:
Billing Code:

Dear Misty Orton,

Enclosed are the results of analyses for samples received 4/28/17 with the Chain-of-Custody document. The samples were received in good condition, at 2.9 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: 1711226-02
7D28011-01 (Water)

Sampled: 04/26/17 12:45 by Client

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 1625M **Batch ID:** W7E0074 **Instr:** GCMS09 **Prepared:** 05/02/17 12:00 **Analyst:** mld						
N-Nitrosodimethylamine	ND	2.0	ng/l	1	05/05/17 09:15	

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LDC #: 38952B2b **VALIDATION COMPLETENESS WORKSHEET** Date: 6/29/17
SDG #: 17-11226/7D28011 Level III Page: 1 of 1
Laboratory: BC Laboratories, Inc./Weck Laboratories, Inc. Reviewer: [illegible]
2nd Reviewer: RK

METHOD: GC/MS N-Nitrosodimethylamine (EPA Method 1625M)

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

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	N	
III.	Initial calibration/ICV	A/A	r^2 / eV ≤ 30%
IV.	Continuing calibration	A	eCV ≤ 30%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	CG
IX.	Laboratory control samples	A/N	LCS/D
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

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

	Client ID	Sub Lab ID	Lab ID	Matrix	Date
1	MW-4-1	702801I-01	1711226-02	Water	04/26/17
2					
3					
4					
5					
6					
7					
8					

Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2017

LDC Report Date: July 6, 2017

Parameters: N-Nitrosodimethylamine

Validation Level: Level III

Laboratory: BC Laboratories, Inc./Weck Laboratories, Inc.

Sample Delivery Group (SDG): 17-11382/7E03006

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-17-4	1711382-05/7E03006-01	Water	04/27/17

Introduction

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

The analyses were performed by the following method:

N-Nitrosodimethylamine by Environmental Protection Agency (EPA) Method 1625M

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

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

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

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

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

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

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

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

I. Sample Receipt and Technical Holding Times

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

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

Instrument performance was not required by the method.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

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

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

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

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

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

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were not required by the method.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

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

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

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

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

NASA JPL, 2Q2017
N-Nitrosodimethylamine - Data Qualification Summary - SDG 17-11382/7E03006

No Sample Data Qualified in this SDG

NASA JPL, 2Q2017
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 17-11382/7E03006

No Sample Data Qualified in this SDG

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 7E03006

Project: 1711382

Attn: Misty Orton

Client: BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

Report Date: 5/10/2017
Received Date: 5/3/2017
Turnaround Time: Normal
Phones: (661) 327-4911
Fax: (661) 327-1918
P.O. #:
Billing Code:

Dear Misty Orton,

Enclosed are the results of analyses for samples received 5/03/17 with the Chain-of-Custody document. The samples were received in good condition, at 2.9 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: 1711382-05 — Sampled: 04/27/17 13:00 by Client
7E03006-01 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 1625M **Batch ID:** W7E0230 **Instr:** GCMS09 **Prepared:** 05/04/17 08:51 **Analyst:** mld						
N-Nitrosodimethylamine	ND	2.0	ng/l	1	05/08/17 20:23	

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LDC #: 38952C2b **VALIDATION COMPLETENESS WORKSHEET** Date: 6/30/17
SDG #: 17-11382/7E03006 Level III Page: 1 of 1
Laboratory: BC Laboratories, Inc./Weck Laboratories, Inc. Reviewer:
2nd Reviewer: KK

METHOD: GC/MS N-Nitrosodimethylamine (EPA Method 1625M)

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

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	N	
III.	Initial calibration/ICV	A/A	r2, ICV≤30%
IV.	Continuing calibration	A	CCV≤30%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	CS
IX.	Laboratory control samples	A	LCS/D
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

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

	Client ID		Lab ID	Matrix	Date
1	MW-17-4	7E03006-01	1711382-05	Water	04/27/17
2					
3					
4					
5					
6					
7					
8					

Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2017

LDC Report Date: July 6, 2017

Parameters: Volatiles

Validation Level: Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 17-11489

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TB-10-042817	1711489-01	Water	04/28/17
MW-23-1**	1711489-02**	Water	04/28/17
MW-23-2	1711489-03	Water	04/28/17
MW-23-3	1711489-04	Water	04/28/17
MW-23-4	1711489-05	Water	04/28/17
MW-23-5	1711489-06	Water	04/28/17
DUP-7-2Q17	1711489-07	Water	04/28/17
MW-14-1	1711489-08	Water	04/28/17
MW-14-2	1711489-09	Water	04/28/17
MW-14-3**	1711489-10**	Water	04/28/17
MW-14-4	1711489-11	Water	04/28/17
MW-14-5	1711489-12	Water	04/28/17
DUP-8-2Q17	1711489-13	Water	04/28/17
EB-9-042817	1711489-14	Water	04/28/17

**Indicates sample underwent Level IV review

Introduction

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

The analyses were performed by the following method:

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

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

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

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

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

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

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

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

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

I. Sample Receipt and Technical Holding Times

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

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For compounds where average relative response factors (RRFs) were utilized, the percent relative standard deviations (%RSD) were less than or equal to 20.0%.

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

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

Date	Compound	%D	Associated Samples	Flag	A or P
04/14/17	Pentachloroethane	45.4	All samples in SDG 17-11489	UJ (all non-detects)	P

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
05/08/17 (08MAY02)	Bromomethane	63.1	TB-10-042817 MW-23-1** MW-23-2 MW-23-3 MW-23-4 MW-23-5 DUP-7-2Q17 MW-14-1 MW-14-2 MW-14-3** MW-14-4 MW-14-5 DUP-8-2Q17	UJ (all non-detects)	P
05/08/17 (08MAY03)	trans-1,4-Dichloro-2-butene Methyl iodide	53.3 49.3	TB-10-042817 MW-23-1** MW-23-2 MW-23-3 MW-23-4 MW-23-5 DUP-7-2Q17 MW-14-1 MW-14-2 MW-14-3** MW-14-4 MW-14-5 DUP-8-2Q17	UJ (all non-detects) UJ (all non-detects)	P
05/08/17 (08MAY33)	Bromomethane	54.1	EB-9-042817	UJ (all non-detects)	P
05/08/17 (08MAY34)	trans-1,4-Dichloro-2-butene Methyl iodide Pentachloroethane	35.5 58.2 78.7	EB-9-042817	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	P

V. Laboratory Blanks

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

VI. Field Blanks

Sample TB-10-042817 was identified as a trip blank. No contaminants were found.

Sample EB-9-042817 was identified as an equipment blank. No contaminants were found.

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

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

X. Field Duplicates

Samples MW-14-2 and DUP-8-2Q17, and MW-23-4 and DUP-7-2Q17 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	MW-14-2	DUP-8-2Q17	
Chloroform	0.50	0.47	6
1,1-Dichloroethane	0.15	0.16	6
Tetrachloroethene	0.33	0.43	26
Trichloroethene	1.4	1.4	0

XI. Internal Standards

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

XII. Compound Quantitation

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

XIII. Target Compound Identifications

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

XIV. System Performance

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

XV. Overall Assessment of Data

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

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

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

NASA JPL, 2Q2017
Volatiles - Data Qualification Summary - SDG 17-11489

Sample	Compound	Flag	A or P	Reason
TB-10-042817 MW-23-1** MW-23-2 MW-23-3 MW-23-4 MW-23-5 DUP-7-2Q17 MW-14-1 MW-14-2 MW-14-3** MW-14-4 MW-14-5 DUP-8-2Q17 EB-9-042817	Pentachloroethane	UJ (all non-detects)	P	Initial calibration verification (%D)
TB-10-042817 MW-23-1** MW-23-2 MW-23-3 MW-23-4 MW-23-5 DUP-7-2Q17 MW-14-1 MW-14-2 MW-14-3** MW-14-4 MW-14-5 DUP-8-2Q17 EB-9-042817	Bromomethane trans-1,4-Dichloro-2-butene Methyl iodide	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	P	Continuing calibration (%D)
EB-9-042817	Pentachloroethane	UJ (all non-detects)	P	Continuing calibration (%D)

NASA JPL, 2Q2017
Volatiles - Laboratory Blank Data Qualification Summary - SDG 17-11489

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-10-042817

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-01	File ID:	08MAY18.D
Sampled:	04/28/17 06:30	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 12:56
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U UJ
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-10-042817

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-01	File ID:	08MAY18.D
Sampled:	04/28/17 06:30	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 12:56
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-10-042817

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-01	File ID:	08MAY18.D
Sampled:	04/28/17 06:30	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 12:56
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U U5
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U U5
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U U5
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.160	102	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.7900	97.9	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.1400	91.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	183747	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	70858	9.61	75608	9.62	
1,4-Difluorobenzene (IS)	280719	7.38	295651	7.38	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-10-042817

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-01	File ID:	08MAY18.D
Sampled:	04/28/17 06:30	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 12:56
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-1

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-02	File ID:	08MAY19.D
Sampled:	04/28/17 09:05	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 13:19
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJE0790	Sequence: 1707902	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U UJ
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.68	
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.16	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-1

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-02	File ID:	08MAY19.D
Sampled:	04/28/17 09:05	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 13:19
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJE0790	Sequence: 1707902	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.78	
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	5.3	
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-1

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-02	File ID:	08MAY19.D
Sampled:	04/28/17 09:05	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 13:19
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	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	10.010	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5600	95.6	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	188267	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	68890	9.62	75608	9.62	
1,4-Difluorobenzene (IS)	277930	7.39	295651	7.38	

* Values outside of QC limits

6/7/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-1

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-02	File ID:	08MAY19.D
Sampled:	04/28/17 09:05	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 13:19
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-2

Laboratory: BC Laboratories | SDG: 17-11489
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711489-03 | File ID: 08MAY20.D
Sampled: 04/28/17 08:25 | Prepared: 05/08/17 07:00 | Analyzed: 05/08/17 13:42
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0790 | Sequence: 1707902 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U LJ
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.80	
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.37	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

6/16/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-2

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-03	File ID:	08MAY20.D
Sampled:	04/28/17 08:25	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 13:42
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	1.3	
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	4.4	
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-2

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-03	File ID:	08MAY20.D
Sampled:	04/28/17 08:25	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 13:42
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BIE0790	Sequence: 1707902	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.300	103	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8400	98.4	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2400	92.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	194895	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	73417	9.62	75608	9.62	
1,4-Difluorobenzene (IS)	280893	7.38	295651	7.38	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-2

Laboratory:	BC Laboratories			SDG:	17-11489		
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells		
Matrix:	Water	Laboratory ID:	1711489-03	File ID:	08MAY20.D		
Sampled:	04/28/17 08:25	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 13:42		
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml		
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-3

Laboratory: BC Laboratories | SDG: 17-11489
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711489-04 | File ID: 08MAY21.D
Sampled: 04/28/17 08:05 | Prepared: 05/08/17 07:00 | Analyzed: 05/08/17 14:05
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0790 | Sequence: 1707902 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U LS
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.15	J
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

7/4/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-3

Laboratory: BC Laboratories | SDG: 17-11489
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711489-04 | File ID: 08MAY21.D
Sampled: 04/28/17 08:05 | Prepared: 05/08/17 07:00 | Analyzed: 05/08/17 14:05
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0790 | Sequence: 1707902 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.25	J
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-3

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-04	File ID:	08MAY21.D
Sampled:	04/28/17 08:05	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 14:05
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.350	104	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.6900	96.9	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.9100	99.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	188386	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	67831	9.61	75608	9.62	
1,4-Difluorobenzene (IS)	292609	7.39	295651	7.38	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-3

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-04	File ID:	08MAY21.D
Sampled:	04/28/17 08:05	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 14:05
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-05
File ID: 08MAY22.D
Sampled: 04/28/17 07:00
Prepared: 05/08/17 07:00
Analyzed: 05/08/17 14:28
Solids:
Preparation: EPA 5030 Water MS
Initial/Final: 25 ml / 25 ml
Batch: B[E0790
Sequence: 1707902
Calibration: 1704006
Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U UT
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

5/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-4

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-05	File ID:	08MAY22.D
Sampled:	04/28/17 07:00	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 14:28
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-4

Laboratory:	BC Laboratories			SDG:	17-11489		
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells		
Matrix:	Water	Laboratory ID:	1711489-05	File ID:	08MAY22.D		
Sampled:	04/28/17 07:00	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 14:28		
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml		
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.300	103	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.5800	95.8	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5400	95.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	182738	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	69169	9.62	75608	9.62	
1,4-Difluorobenzene (IS)	285247	7.39	295651	7.38	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-4

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-05	File ID:	08MAY22.D
Sampled:	04/28/17 07:00	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 14:28
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-06
File ID: 08MAY23.D
Sampled: 04/28/17 06:40
Prepared: 05/08/17 07:00
Analyzed: 05/08/17 14:52
Solids:
Preparation: EPA 5030 Water MS
Initial/Final: 25 ml / 25 ml
Batch: B[E0790
Sequence: 1707902
Calibration: 1704006
Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-5

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-06	File ID:	08MAY23.D
Sampled:	04/28/17 06:40	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 14:52
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.41	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-5

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-06	File ID:	08MAY23.D
Sampled:	04/28/17 06:40	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 14:52
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJE0790	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	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	9.8600	98.6	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.9600	89.6	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	166100	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	65385	9.62	75608	9.62	
1,4-Difluorobenzene (IS)	255570	7.39	295651	7.38	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-23-5

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-06	File ID:	08MAY23.D
Sampled:	04/28/17 06:40	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 14:52
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

5/16/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-7-2Q17

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-07	File ID:	08MAY24.D
Sampled:	04/28/17 07:10	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 15:15
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U UJ
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

7/6/17 CA

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-7-2Q17

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-07	File ID:	08MAY24.D
Sampled:	04/28/17 07:10	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 15:15
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-7-2Q17

Laboratory: BC Laboratories | SDG: 17-11489
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711489-07 | File ID: 08MAY24.D
Sampled: 04/28/17 07:10 | Prepared: 05/08/17 07:00 | Analyzed: 05/08/17 15:15
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0790 | Sequence: 1707902 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	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	9.7300	97.3	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2800	92.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	166372	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	65768	9.61	75608	9.62	
1,4-Difluorobenzene (IS)	257880	7.39	295651	7.38	

* Values outside of QC limits

6/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-7-2Q17

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-07	File ID:	08MAY24.D
Sampled:	04/28/17 07:10	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 15:15
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

5/16/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-08
File ID: 08MAY25.D
Sampled: 04/28/17 13:00
Prepared: 05/08/17 07:00
Analyzed: 05/08/17 15:38
Solids:
Preparation: EPA 5030 Water MS
Initial/Final: 25 ml / 25 ml
Batch: B[E0790
Sequence: 1707902
Calibration: 1704006
Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U UJ
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.37	J
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

6/16/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-1

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-08	File ID:	08MAY25.D
Sampled:	04/28/17 13:00	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 15:38
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJE0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	1.5	
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-1

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-08	File ID:	08MAY25.D
Sampled:	04/28/17 13:00	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 15:38
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U U5
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U U5
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U U5
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.770	108	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.6100	96.1	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3400	93.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	183194	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	69386	9.62	75608	9.62	
1,4-Difluorobenzene (IS)	284954	7.39	295651	7.38	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-1

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-08	File ID:	08MAY25.D
Sampled:	04/28/17 13:00	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 15:38
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-2

Laboratory: BC Laboratories | SDG: 17-11489
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711489-09 | File ID: 08MAY26.D
Sampled: 04/28/17 12:00 | Prepared: 05/08/17 07:00 | Analyzed: 05/08/17 16:01
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0790 | Sequence: 1707902 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U UJ
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.50	
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	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	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

6/16/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-2

Laboratory: BC Laboratories | SDG: 17-11489
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711489-09 | File ID: 08MAY26.D
Sampled: 04/28/17 12:00 | Prepared: 05/08/17 07:00 | Analyzed: 05/08/17 16:01
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0790 | Sequence: 1707902 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.33	J
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	1.4	
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-2

Laboratory:	BC Laboratories			SDG:	17-11489		
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells		
Matrix:	Water	Laboratory ID:	1711489-09	File ID:	08MAY26.D		
Sampled:	04/28/17 12:00	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 16:01		
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml		
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	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	9.8100	98.1	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	10.010	100	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	189012	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	69166	9.62	75608	9.62	
1,4-Difluorobenzene (IS)	280698	7.38	295651	7.38	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-2

Laboratory:	BC Laboratories			SDG:	17-11489		
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells		
Matrix:	Water	Laboratory ID:	1711489-09	File ID:	08MAY26.D		
Sampled:	04/28/17 12:00	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 16:01		
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml		
Batch:	BJE0790	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-3

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-10	File ID:	08MAY27.D
Sampled:	04/28/17 11:30	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 16:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.44	J
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.33	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-3

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-10	File ID:	08MAY27.D
Sampled:	04/28/17 11:30	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 16:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	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	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	1.1	
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-3

Laboratory: BC Laboratories | SDG: 17-11489
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711489-10 | File ID: 08MAY27.D
Sampled: 04/28/17 11:30 | Prepared: 05/08/17 07:00 | Analyzed: 05/08/17 16:24
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: BJE0790 | Sequence: 1707902 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	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	10.360	104	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.9400	89.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	172635	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	66342	9.62	75608	9.62	
1,4-Difluorobenzene (IS)	250947	7.39	295651	7.38	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-3

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-10	File ID:	08MAY27.D
Sampled:	04/28/17 11:30	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 16:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-4

Laboratory: BC Laboratories | SDG: 17-11489
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711489-11 | File ID: 08MAY28.D
Sampled: 04/28/17 10:45 | Prepared: 05/08/17 07:00 | Analyzed: 05/08/17 16:47
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0790 | Sequence: 1707902 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U UJ
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.27	J
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.19	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-4

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-11	File ID:	08MAY28.D
Sampled:	04/28/17 10:45	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 16:47
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.50	
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.38	J
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-4

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-11	File ID:	08MAY28.D
Sampled:	04/28/17 10:45	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 16:47
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.400	104	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.6400	96.4	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.6500	96.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	183218	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	67871	9.62	75608	9.62	
1,4-Difluorobenzene (IS)	277614	7.38	295651	7.38	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-4

Laboratory:	BC Laboratories			SDG:	17-11489		
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells		
Matrix:	Water	Laboratory ID:	1711489-11	File ID:	08MAY28.D		
Sampled:	04/28/17 10:45	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 16:47		
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml		
Batch:	BJE0790	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17 q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-5

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-12	File ID:	08MAY29.D
Sampled:	04/28/17 10:20	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 17:10
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U UJ
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.29	J
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-5

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-12	File ID:	08MAY29.D
Sampled:	04/28/17 10:20	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 17:10
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-5

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-12	File ID:	08MAY29.D
Sampled:	04/28/17 10:20	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 17:10
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U US
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U US
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U US
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.730	107	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.050	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.3400	93.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	185035	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	70038	9.62	75608	9.62	
1,4-Difluorobenzene (IS)	278894	7.39	295651	7.38	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-14-5

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-12	File ID:	08MAY29.D
Sampled:	04/28/17 10:20	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 17:10
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

6/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-8-2Q17

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-13	File ID:	08MAY30.D
Sampled:	04/28/17 12:10	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 17:33
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U MS
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.47	J
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.16	J
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-8-2Q17

Laboratory: BC Laboratories | SDG: 17-11489
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711489-13 | File ID: 08MAY30.D
Sampled: 04/28/17 12:10 | Prepared: 05/08/17 07:00 | Analyzed: 05/08/17 17:33
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0790 | Sequence: 1707902 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.43	J
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	1.4	
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-8-2Q17

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-13	File ID:	08MAY30.D
Sampled:	04/28/17 12:10	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 17:33
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	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	9.6100	96.1	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	10.040	100	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	179297	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	69146	9.62	75608	9.62	
1,4-Difluorobenzene (IS)	282766	7.39	295651	7.38	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

DUP-8-2Q17

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-13	File ID:	08MAY30.D
Sampled:	04/28/17 12:10	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 17:33
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-9-042817

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-14	File ID:	08MAY37.D
Sampled:	04/28/17 13:30	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 20:15
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U V5
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-9-042817

Laboratory: BC Laboratories | SDG: 17-11489
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711489-14 | File ID: 08MAY37.D
Sampled: 04/28/17 13:30 | Prepared: 05/08/17 07:00 | Analyzed: 05/08/17 20:15
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0790 | Sequence: 1707902 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-9-042817

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-14	File ID:	08MAY37.D
Sampled:	04/28/17 13:30	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 20:15
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	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	10.010	100	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.4900	94.9	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	187010	6.58	183480	6.58	
Chlorobenzene-d5 (IS)	69490	9.62	71533	9.62	
1,4-Difluorobenzene (IS)	282727	7.39	281771	7.38	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:53:07AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-9-042817

Laboratory:	BC Laboratories		SDG:	17-11489	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711489-14	File ID:	08MAY37.D
Sampled:	04/28/17 13:30	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 20:15
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17

LDC #: 38952D1 **VALIDATION COMPLETENESS WORKSHEET** Date: 6/30/17
SDG #: 17-11489 Level III/IV Page: 1 of 2
Laboratory: BC Laboratories, Inc. Reviewer: Q
2nd Reviewer: KK

METHOD: GC/MS Volatiles (EPA Method 524.2)

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

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/M	RSD≤20% . r^2 / ICV ≤ 30%
IV.	Continuing calibration	M	CCV ≤ 30%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB=1 . EB=14
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	M	D=5+T. 9+13
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level III validation.
XIII.	Target compound identification	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	

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

** Indicates sample was underwent Level IV review

	Client ID	Lab ID	Matrix	Date
1	TB-10-042817	1711489-01	Water	04/28/17
2	MW-23-1**	1711489-02**	Water	04/28/17
3	MW-23-2	1711489-03	Water	04/28/17
4	MW-23-3	1711489-04	Water	04/28/17
5	MW-23-4 D1	1711489-05	Water	04/28/17
6	MW-23-5	1711489-06	Water	04/28/17
7	DUP-7-2Q17 D1	1711489-07	Water	04/28/17
8	MW-14-1	1711489-08	Water	04/28/17
9	MW-14-2 D2	1711489-09	Water	04/28/17
10	MW-14-3**	1711489-10**	Water	04/28/17
11	MW-14-4	1711489-11	Water	04/28/17
12	MW-14-5	1711489-12	Water	04/28/17
13	DUP-8-2Q17 D2	1711489-13	Water	04/28/17

LDC #: 38952D1 **VALIDATION COMPLETENESS WORKSHEET** Date: 6/30/17
SDG #: 17-11489 Level III/IV Page: 1 of 2
Laboratory: BC Laboratories, Inc. Reviewer: Q
2nd Reviewer: KK

METHOD: GC/MS Volatiles (EPA Method 524.2)

	Client ID	Lab ID	Matrix	Date
14	EB-9-042817	1711489-14	Water	04/28/17
15				
16				
17				
18				
19				

Notes:

LDC #: 38950/

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: 9
2nd Reviewer: KK

Method: Volatiles (EPA Method 524.2)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS Instrument performance check				
Was a tune check performed prior to establishing and/or re-establishing an initial calibration?	✓			
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
III. Initial calibration				
Did the laboratory perform at least 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
IIIa. Initial Calibration Verification calibration				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 30%?		✓		
IV. Continuing calibration				
Was a continuing calibration standard analyzed at the beginning of each analysis batch?	✓			
Were all percent differences (%D) of continuing calibration ≤ 30%?		✓		
V.Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed with each analysis batch?	✓			
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		
VII. Surrogate spikes				
Were all surrogate %R within the 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?			✓	
VIII. Matrix spike/Matrix spike duplicates				
Was a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for this SDG?		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
IX. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			

LDC #: 38952D1

VALIDATION FINDINGS CHECKLIST

Reviewer: CY
2nd Reviewer: KK

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) within 70-130%?	✓			
X. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
XI. Internal standards				
Were internal standard area counts within +/-30% of the area of the most recent continuing calibration standard and +/-50% of the average peak area in the initial calibration?	✓			
Were retention times within +/-30 seconds of the associated calibration standard?	✓			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) or regression equations used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data	✓			
Overall assessment of data was found to be acceptable.				

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane
C. Vinyl choride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO.1,1-Difluoroethane	O1. 3-Methylpentane
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.

LDC #: 38952b1

VALIDATION FINDINGS WORKSHEET
Initial Calibration Verification

Reviewer: a
2nd Reviewer: VM

METHOD: GC/MS VOA (EPA Method 524.2)

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

(Y) N N/A Was an initial calibration verification standard analyzed after each ICAL for each instrument?

Y (N) N/A Were all %D within the validation criteria of ≤30 %D?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0%)	Associated Samples	Qualifications
	4/14/17	13APR42	ZZZZ	45.1	All (ND)	J/UJ/P

LDC #: 38952D1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: 9
2nd Reviewer: VW

METHOD: GC/MS VOA (EPA Method 524.2)

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

(Y) N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y (N) N/A Were all percent differences (%D) ≤ 30% ?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0%)	Associated Samples	Qualifications
	5/8/17	08MAY02	B	63.1	1-13. MB	J/UJ/A
	↓	08MAY03	~~FFFF~~ YYYY	53.3	(ND)	↓
			Methyl iodide	49.3		
	5/8/17	08MAY33	B	54.1	14. MB	J/UJ/A
	↓	08MAY34	YYYY	35.5	(ND)	↓
			Methyl iodide	58.2		
			ZZZZ	78.7		

CONCAL.1S5

LDC#: 38952D1

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: 9
2nd Reviewer: KK

METHOD: GCMS VOA (EPA Method 524.2)

Compound	Concentration (ug/L)		RPD
	9	13	
K	0.50	0.47	6
I	0.15	0.16	6
AA	0.33	0.43	26
S	1.4	1.4	0

V:\FIELD DUPLICATES\Field Duplicates\FD_Organics\2017\38952D1_JPLwpd.wpd

LDC #: 38952O1

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: FT
2nd Reviewer:

METHOD: GCMS 524.2

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

RRF = (Ax)(Cis)/(Ais)(Cx)
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

Where:

Ax = Area of compound
Cx = Concentration of compound
S = Standard deviation of the RRFs
X = Mean of the RRFs
Ais = Area of associated internal standard
Cis = Concentration of internal Standard

#	Standard ID	Calibration Date	Compound	Reported (RRF 10 std)	Recalculated (RRF 10 std)	Reported AverageRRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
	ICAL	4/13/2017	C	0.6738509	0.6738509	0.6507252	0.6507252	5.77474	5.77474
			CC	0.7608310	0.7608310	0.7401395	0.7401395	4.89008	4.89008
			EE	1.7287610	1.7287610	1.6995870	1.6995870	8.26667	8.26667

#	Standard ID	Calibration Date	Compound	Reported (RRF 160/40/8 std)	Recalculated (RRF160/40/8 std)	Reported AverageRRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
	ICAL	4/13/2017	F	0.0343799	0.0343799	0.03573499	0.03573499	12.094280	12.094280
			VVVV	0.0704187	0.0704187	0.07240331	0.07240331	11.825840	11.825840
			ZZZZ	0.5104179	0.5104179	0.48355100	0.48355100	10.086370	10.086370

LDC #: 38952D1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: a
2nd Reviewer: VO

METHOD: GC/MS VOA (EPA ~~SW 846~~ Method ~~8260C~~) 524.2)

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

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

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

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	08MA402	5/8/17	C (1st internal standard)	0.650252	0.684845		5.2	5.2
			CC (2nd internal standard)	0.740395	0.814133		10.0	10.0
			ZZ (3rd internal standard)	1.699580	1.865817		9.8	9.8
			(4th internal standard)					
2	08MA403	5/8/17	F (1st internal standard)	0.035/3499	0.03684743	0.03684474	3.1	3.1
			VVVV (2nd internal standard)	0.07240331	0.07124067	0.07124406	1.6	1.6
			ZZZZ (3rd internal standard)	0.4835500	0.4296668	0.4296668	11.1	11.1
			(4th internal standard)					
3			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					
4			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					

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

LDC #: 38952o1

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: Q
2nd reviewer: KK

METHOD: GC/MS VOA (EPA ~~SW 846~~ Method ~~8260C)~~ 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: 2

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4	10.00	10.36	104	104	0
Toluene-d8	↓	10.01	100	100	↓
Bromofluorobenzene	↓	9.56	95.6	95.6	↓

Sample ID:

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

Sample ID:

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

Sample ID:

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

Sample ID:

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

LDC #: 38952B1

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Page: 1 of 1
Reviewer: CA
2nd Reviewer: VW

METHOD: GC/MS VOA (EPA ~~SW 846~~ Method ~~8260C~~) 524.2

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

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

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

LCS ID: BI20790-BS1

Compound	Spike Added (µg/L)		Spiked Sample Concentration (µg/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	25.00	NA	28.110	NA	112	112				
Trichloroethene	↓	↓	25.700	↓	103	103				
Benzene			25.670		103	103				
Toluene			27.000		108	108				
Chlorobenzene	↓	↓	26.270	↓	105	105				

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

LDC #: 38952D1

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd reviewer: KK

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

Y N N/A Were all reported results recalculated and verified for all level IV samples?

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

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

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. 2, K:

Conc. = $\frac{(10318)(10.0)(1)}{(18827)(0.8006886)(\quad)(\quad)}$

= 0.68 µg/L

#	Sample ID	Compound	Reported Concentration (µg/L)	Calculated Concentration ( )	Qualification
	2	K	0.68		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2017

LDC Report Date: July 6, 2017

Parameters: Metals

Validation Level: Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 17-11489

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-23-1**	1711489-02**	Water	04/28/17
MW-23-2	1711489-03	Water	04/28/17
MW-23-3	1711489-04	Water	04/28/17
MW-23-4	1711489-05	Water	04/28/17
MW-23-5	1711489-06	Water	04/28/17
DUP-7-2Q17	1711489-07	Water	04/28/17
MW-14-1	1711489-08	Water	04/28/17
MW-14-2	1711489-09	Water	04/28/17
MW-14-3**	1711489-10**	Water	04/28/17
MW-14-4	1711489-11	Water	04/28/17
MW-14-5	1711489-12	Water	04/28/17
DUP-8-2Q17	1711489-13	Water	04/28/17
EB-9-042817	1711489-14	Water	04/28/17
MW-23-1MS	1711489-02MS	Water	04/28/17
MW-23-1MSD	1711489-02MSD	Water	04/28/17
MW-23-1DUP	1711489-02DUP	Water	04/28/17
MW-23-2MS	1711489-03MS	Water	04/28/17
MW-23-2MSD	1711489-03MSD	Water	04/28/17
MW-23-2DUP	1711489-03DUP	Water	04/28/17
MW-14-5MS	1711489-12MS	Water	04/28/17
MW-14-5MSD	1711489-12MSD	Water	04/28/17
MW-14-5DUP	1711489-12DUP	Water	04/28/17
MW-23-5DUP	1711489-06DUP	Water	04/28/17
MW-23-5MS	1711489-06MS	Water	04/28/17
MW-23-5MSD	1711489-06MSD	Water	04/28/17

**Indicates sample underwent Level IV validation

Introduction

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

The analyses were performed by the following methods:

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

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

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

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

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

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

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

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

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

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. ICPMS Tune

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

III. Instrument Calibration

Initial and continuing calibrations were performed as required by the methods.

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

IV. ICP Interference Check Sample Analysis

The frequency of interference check sample (ICS) analysis was met. All criteria were within QC limits.

V. Laboratory Blanks

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

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium	0.016371 mg/L	MW-23-1** MW-23-2 MW-23-3 MW-23-4 MW-23-5 DUP-7-2Q17 MW-14-1 MW-14-2 MW-14-3** MW-14-4
ICB/CCB	Sodium	0.075916 mg/L	MW-14-5 DUP-8-2Q17
ICB/CCB	Calcium Sodium	0.014907 mg/L 0.075155 mg/L	EB-9-042817
PB (prep blank)	Calcium Sodium	0.018145 mg/L 0.078170 mg/L	MW-14-5 DUP-8-2Q17 EB-9-042817

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

Sample	Analyte	Reported Concentration	Modified Final Concentration
EB-9-042817	Calcium Sodium	0.016 mg/L 0.060 mg/L	0.016U mg/L 0.060U mg/L

VI. Field Blanks

Sample EB-9-042817 was identified as an equipment blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-9-042817	Chromium Calcium Sodium	0.70 ug/L 0.016 mg/L 0.060 mg/L

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. For MW-23-2MS/MSD, no data were qualified for Calcium percent recoveries (%R) outside the QC limits since the parent sample results were greater than 4X the spike concentration. Relative percent differences (RPD) were within QC limits.

VIII. Duplicate Sample Analysis

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

IX. Serial Dilution

Serial dilution analysis was performed on an associated project sample. Percent differences (%D) were within QC limits.

X. Laboratory Control Samples

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

XI. Field Duplicates

Samples MW-23-4 and DUP-7-2Q17 and samples MW-14-2 and DUP-8-2Q17 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	MW-23-4	DUP-7-2Q17	
Iron	35 ug/L	34 ug/L	3
Arsenic	1.1 ug/L	1.2 ug/L	9
Chromium	3.1 ug/L	3.0 ug/L	3
Calcium	35 mg/L	36 mg/L	3
Magnesium	12 mg/L	12 mg/L	0
Sodium	29 mg/L	28 mg/L	4
Potassium	1.9 mg/L	1.8 mg/L	5

Analyte	Concentration		RPD
	MW-14-2	DUP-8-2Q17	
Iron	140 ug/L	150 ug/L	7
Chromium	0.60 ug/L	0.66 ug/L	10
Calcium	150 mg/L	150 mg/L	0
Magnesium	56 mg/L	55 mg/L	2
Sodium	43 mg/L	43 mg/L	0
Potassium	3.1 mg/L	3.0 mg/L	3

XII. Internal Standards (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIII. Sample Result Verification

All sample result verifications were acceptable for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIV. Overall Assessment of Data

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

Due to laboratory blank contamination, data were qualified as not detected in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Based upon the data validation all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2017
Metals - Data Qualification Summary - SDG 17-11489

No Sample Data Qualified in this SDG

NASA JPL, 2Q2017
Metals - Laboratory Blank Data Qualification Summary - SDG 17-11489

Sample	Analyte	Modified Final Concentration	A or P
EB-9-042817	Calcium Sodium	0.016U mg/L 0.060U mg/L	A

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-23-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-02
File ID: PE2_170509-042
Sampled: 04/28/17 09:05
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:02
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0880
Sequence: 1708126
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	590	1		EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-23-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-03
File ID: PE2_170509-049
Sampled: 04/28/17 08:25
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:21
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BIE0880
Sequence: 1708126
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	79	1		EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-23-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-04
File ID: PE2_170509-043
Sampled: 04/28/17 08:05
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:04
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0880
Sequence: 1708126
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	54	1		EPA-200.7

7/6/17

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-23-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-05
File ID: PE2_170509-044
Sampled: 04/28/17 07:00
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:07
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0880
Sequence: 1708126
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	35	1	J	EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
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Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-23-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-06
File ID: PE2_170509-045
Sampled: 04/28/17 06:40
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:09
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BJE0880
Sequence: 1708126
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	79	1		EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

DUP-7-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-07
File ID: PE2_170509-046
Sampled: 04/28/17 07:10
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:12
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0880
Sequence: 1708126
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	34	1	J	EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
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Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-14-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-08
File ID: PE2_170509-055
Sampled: 04/28/17 13:00
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:37
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0880
Sequence: 1708126
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	190	1		EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
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Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-14-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-09
File ID: PE2_170509-056
Sampled: 04/28/17 12:00
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:40
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0880
Sequence: 1708126
Calibration: UNASSIGNED
Instrument: PE-OP2

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

7/6/17

Tidewater Inc.
3761 Attucks Drive
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Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-14-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-10
File ID: PE2_170509-057
Sampled: 04/28/17 11:30
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:42
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0880
Sequence: 1708126
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	190	1		EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-14-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-11
File ID: PE2_170509-058
Sampled: 04/28/17 10:45
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:45
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BJE0880
Sequence: 1708126
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	81	1		EPA-200.7

7/5/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-14-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-12
File ID: PE2_170510-135
Sampled: 04/28/17 10:20
Prepared: 05/09/17 09:00
Analyzed: 05/10/17 15:46
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BJE1007
Sequence: 1708312
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	98	1		EPA-200.7

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Tidewater Inc.
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Reported: 6/20/2017 10:32:31AM
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Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

DUP-8-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-13
File ID: PE2_170510-141
Sampled: 04/28/17 12:10
Prepared: 05/09/17 09:00
Analyzed: 05/10/17 16:02
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E1007
Sequence: 1708312
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	150	1		EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
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Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

EB-9-042817

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-14
File ID: PE2_170510-179
Sampled: 04/28/17 13:30
Prepared: 05/09/17 09:00
Analyzed: 05/10/17 17:50
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E1007
Sequence: 1708312
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	30	1	U	EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
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Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-23-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-02
File ID: PE-EL3_170503-171
Sampled: 04/28/17 09:05
Prepared: 05/03/17 08:30
Analyzed: 05/03/17 21:31
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BJE0334
Sequence: 1707702
Calibration: UNASSIGNED
Instrument: PE-EL3

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

7/6/17

Tidewater Inc.
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Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-23-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-03
File ID: PE-EL3_170503-181
Sampled: 04/28/17 08:25
Prepared: 05/03/17 08:30
Analyzed: 05/03/17 22:05
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0334
Sequence: 1707702
Calibration: UNASSIGNED
Instrument: PE-EL3

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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-23-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-04
File ID: PE-EL3_170503-182
Sampled: 04/28/17 08:05
Prepared: 05/03/17 08:30
Analyzed: 05/03/17 22:09
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0334
Sequence: 1707702
Calibration: UNASSIGNED
Instrument: PE-EL3

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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-23-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-05
File ID: PE-EL3_170503-183
Sampled: 04/28/17 07:00
Prepared: 05/03/17 08:30
Analyzed: 05/03/17 22:12
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0334
Sequence: 1707702
Calibration: UNASSIGNED
Instrument: PE-EL3

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	3.1	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-23-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-06
File ID: PE-EL3_170504-070
Sampled: 04/28/17 06:40
Prepared: 05/03/17 08:30
Analyzed: 05/04/17 12:26
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0336
Sequence: 1707759
Calibration: UNASSIGNED
Instrument: PE-EL3

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	2.6	1		EPA-200.8
7439-92-1	Total Recoverable Lead	0.30	1	J	EPA-200.8

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-23-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-06
File ID: PE-EL3_170505-069
Sampled: 04/28/17 06:40
Prepared: 05/03/17 08:30
Analyzed: 05/05/17 12:06
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0336
Sequence: 1707859
Calibration: UNASSIGNED
Instrument: PE-EL3

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	0.62	1	J	EPA-200.8

7/6/17

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

DUP-7-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-07
File ID: PE-EL3_170504-080
Sampled: 04/28/17 07:10
Prepared: 05/03/17 08:30
Analyzed: 05/04/17 13:01
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0336
Sequence: 1707759
Calibration: UNASSIGNED
Instrument: PE-EL3

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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

DUP-7-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-07
File ID: PE-EL3_170505-079
Sampled: 04/28/17 07:10
Prepared: 05/03/17 08:30
Analyzed: 05/05/17 12:41
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0336
Sequence: 1707859
Calibration: UNASSIGNED
Instrument: PE-EL3

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	3.0	1		EPA-200.8

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-14-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-08
File ID: PE-EL3_170504-081
Sampled: 04/28/17 13:00
Prepared: 05/03/17 08:30
Analyzed: 05/04/17 13:05
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0336
Sequence: 1707759
Calibration: UNASSIGNED
Instrument: PE-EL3

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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-14-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-08
File ID: PE-EL3_170505-080
Sampled: 04/28/17 13:00
Prepared: 05/03/17 08:30
Analyzed: 05/05/17 12:45
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0336
Sequence: 1707859
Calibration: UNASSIGNED
Instrument: PE-EL3

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	1.2	1	J	EPA-200.8

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-14-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-09
File ID: PE-EL3_170504-082
Sampled: 04/28/17 12:00
Prepared: 05/03/17 08:30
Analyzed: 05/04/17 13:08
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0336
Sequence: 1707759
Calibration: UNASSIGNED
Instrument: PE-EL3

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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-14-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-09
File ID: PE-EL3_170505-081
Sampled: 04/28/17 12:00
Prepared: 05/03/17 08:30
Analyzed: 05/05/17 12:48
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0336
Sequence: 1707859
Calibration: UNASSIGNED
Instrument: PE-EL3

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	0.60	1	J	EPA-200.8

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-14-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-10
File ID: PE-EL3_170504-083
Sampled: 04/28/17 11:30
Prepared: 05/03/17 08:30
Analyzed: 05/04/17 13:11
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0336
Sequence: 1707759
Calibration: UNASSIGNED
Instrument: PE-EL3

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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-14-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-10
File ID: PE-EL3_170505-082
Sampled: 04/28/17 11:30
Prepared: 05/03/17 08:30
Analyzed: 05/05/17 12:51
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0336
Sequence: 1707859
Calibration: UNASSIGNED
Instrument: PE-EL3

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	0.68	1	J	EPA-200.8

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-14-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-11
File ID: PE-EL3_170504-084
Sampled: 04/28/17 10:45
Prepared: 05/03/17 08:30
Analyzed: 05/04/17 13:15
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0336
Sequence: 1707759
Calibration: UNASSIGNED
Instrument: PE-EL3

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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-14-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-11
File ID: PE-EL3_170505-083
Sampled: 04/28/17 10:45
Prepared: 05/03/17 08:30
Analyzed: 05/05/17 12:55
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BJE0336
Sequence: 1707859
Calibration: UNASSIGNED
Instrument: PE-EL3

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	2.0	1	J	EPA-200.8

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-14-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-12
File ID: PE-EL3_170504-085
Sampled: 04/28/17 10:20
Prepared: 05/03/17 08:30
Analyzed: 05/04/17 13:18
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0336
Sequence: 1707759
Calibration: UNASSIGNED
Instrument: PE-EL3

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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-14-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-12
File ID: PE-EL3_170505-084
Sampled: 04/28/17 10:20
Prepared: 05/03/17 08:30
Analyzed: 05/05/17 12:58
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0336
Sequence: 1707859
Calibration: UNASSIGNED
Instrument: PE-EL3

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	0.86	1	J	EPA-200.8

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

DUP-8-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-13
File ID: PE-EL3_170504-086
Sampled: 04/28/17 12:10
Prepared: 05/03/17 08:30
Analyzed: 05/04/17 13:22
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BJE0336
Sequence: 1707759
Calibration: UNASSIGNED
Instrument: PE-EL3

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: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

DUP-8-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-13
File ID: PE-EL3_170505-085
Sampled: 04/28/17 12:10
Prepared: 05/03/17 08:30
Analyzed: 05/05/17 13:02
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0336
Sequence: 1707859
Calibration: UNASSIGNED
Instrument: PE-EL3

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	0.66	1	J	EPA-200.8

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

EB-9-042817

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-14
File ID: PE-EL3_170504-087
Sampled: 04/28/17 13:30
Prepared: 05/03/17 08:30
Analyzed: 05/04/17 13:25
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0336
Sequence: 1707759
Calibration: UNASSIGNED
Instrument: PE-EL3

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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

EB-9-042817

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-14
File ID: PE-EL3_170505-086
Sampled: 04/28/17 13:30
Prepared: 05/03/17 08:30
Analyzed: 05/05/17 13:05
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BJE0336
Sequence: 1707859
Calibration: UNASSIGNED
Instrument: PE-EL3

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	0.70	1	J	EPA-200.8

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-23-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-02
File ID: PE2_170509-042
Sampled: 04/28/17 09:05
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:02
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0880
Sequence: 1708126
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	46	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	33	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.7	1		EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-23-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-03
File ID: PE2_170509-049
Sampled: 04/28/17 08:25
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:21
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0880
Sequence: 1708126
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	50	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	36	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.9	1		EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-23-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-04
File ID: PE2_170509-043
Sampled: 04/28/17 08:05
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:04
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0880
Sequence: 1708126
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	52	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	17	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	31	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.1	1		EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-23-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-05
File ID: PE2_170509-044
Sampled: 04/28/17 07:00
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:07
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0880
Sequence: 1708126
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	35	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	12	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	29	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.9	1		EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-23-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-06
File ID: PE2_170509-045
Sampled: 04/28/17 06:40
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:09
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0880
Sequence: 1708126
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	4.0	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.32	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	77	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.5	1		EPA-200.7

6/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

DUP-7-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-07
File ID: PE2_170509-046
Sampled: 04/28/17 07:10
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:12
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0880
Sequence: 1708126
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	12	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	28	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.8	1		EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-14-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-08
File ID: PE2_170509-055
Sampled: 04/28/17 13:00
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:37
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0880
Sequence: 1708126
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	160	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	54	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	49	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.0	1		EPA-200.7

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-14-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-09
File ID: PE2_170509-056
Sampled: 04/28/17 12:00
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:40
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0880
Sequence: 1708126
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	56	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	43	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.1	1		EPA-200.7

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-14-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-10
File ID: PE2_170509-057
Sampled: 04/28/17 11:30
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:42
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0880
Sequence: 1708126
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	120	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	52	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	46	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.2	1		EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-14-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-11
File ID: PE2_170509-058
Sampled: 04/28/17 10:45
Prepared: 05/08/17 09:15
Analyzed: 05/09/17 14:45
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0880
Sequence: 1708126
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	25	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	32	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.5	1		EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-14-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-12
File ID: PE2_170510-135
Sampled: 04/28/17 10:20
Prepared: 05/09/17 09:00
Analyzed: 05/10/17 15:46
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E1007
Sequence: 1708312
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	19	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	14	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	35	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.1	1		EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

DUP-8-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-13
File ID: PE2_170510-141
Sampled: 04/28/17 12:10
Prepared: 05/09/17 09:00
Analyzed: 05/10/17 16:02
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BJE1007
Sequence: 1708312
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	55	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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:32:31AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

EB-9-042817

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-14
File ID: PE2_170510-179
Sampled: 04/28/17 13:30
Prepared: 05/09/17 09:00
Analyzed: 05/10/17 17:50
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E1007
Sequence: 1708312
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.016	1	J U	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.019	1	U	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.060	1	J U	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.10	1	U	EPA-200.7

7/6/17

LDC #: 38952D4a

SDG #: 17-11489

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 7/6/17

Reviewer: B

2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 200.7/200.8)

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

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A /A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	SW	
VI.	Field Blanks	SW	EB=13
VII.	Matrix Spike/Matrix Spike Duplicates	A	(14,15), (17,18)-Cr x4x, (20,21), (24,25)
VIII.	Duplicate sample analysis	A	16, 19 (Fe OK by D.F.), 22, 23
IX.	Serial Dilution	A	
X.	Laboratory control samples	A	LCS
XI.	Field Duplicates	SW	(4,6) (8,12)
XII.	Internal Standard (ICP-MS)	A	
XIII.	Sample Result Verification	A	Not reviewed for Level III validation.
XIV.	Overall Assessment of Data	A	

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

** Indicates sample was underwent Level IV review

	Client ID	Lab ID	Matrix	Date
1	MW-23-1**	1711489-02**	Water	04/28/17
2	MW-23-2	1711489-03	Water	04/28/17
3	MW-23-3	1711489-04	Water	04/28/17
4	MW-23-4	1711489-05	Water	04/28/17
5	MW-23-5	1711489-06	Water	04/28/17
6	DUP-7-2Q17	1711489-07	Water	04/28/17
7	MW-14-1	1711489-08	Water	04/28/17
8	MW-14-2	1711489-09	Water	04/28/17
9	MW-14-3**	1711489-10**	Water	04/28/17
10	MW-14-4	1711489-11	Water	04/28/17
11	MW-14-5	1711489-12	Water	04/28/17
12	DUP-8-2Q17	1711489-13	Water	04/28/17
13	EB-9-042817	1711489-14	Water	04/28/17
14	MW-23-1MS	1711489-02MS	Water	04/28/17
15	MW-23-1MSD	1711489-02MSD	Water	04/28/17

LDC #: 38952D4a

SDG #: 17-11489

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 7/6/17

Page: 2 of 2

Reviewer: JB

2nd Reviewer: [signature]

METHOD: Metals (EPA Method 200.7/200.8)

	Client ID	Lab ID	Matrix	Date
16	MW-23-1DUP	1711489-02DUP	Water	04/28/17
17	MW-23-2MS	1711489-03MS	Water	04/28/17
18	MW-23-2MSD	1711489-03MSD	Water	04/28/17
19	MW-23-2DUP	1711489-03DUP	Water	04/28/17
20	MW-14-5MS	1711489-12MS	Water	04/28/17
21	MW-14-5MSD	1711489-12MSD	Water	04/28/17
22	MW-14-5DUP	1711489-12DUP	Water	04/28/17
23	#5 Dup			
24	#5 MS			
25	#5 MSD			
26				
27				

Notes:

LDC #: 38952D4a

VALIDATION FINDINGS CHECKLIST

Reviewer: JB
2nd Reviewer: CV

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

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution ≤5%?	✓			
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were the low standard checks within 70-130%	✓	✓		
Were all initial calibration correlation coefficients within limits as specified by the method?			✓	
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were ≤ 5X the RL.	✓			
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

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

LDC #: 38952D4a

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

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

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-13	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V; Zn, Mo, B, Sn, Ti, U,
QC		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
14-16	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
17-22	W	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
23-25		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
ICP-MS		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U,
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U

Comments: Mercury by CVAA if performed

LDC #: 38952D4a

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

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

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 - 10

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Level									
Ca		0.016371		0.08186									

Sample Concentration units, unless otherwise noted: mg/L
Associated Samples: 11 - 12

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Level									
Na			0.075916	0.37958									

Sample Concentration units, unless otherwise noted: mg/L
Associated Samples: 13

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Level	13								
Ca			0.014907	0.07454	0.016								
Na			0.075155	0.375775	0.060								

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

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Level	13								
Ca		0.018145		0.09073	0.016								
Na		0.078170		0.39085	0.060								

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 #: 38952D4a

VALIDATION FINDINGS WORKSHEET
Field Blanks

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

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

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

Sample: 13 Field Blank / Trip Blank / Rinsate / Other EB (circle one)

Analyte	Concentration Units ( )
Cr	0.70 ug/L
Ca	0.016 mg/L
Na	0.0160 mg/L

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

Analyte	Concentration Units ( )

LDC#: 38952D4a

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JB
2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 200.7/200.8)

Analyte	Concentration (varies)		RPD	
	4	6		
Fe (ug/L)	35	34	3	
Arsenic (ug/L)	1.1	1.2	9	
Cr (ug/L)	3.1	3.0	3	
Ca (mg/L)	35	36	3	
Mg (mg/L)	12	12	0	
Na (mg/L)	29	28	4	
K (mg/L)	1.9	1.8	5	

Analyte	Concentration (varies)		RPD	
	8	12		
Fe (ug/L)	140	150	7	
Cr (ug/L)	0.60	0.66	10	
Ca (mg/L)	150	150	0	
Mg (mg/L)	56	55	2	
Na (mg/L)	43	43	0	
K (mg/L)	3.1	3.0	3	

LDC #: 38952D4

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: JB
2nd Reviewer:

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

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

%R = Found x 100 / True

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

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
ICV	ICP (Initial calibration) 5/9 11:45	Fe	51.00 mg/L	50.000 mg/L	102%	102%	Y
ICV	ICP/MS (Initial calibration) 5/14 9:20	Pb	123.861 ug/L	125.00 ug/L	99.1%	99.1%	Y
	CVAA (Initial calibration)						
CCV	ICP (Continuing calibration) 5/15 14:48	Ca	50.07 mg/L	50.000 mg/L	100%	100%	Y
CCV	ICP/MS (Continuing calibration) 5/15 12:33	Cr	40.461 ug/L	40.000 ug/L	101%	101%	Y
	CVAA (Continuing calibration)						

Comments:

LDC #: 38952D6
SDG #: 17-11489

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: JB
2nd Reviewer: 9

METHOD: Trace metals (EPA CLP SOW ILM02.1)

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

$$\%R = \frac{Found}{True} \times 100$$

Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

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

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample concentration
D = Duplicate sample concentration

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

$$\%D = \frac{|I-SDR|}{I} \times 100$$

Where, I = Initial Sample Result (ug/L)
SDR = Serial Dilution Result (ug/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
IFB	ICP interference check 5/10 13:20	Mg	541.7 mg/L	500.00 mg/L	108%	108%	Y
LCS	Laboratory control sample 5/9 13:56	Fe	1.036 mg/L	1000.0 ug/L	104%	104%	Y
MS	Matrix spike 5/3 21:41	As	SR=ND (SSR-SR) 101.721 ug/L	100.00 ug/L	102%	102%	Y
MSD	Duplicate 21:45	As	102.648 ug/L	Found: 101.721 ug/L	0.907%	0.907% RPD	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.

LDC #: 38952D4
SDG #: 17-11489

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

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

METHOD: Trace metals (EPA CLP SOW ILM02.1)

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

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

Detected analyte results for Fe #1 were recalculated and verified using the following equation:

Concentration = $\frac{(RD)(FV)(Dil)}{(In.\ Vol.)}$

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

Recalculation:

Fe = From Raw Data: 0.5850 mg/L = 585 ug/L

#	Sample ID	Analyte	Reported Concentration ( )	Calculated Concentration ( )	Acceptable (Y/N)
	1	Fe	590 ug/L	590 ug/L	Y
	1	Cr	1.6 ug/L	1.6 ug/L	Y
	9	Ca	120 mg/L	120 mg/L	Y
	9	Mg	52 mg/L	52 mg/L	Y
	9	Na	46 mg/L	46 mg/L	Y
	9	K	3.2 mg/L	3.2 mg/L	Y

Note:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2017

LDC Report Date: July 6, 2017

Parameters: Wet Chemistry

Validation Level: Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 17-11489

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-23-1**	1711489-02**	Water	04/28/17
MW-23-2	1711489-03	Water	04/28/17
MW-23-3	1711489-04	Water	04/28/17
MW-23-4	1711489-05	Water	04/28/17
MW-23-5	1711489-06	Water	04/28/17
DUP-7-2Q17	1711489-07	Water	04/28/17
MW-14-1	1711489-08	Water	04/28/17
MW-14-2	1711489-09	Water	04/28/17
MW-14-3**	1711489-10**	Water	04/28/17
MW-14-4	1711489-11	Water	04/28/17
MW-14-5	1711489-12	Water	04/28/17
DUP-8-2Q17	1711489-13	Water	04/28/17
EB-9-042817	1711489-14	Water	04/28/17
MW-23-1MS	1711489-02MS	Water	04/28/17
MW-23-1MSD	1711489-02MSD	Water	04/28/17
MW-23-1DUP	1711489-02DUP	Water	04/28/17
MW-23-4DUP	1711489-05DUP	Water	04/28/17
MW-14-4MS	1711489-11MS	Water	04/28/17
MW-14-4MSD	1711489-11MSD	Water	04/28/17
MW-14-4DUP	1711489-11DUP	Water	04/28/17
EB-9-042817MS	1711489-14MS	Water	04/28/17
EB-9-042817MSD	1711489-14MSD	Water	04/28/17
EB-9-042817DUP	1711489-14DUP	Water	04/28/17

**Indicates sample underwent Level IV validation

Introduction

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

The analyses were performed by the following methods:

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

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

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

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

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

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

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

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

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

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met 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-23-1** MW-23-2 MW-23-3 MW-23-4 MW-23-5 DUP-7-2Q17 MW-14-1 MW-14-2 MW-14-3** MW-14-4 MW-14-5 DUP-8-2Q17 EB-9-042817	pH	4 days	48 hours	J (all detects)	P
MW-14-1	Nitrate as N	48.15 hours	48 hours	J (all detects)	P
MW-14-2	Nitrate as N	48.85 hours	48 hours	J (all detects)	P

II. Initial Calibration

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

III. Continuing Calibration

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

IV. Laboratory Blanks

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

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Hexavalent chromium	0.0091900 mg/L	MW-23-1** MW-23-2 MW-23-3 MW-23-4 MW-23-5 DUP-7-2Q17 MW-14-1 MW-14-2 MW-14-3**

Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Hexavalent chromium	0.00098800 mg/L	DUP-7-2Q17
ICB/CCB	Hexavalent chromium	0.00085000 mg/L	MW-23-2 MW-23-4 MW-14-3**

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

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-23-2	Hexavalent chromium	0.0014 mg/L	0.0014U mg/L
MW-23-3	Hexavalent chromium	0.0029 mg/L	0.0029U mg/L
MW-23-4	Hexavalent chromium	0.0032 mg/L	0.0032U mg/L
DUP-7-2Q17	Hexavalent chromium	0.0036 mg/L	0.0036U mg/L
MW-14-1	Hexavalent chromium	0.00080 mg/L	0.00080U mg/L
MW-14-2	Hexavalent chromium	0.0018 mg/L	0.0018U mg/L
MW-14-3**	Hexavalent chromium	0.0010 mg/L	0.0010U mg/L

V. Field Blanks

Sample EB-9-042817 was identified as an equipment blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-9-042817	Chloride Nitrite as N	0.18 mg/L 0.10 mg/L

VI. Matrix Spike/Matrix Spike Duplicates

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

VII. Duplicate Sample Analysis

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

VIII. Laboratory Control Samples

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

IX. Field Duplicates

Samples MW-23-4 and DUP-7-2Q17 and samples MW-14-2 and DUP-8-2Q17 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Analyte	Concentration		RPD
	MW-23-4	DUP-7-2Q17	
Chloride	12 mg/L	12 mg/L	0
Sulfate	10 mg/L	10 mg/L	0
Nitrate as N	4.0 mg/L	4.0 mg/L	0
Perchlorate	0.94 ug/L	0.67 ug/L	34
Hexavalent chromium	0.0032 mg/L	0.0036 mg/L	12
Alkalinity, total	150 mg/L	150 mg/L	0
pH	8.36 pH units	8.29 pH units	1
Total dissolved solids	230 mg/L	240 mg/L	4

Analyte	Concentration		RPD
	MW-14-2	DUP-8-2Q17	
Chloride	120 mg/L	120 mg/L	0
Sulfate	180 mg/L	180 mg/L	0
Nitrate as N	11 mg/L	11 mg/L	0
Perchlorate	4.8 ug/L	3.8 ug/L	23

Analyte	Concentration		RPD
	MW-14-2	DUP-8-2Q17	
Nitrite as N	1.4 mg/L	1.6 mg/L	13
Hexavalent chromium	0.0018 mg/L	0.0017 mg/L	6
Alkalinity, total	250 mg/L	250 mg/L	0
pH	7.92 pH units	8.09 pH units	2
Total dissolved solids	820 mg/L	850 mg/L	4

X. Sample Result Verification

All sample result verifications were acceptable for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XI. Overall Assessment of Data

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

Due to technical holding time, data were qualified as estimated in thirteen samples.

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

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

NASA JPL, 2Q2017
Wet Chemistry - Data Qualification Summary - SDG 17-11489

Sample	Analyte	Flag	A or P	Reason
MW-23-1** MW-23-2 MW-23-3 MW-23-4 MW-23-5 DUP-7-2Q17 MW-14-1 MW-14-2 MW-14-3** MW-14-4 MW-14-5 DUP-8-2Q17 EB-9-042817	pH	J (all detects)	P	Technical holding times
MW-14-1 MW-14-2	Nitrate as N	J (all detects)	P	Technical holding times

NASA JPL, 2Q2017
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 17-11489

Sample	Analyte	Modified Final Concentration	A or P
MW-23-2	Hexavalent chromium	0.0014U mg/L	A
MW-23-3	Hexavalent chromium	0.0029U mg/L	A
MW-23-4	Hexavalent chromium	0.0032U mg/L	A
DUP-7-2Q17	Hexavalent chromium	0.0036U mg/L	A
MW-14-1	Hexavalent chromium	0.00080U mg/L	A
MW-14-2	Hexavalent chromium	0.0018U mg/L	A
MW-14-3**	Hexavalent chromium	0.0010U mg/L	A

Tidewater Inc.
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Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-23-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-02
File ID: Tiamo050217-116
Sampled: 04/28/17 09:05
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 18:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BIE0186
Sequence: 1707646
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.62	1	J	EPA-150.1

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EPA-150.1

MW-23-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-03
File ID: Tiamo050217-117
Sampled: 04/28/17 08:25
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 18:43
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0186
Sequence: 1707646
Calibration: UNASSIGNED
Instrument: MET-1

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

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INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-23-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-04
File ID: Tiamo050217-118
Sampled: 04/28/17 08:05
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 18:48
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJE0186
Sequence: 1707646
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.11	1	J	EPA-150.1

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INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-23-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-05
File ID: Tiamo050217-123
Sampled: 04/28/17 07:00
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 19:10
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJE0187
Sequence: 1707646
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.36	1	J	EPA-150.1

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INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-23-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-06
File ID: Tiamo050217-125
Sampled: 04/28/17 06:40
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 19:21
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJE0187
Sequence: 1707646
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	9.63	1	J	EPA-150.1

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DUP-7-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-07
File ID: Tiamo050217-126
Sampled: 04/28/17 07:10
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 19:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0187
Sequence: 1707646
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.29	1	J	EPA-150.1

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Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-14-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-08
File ID: Tiamo050217-127
Sampled: 04/28/17 13:00
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 19:33
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0187
Sequence: 1707646
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.79	1	J	EPA-150.1

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Project Number: 2Q17
Project Manager: David Conner

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EPA-150.1

MW-14-2

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 04/28/17 12:00
Solids: 0.00
Batch: B[E0187 Sequence: 1707646

SDG: 17-11489
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711489-09
Prepared: 05/02/17 09:00
Preparation: No Prep
Calibration: UNASSIGNED

File ID: Tiamo050217-128
Analyzed: 05/02/17 19:39
Initial/Final: 50 ml / 50 ml
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.92	1	J	EPA-150.1

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Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-14-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-10
File ID: Tiamo050217-129
Sampled: 04/28/17 11:30
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 19:45
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0187
Sequence: 1707646
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.09	1	A	EPA-150.1

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Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-14-4

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 04/28/17 10:45
Solids: 0.00
Batch: BJE0187 Sequence: 1707646

SDG: 17-11489
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711489-11
Prepared: 05/02/17 09:00
Preparation: No Prep
Calibration: UNASSIGNED

File ID: Tiamo050217-130
Analyzed: 05/02/17 19:50
Initial/Final: 50 ml / 50 ml
Instrument: MET-1

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

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Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-14-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-12
File ID: Tiamo050217-131
Sampled: 04/28/17 10:20
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 19:55
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJE0187
Sequence: 1707646
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.55	1	J	EPA-150.1

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Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

DUP-8-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-13
File ID: Tiamo050217-132
Sampled: 04/28/17 12:10
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 20:01
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BIE0187
Sequence: 1707646
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.09	1	4	EPA-150.1

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Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

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EPA-150.1

EB-9-042817

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-14
File ID: Tiamo050217-133
Sampled: 04/28/17 13:30
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 20:06
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0187
Sequence: 1707646
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	5.27	1	J	EPA-150.1

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Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-23-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-02
File ID:
Sampled: 04/28/17 09:05
Prepared: 05/04/17 13:00
Analyzed: 05/04/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BJE0535
Sequence: 1708361
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	770	5	D	EPA-160.1

7/6/17

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Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-23-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-03
File ID:
Sampled: 04/28/17 08:25
Prepared: 05/04/17 13:00
Analyzed: 05/04/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0535
Sequence: 1708361
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	780	5	D	EPA-160.1

7/6/17

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Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-23-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-04
File ID:
Sampled: 04/28/17 08:05
Prepared: 05/04/17 13:00
Analyzed: 05/04/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BJE0535
Sequence: 1708361
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

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Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-23-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-05
File ID:
Sampled: 04/28/17 07:00
Prepared: 05/04/17 13:00
Analyzed: 05/04/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0535
Sequence: 1708361
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	230	2	D	EPA-160.1

6/6/17

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Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-23-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-06
File ID:
Sampled: 04/28/17 06:40
Prepared: 05/04/17 13:00
Analyzed: 05/04/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BJE0535
Sequence: 1708361
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

7/6/17

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Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

DUP-7-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-07
File ID:
Sampled: 04/28/17 07:10
Prepared: 05/04/17 13:00
Analyzed: 05/04/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BJE0535
Sequence: 1708361
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	240	2	D	EPA-160.1

7/6/17

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Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-14-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-08
File ID:
Sampled: 04/28/17 13:00
Prepared: 05/04/17 13:00
Analyzed: 05/04/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0535
Sequence: 1708361
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	870	5	D	EPA-160.1

7/6/17

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INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-14-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-09
File ID:
Sampled: 04/28/17 12:00
Prepared: 05/04/17 13:00
Analyzed: 05/04/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0535
Sequence: 1708361
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	820	5	D	EPA-160.1

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Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-14-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-10
File ID:
Sampled: 04/28/17 11:30
Prepared: 05/04/17 13:00
Analyzed: 05/04/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0535
Sequence: 1708361
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	780	5	D	EPA-160.1

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-14-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-11
File ID:
Sampled: 04/28/17 10:45
Prepared: 05/04/17 13:00
Analyzed: 05/04/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0535
Sequence: 1708361
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-14-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-12
File ID:
Sampled: 04/28/17 10:20
Prepared: 05/04/17 13:00
Analyzed: 05/04/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BIE0534
Sequence: 1708361
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	240	2	D	EPA-160.1

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

DUP-8-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-13
File ID:
Sampled: 04/28/17 12:10
Prepared: 05/04/17 13:00
Analyzed: 05/04/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BJE0534
Sequence: 1708361
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	850	5	D	EPA-160.1

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

EB-9-042817

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-14
File ID:
Sampled: 04/28/17 13:30
Prepared: 05/04/17 13:00
Analyzed: 05/04/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0534
Sequence: 1708361
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-23-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-02RE1
File ID: E042917.seq-09
Sampled: 04/28/17 09:05
Prepared: 04/29/17 14:00
Analyzed: 04/29/17 16:39
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BIE0048
Sequence: 1707501
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	97	1		EPA-300.0
14797-55-8	Nitrate as N	11	1		EPA-300.0
14808-79-8	Sulfate	170	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-23-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-03RE1
File ID: E042917.seq-11
Sampled: 04/28/17 08:25
Prepared: 04/29/17 14:00
Analyzed: 04/29/17 17:14
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BIE0048
Sequence: 1707501
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	110	1		EPA-300.0
14797-55-8	Nitrate as N	13	1		EPA-300.0
14808-79-8	Sulfate	170	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-23-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-04
File ID: E042917.seq-12
Sampled: 04/28/17 08:05
Prepared: 04/29/17 14:00
Analyzed: 04/29/17 17:32
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0048
Sequence: 1707501
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	9.6	1		EPA-300.0
14808-79-8	Sulfate	31	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-23-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-05
File ID: E042917.seq-15
Sampled: 04/28/17 07:00
Prepared: 04/29/17 14:00
Analyzed: 04/29/17 18:26
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0048
Sequence: 1707501
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	12	1		EPA-300.0
14797-55-8	Nitrate as N	4.0	1		EPA-300.0
14808-79-8	Sulfate	10	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-23-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-06
File ID: E042917.seq-16
Sampled: 04/28/17 06:40
Prepared: 04/29/17 14:00
Analyzed: 04/29/17 18:44
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0048
Sequence: 1707501
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	9.1	1		EPA-300.0
14797-55-8	Nitrate as N	0.021	1	U	EPA-300.0
14808-79-8	Sulfate	0.60	1	J	EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

DUP-7-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-07
File ID: E042917.seq-17
Sampled: 04/28/17 07:10
Prepared: 04/29/17 14:00
Analyzed: 04/29/17 19:02
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BIE0048
Sequence: 1707501
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	12	1		EPA-300.0
14797-55-8	Nitrate as N	4.0	1		EPA-300.0
14808-79-8	Sulfate	10	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-14-1

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 04/28/17 13:00
Solids: 0.00
Batch: B[E0048 Sequence: 1707501

SDG: 17-11489
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711489-08RE1
Prepared: 04/29/17 14:00
Preparation: No Prep
File ID: E042917.seq-42
Analyzed: 04/30/17 13:09
Initial/Final: 20 ml / 20 ml
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	12	1	J	EPA-300.0
14808-79-8	Sulfate	200	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-14-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-09RE1
File ID: E042917.seq-41
Sampled: 04/28/17 12:00
Prepared: 04/29/17 14:00
Analyzed: 04/30/17 12:51
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0048
Sequence: 1707501
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	J	EPA-300.0
14808-79-8	Sulfate	180	1		EPA-300.0

7/6/17

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-14-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-10
File ID: E042917.seq-20
Sampled: 04/28/17 11:30
Prepared: 04/29/17 14:00
Analyzed: 04/29/17 19:56
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BIE0048
Sequence: 1707501
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	110	1		EPA-300.0
14797-55-8	Nitrate as N	13	1		EPA-300.0
14808-79-8	Sulfate	170	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-14-4

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 04/28/17 10:45
Solids: 0.00
Batch: B[E0049 Sequence: 1707501

SDG: 17-11489
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711489-11
Prepared: 04/29/17 14:00
Preparation: No Prep
Calibration: UNASSIGNED

File ID: E042917.seq-23
Analyzed: 04/29/17 20:49
Initial/Final: 20 ml / 20 ml
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	54	1		EPA-300.0
14797-55-8	Nitrate as N	11	1		EPA-300.0
14808-79-8	Sulfate	55	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-14-5

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 04/28/17 10:20
Solids: 0.00
Batch: BIE0049 Sequence: 1707501

SDG: 17-11489
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711489-12
Prepared: 04/29/17 14:00
Preparation: No Prep
Calibration: UNASSIGNED

File ID: E042917.seq-29
Analyzed: 04/29/17 22:37
Initial/Final: 20 ml / 20 ml
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	0.096	1	J	EPA-300.0
14808-79-8	Sulfate	19	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

DUP-8-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-13
File ID: E042917.seq-30
Sampled: 04/28/17 12:10
Prepared: 04/29/17 14:00
Analyzed: 04/29/17 22:54
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BIE0049
Sequence: 1707501
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	180	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

EB-9-042817

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-14
File ID: E042917.seq-32
Sampled: 04/28/17 13:30
Prepared: 04/29/17 14:00
Analyzed: 04/29/17 23:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0049
Sequence: 1707501
Calibration: UNASSIGNED
Instrument: IC5

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	0.18	1	J	EPA-300.0
14797-55-8	Nitrate as N	0.021	1	U	EPA-300.0
14808-79-8	Sulfate	0.13	1	U	EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-23-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-02
File ID: F051517A.seq-12.0000.txt
Sampled: 04/28/17 09:05
Prepared: 05/15/17 20:30
Analyzed: 05/16/17 01:14
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BIE1766
Sequence: 1708654
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

7/6/17

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

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-23-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-03
File ID: F051517A.seq-34.0000.txt
Sampled: 04/28/17 08:25
Prepared: 05/15/17 20:30
Analyzed: 05/16/17 09:35
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1766
Sequence: 1708654
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	3.6	1	J	EPA-314.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-23-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-04
File ID: F051517A.seq-17.0000.txt
Sampled: 04/28/17 08:05
Prepared: 05/15/17 20:30
Analyzed: 05/16/17 02:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1766
Sequence: 1708654
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

7/6/17

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-23-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-05
File ID: F051517A.seq-20.0000.txt
Sampled: 04/28/17 07:00
Prepared: 05/15/17 20:30
Analyzed: 05/16/17 03:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1766
Sequence: 1708654
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.94	1	J	EPA-314.0

7/6/17

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-23-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-06
File ID: F051517A.seq-21.0000.txt
Sampled: 04/28/17 06:40
Prepared: 05/15/17 20:30
Analyzed: 05/16/17 03:14
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1766
Sequence: 1708654
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

5/16/17

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

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

DUP-7-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-07
File ID: F051517A.seq-22.0000.txt
Sampled: 04/28/17 07:10
Prepared: 05/15/17 20:30
Analyzed: 05/16/17 03:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1766
Sequence: 1708654
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.67	1	J	EPA-314.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-14-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-08
File ID: F051517A.seq-23.0000.txt
Sampled: 04/28/17 13:00
Prepared: 05/15/17 20:30
Analyzed: 05/16/17 03:40
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE1766
Sequence: 1708654
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

7/6/17

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-14-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-09
File ID: F051517A.seq-24.0000.txt
Sampled: 04/28/17 12:00
Prepared: 05/15/17 20:30
Analyzed: 05/16/17 03:54
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1766
Sequence: 1708654
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	4.8	1		EPA-314.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-14-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-10
File ID: F051517A.seq-25.0000.txt
Sampled: 04/28/17 11:30
Prepared: 05/15/17 20:30
Analyzed: 05/16/17 04:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BIE1766
Sequence: 1708654
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	5.0	1		EPA-314.0

7/6/17

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-14-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-11
File ID: F051517A.seq-26.0000.txt
Sampled: 04/28/17 10:45
Prepared: 05/15/17 20:30
Analyzed: 05/16/17 04:20
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1766
Sequence: 1708654
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	3.7	1	J	EPA-314.0

7/6/17

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

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-14-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-12
File ID: F051517A.seq-27.0000.txt
Sampled: 04/28/17 10:20
Prepared: 05/15/17 20:30
Analyzed: 05/16/17 04:34
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BIE1766
Sequence: 1708654
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

DUP-8-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-13
File ID: F051517A.seq-28.0000.txt
Sampled: 04/28/17 12:10
Prepared: 05/15/17 20:30
Analyzed: 05/16/17 04:47
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1766
Sequence: 1708654
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

EB-9-042817

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-14
File ID: F051517A.seq-29.0000.txt
Sampled: 04/28/17 13:30
Prepared: 05/15/17 20:30
Analyzed: 05/16/17 05:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE1766
Sequence: 1708654
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-23-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-02
File ID: 170428 2105 NO2-181
Sampled: 04/28/17 09:05
Prepared: 04/29/17 13:19
Analyzed: 04/29/17 13:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0571
Sequence: 1707765
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-23-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-03
File ID: 170428 2105 NO2-185
Sampled: 04/28/17 08:25
Prepared: 04/29/17 13:19
Analyzed: 04/29/17 13:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BIE0571
Sequence: 1707765
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.013	1	J	EPA-353.2

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-23-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-04
File ID: 170428 2105 NO2-186
Sampled: 04/28/17 08:05
Prepared: 04/29/17 13:19
Analyzed: 04/29/17 13:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0571
Sequence: 1707765
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-23-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-05
File ID: 170428 2105 NO2-187
Sampled: 04/28/17 07:00
Prepared: 04/29/17 13:19
Analyzed: 04/29/17 13:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0571
Sequence: 1707765
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

7/6/17

Tidewater Inc.
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Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-23-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-06
File ID: 170428 2105 NO2-188
Sampled: 04/28/17 06:40
Prepared: 04/29/17 13:19
Analyzed: 04/29/17 13:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0571
Sequence: 1707765
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

7/6/17

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Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

DUP-7-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-07
File ID: 170428 2105 NO2-191
Sampled: 04/28/17 07:10
Prepared: 04/29/17 13:19
Analyzed: 04/29/17 13:24
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0571
Sequence: 1707765
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

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Tidewater Inc.
3761 Attucks Drive
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Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-14-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-08
File ID: 170428 2105 NO2-218
Sampled: 04/28/17 13:00
Prepared: 04/29/17 13:19
Analyzed: 04/29/17 14:03
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0571
Sequence: 1707765
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	J	EPA-353.2

7/6/17

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Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-14-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-09
File ID: 170428 2105 NO2-212
Sampled: 04/28/17 12:00
Prepared: 04/29/17 13:19
Analyzed: 04/29/17 13:33
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0571
Sequence: 1707765
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	1.4	5	D	EPA-353.2

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-14-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-10
File ID: 170428 2105 NO2-194
Sampled: 04/28/17 11:30
Prepared: 04/29/17 13:19
Analyzed: 04/29/17 13:24
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BIE0571
Sequence: 1707765
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.51	1		EPA-353.2

7/6/17

Tidewater Inc.
3761 Attucks Drive
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Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-14-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-11
File ID: 170428 2105 NO2-195
Sampled: 04/28/17 10:45
Prepared: 04/29/17 13:19
Analyzed: 04/29/17 13:24
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0571
Sequence: 1707765
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

7/6/17

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Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-14-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-12
File ID: 170428 2105 NO2-196
Sampled: 04/28/17 10:20
Prepared: 04/29/17 13:19
Analyzed: 04/29/17 13:24
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0572
Sequence: 1707765
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

7/4/17

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

DUP-8-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-13
File ID: 170428 2105 NO2-213
Sampled: 04/28/17 12:10
Prepared: 04/29/17 13:19
Analyzed: 04/29/17 13:33
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0572
Sequence: 1707765
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	1.6	5	D	EPA-353.2

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

EB-9-042817

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-14
File ID: 170428 2105 NO2-198
Sampled: 04/28/17 13:30
Prepared: 04/29/17 13:19
Analyzed: 04/29/17 13:24
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0572
Sequence: 1707765
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	J	EPA-353.2

7/6/17

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Tidewater Inc.
3761 Attucks Drive
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Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-23-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-02
File ID: 170428 2325 CR6-123
Sampled: 04/28/17 09:05
Prepared: 04/28/17 23:25
Analyzed: 04/28/17 23:48
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0309
Sequence: 1707720
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-23-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-03
File ID: 170428 2325 CR6-141
Sampled: 04/28/17 08:25
Prepared: 04/28/17 23:25
Analyzed: 04/29/17 00:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0309
Sequence: 1707720
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0014	1	J Y	EPA-7196

7/6/17 D

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-23-3

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 04/28/17 08:05
Solids: 0.00
Batch: B[E0309 Sequence: 1707720

SDG: 17-11489
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711489-04
Prepared: 04/28/17 23:25
Preparation: No Prep
Calibration: UNASSIGNED

File ID: 170428 2325 CR6-128
Analyzed: 04/28/17 23:48
Initial/Final: 20 ml / 20 ml
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0029	1	U	EPA-7196

7/6/17

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

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-23-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-05
File ID: 170428 2325 CR6-143
Sampled: 04/28/17 07:00
Prepared: 04/28/17 23:25
Analyzed: 04/29/17 00:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0309
Sequence: 1707720
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0032	1	U	EPA-7196

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-23-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-06
File ID: 170428 2325 CR6-130
Sampled: 04/28/17 06:40
Prepared: 04/28/17 23:25
Analyzed: 04/28/17 23:48
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0309
Sequence: 1707720
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

DUP-7-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-07
File ID: 170428 2325 CR6-113
Sampled: 04/28/17 07:10
Prepared: 04/28/17 23:25
Analyzed: 04/28/17 23:28
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0309
Sequence: 1707720
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0036	1	U	EPA-7196

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-14-1

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 04/28/17 13:00
Solids: 0.00
Batch: B[E0309 Sequence: 1707720

SDG: 17-11489
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711489-08
Prepared: 04/28/17 23:25
Preparation: No Prep
Calibration: UNASSIGNED

File ID: 170428 2325 CR6-134
Analyzed: 04/28/17 23:52
Initial/Final: 20 ml / 20 ml
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00080	1	J U	EPA-7196

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-14-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-09
File ID: 170428 2325 CR6-135
Sampled: 04/28/17 12:00
Prepared: 04/28/17 23:25
Analyzed: 04/28/17 23:52
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0309
Sequence: 1707720
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0018	1	J U	EPA-7196

7/6/17

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-14-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-10
File ID: 170428 2325 CR6-146
Sampled: 04/28/17 11:30
Prepared: 04/28/17 23:25
Analyzed: 04/29/17 00:07
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BIE0309
Sequence: 1707720
Calibration: UNASSIGNED
Instrument: KONE-1

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

7/6/17 9

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-14-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-11
File ID: 170428 2325 CR6-157
Sampled: 04/28/17 10:45
Prepared: 04/28/17 23:25
Analyzed: 04/29/17 00:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0310
Sequence: 1707720
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

7/6/17

Tidewater Inc.
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Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-14-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-12
File ID: 170428 2325 CR6-158
Sampled: 04/28/17 10:20
Prepared: 04/28/17 23:25
Analyzed: 04/29/17 00:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0310
Sequence: 1707720
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

6/16/17

Tidewater Inc.
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Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

DUP-8-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-13
File ID: 170428 2325 CR6-159
Sampled: 04/28/17 12:10
Prepared: 04/28/17 23:25
Analyzed: 04/29/17 00:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0310
Sequence: 1707720
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

7/6/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

EB-9-042817

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-14
File ID: 170428 2325 CR6-153
Sampled: 04/28/17 13:30
Prepared: 04/28/17 23:25
Analyzed: 04/29/17 00:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0310
Sequence: 1707720
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

7/6/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-23-1

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-02
File ID: Tiamo050217-116
Sampled: 04/28/17 09:05
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 18:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BIE0186
Sequence: 1707646
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	300	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	250	2	D	SM-2320B

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-23-2

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-03
File ID: Tiamo050217-117
Sampled: 04/28/17 08:25
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 18:43
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0186
Sequence: 1707646
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	280	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	230	2	D	SM-2320B

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-23-3

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-04
File ID: Tiamo050217-118
Sampled: 04/28/17 08:05
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 18:48
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJE0186
Sequence: 1707646
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

6/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-23-4

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-05
File ID: Tiamo050217-123
Sampled: 04/28/17 07:00
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 19:10
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJE0187
Sequence: 1707646
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	170	1		SM-2320B
3812-32-6	Carbonate	4.7	1		SM-2320B
---	Total Alkalinity as CaCO3	150	1		SM-2320B

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-23-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-06
File ID: Tiamo050217-125
Sampled: 04/28/17 06:40
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 19:21
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJE0187
Sequence: 1707646
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	110	1		SM-2320B
3812-32-6	Carbonate	41	1		SM-2320B
---	Total Alkalinity as CaCO3	160	1		SM-2320B

6/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

DUP-7-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-07
File ID: Tiamo050217-126
Sampled: 04/28/17 07:10
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 19:27
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJE0187
Sequence: 1707646
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-14-1

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 04/28/17 13:00
Solids: 0.00
Batch: BJE0187 Sequence: 1707646

SDG: 17-11489
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711489-08
Prepared: 05/02/17 09:00
Preparation: No Prep
Calibration: UNASSIGNED

File ID: Tiamo050217-127
Analyzed: 05/02/17 19:33
Initial/Final: 50 ml / 50 ml
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	300	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	250	2	D	SM-2320B

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-14-2

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 04/28/17 12:00
Solids: 0.00
Batch: BJE0187 Sequence: 1707646

SDG: 17-11489
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711489-09
Prepared: 05/02/17 09:00
Preparation: No Prep
File ID: Tiamo050217-128
Analyzed: 05/02/17 19:39
Initial/Final: 50 ml / 50 ml
Calibration: UNASSIGNED Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	300	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	250	2	D	SM-2320B

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-14-3

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 04/28/17 11:30
Solids: 0.00
Batch: BJE0187 Sequence: 1707646

Laboratory ID: 1711489-10
Prepared: 05/02/17 09:00
Preparation: No Prep

SDG: 17-11489
Project: JPL- GW Monitoring Wells
File ID: Tiamo050217-129
Analyzed: 05/02/17 19:45
Initial/Final: 50 ml / 50 ml
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-14-4

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 04/28/17 10:45
Solids: 0.00
Batch: B[E0187 Sequence: 1707646

SDG: 17-11489
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711489-11
Prepared: 05/02/17 09:00
Preparation: No Prep
Calibration: UNASSIGNED

File ID: Tiamo050217-130
Analyzed: 05/02/17 19:50
Initial/Final: 50 ml / 50 ml
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

7/6/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-14-5

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-12
File ID: Tiamo050217-131
Sampled: 04/28/17 10:20
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 19:55
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0187
Sequence: 1707646
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	140	1		SM-2320B
3812-32-6	Carbonate	6.6	1		SM-2320B
---	Total Alkalinity as CaCO3	130	1		SM-2320B

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

DUP-8-2Q17

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-13
File ID: Tiamo050217-132
Sampled: 04/28/17 12:10
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 20:01
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0187
Sequence: 1707646
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
71-52-3	Bicarbonate	300	2	D	SM-2320B
3812-32-6	Carbonate	5.0	2	UD	SM-2320B
---	Total Alkalinity as CaCO3	250	2	D	SM-2320B

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/19/2017 2:40:38PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

EB-9-042817

Laboratory: BC Laboratories
SDG: 17-11489
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711489-14
File ID: Tiamo050217-133
Sampled: 04/28/17 13:30
Prepared: 05/02/17 09:00
Analyzed: 05/02/17 20:06
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0187
Sequence: 1707646
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

7/6/17

LDC #: 38952D6 **VALIDATION COMPLETENESS WORKSHEET** Date: 7/6/17
SDG #: 17-11489 Level III/IV Page: 1 of 2
Laboratory: BC Laboratories, Inc. Reviewer:
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.	Sample receipt/Technical holding times	A /SW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	
V	Field blanks	SW	EB = 13
VI.	Matrix Spike/Matrix Spike Duplicates	A	
VII.	Duplicate sample analysis	A	
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	SW	(4,4) (9,12)
X.	Sample result verification	A	Not reviewed for Level III validation.
XI	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank
** Indicates sample was underwent Level IV review

	Client ID	Lab ID	Matrix	Date
1	MW-23-1**	1711489-02**	Water	04/28/17
2	MW-23-2	1711489-03	Water	04/28/17
3	MW-23-3	1711489-04	Water	04/28/17
4	MW-23-4	1711489-05	Water	04/28/17
5	MW-23-5	1711489-06	Water	04/28/17
6	DUP-7-2Q17	1711489-07	Water	04/28/17
7	MW-14-1	1711489-08	Water	04/28/17
8	MW-14-2	1711489-09	Water	04/28/17
9	MW-14-3**	1711489-10**	Water	04/28/17
10	MW-14-4	1711489-11	Water	04/28/17
11	MW-14-5	1711489-12	Water	04/28/17
12	DUP-8-2Q17	1711489-13	Water	04/28/17
13	EB-9-042817	1711489-14	Water	04/28/17
14	MW-23-1MS 3 ClN,ie	1711489-02MS	Water	04/28/17
15	MW-23-1MSD	1711489-02MSD	Water	04/28/17
16	MW-23-1DUP T	1711489-02DUP	Water	04/28/17
17	MW-23-4DUP pH	1711489-05DUP	Water	04/28/17

LDC #: 38952D6 **VALIDATION COMPLETENESS WORKSHEET** Date: 7/6/17
SDG #: 17-11489 Level III/IV Page: 2 of 2
Laboratory: BC Laboratories, Inc. Reviewer: JB
2nd Reviewer: CV

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)

	Client ID	Lab ID	Matrix	Date
18	MW-14-4MS 3	1711489-11MS	Water	04/28/17
19	MW-14-4MSD	1711489-11MSD	Water	04/28/17
20	MW-14-4DUP	1711489-11DUP	Water	04/28/17
21	EB-9-042817MS	1711489-14MS	Water	04/28/17
22	EB-9-042817MSD	1711489-14MSD	Water	04/28/17
23	EB-9-042817DUP	1711489-14DUP	Water	04/28/17
24				
25				
26				
27				
28				

Notes:

LDC #: 38952D6

VALIDATION FINDINGS CHECKLIST

Reviewer: JB
2nd Reviewer:

Method: Inorganics (EPA Method See Cover)

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

LDC #: 38952D6

VALIDATION FINDINGS CHECKLIST

Reviewer: JB
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
X. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			

DC #: 38952D6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: JB
2nd reviewer: [illegible]

.ll circled methods are applicable to each sample.

Sample ID	Parameter
1 – 13	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
QC	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
14-15	pH TDS **Cl** F **NO_3** **NO_2** **SO_4** O-PO_4 Alk CN NH_3 TKN TOC **Cr6+** **ClO_4**
16	pH **TDS** **Cl** F **NO_3** **NO_2** **SO_4** O-PO_4 Alk CN NH_3 TKN TOC **Cr6+** **ClO_4**
17	**pH** TDS Cl F NO_3 NO_2 SO_4 O-PO_4 **Alk** CN NH_3 TKN TOC Cr6+ ClO_4
18 - 20	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
21 - 24	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC **Cr6+** ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4

Comments:

LDC #: 38952D6

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: JB
2nd reviewer:

All circled dates have exceeded the technical holding time.
(Y) N N/A Were all samples preserved as applicable to each method ?
(Y) N N/A Were all cooler temperatures within validation criteria?

Method:	EPA 150.1						
Parameters:	pH						
Technical holding time:	48 hours						
Sample ID	Sampling date	Analysis date	Total Time	Qualifier	Analysis date	Total Time	Qualifier
1	4/28/17	5/2/17	4 days	J/UJ/P			
2	4/28/17	5/2/17	4 days	J/UJ/P			
3	4/28/17	5/2/17	4 days	J/UJ/P			
4	4/28/17	5/2/17	4 days	J/UJ/P			
5	4/28/17	5/2/17	4 days	J/UJ/P			
6	4/28/17	5/2/17	4 days	J/UJ/P			
7	4/28/17	5/2/17	4 days	J/UJ/P			
8	4/28/17	5/2/17	4 days	J/UJ/P			
9	4/28/17	5/2/17	4 days	J/UJ/P			
10	4/28/17	5/2/17	4 days	J/UJ/P			
11	4/28/17	5/2/17	4 days	J/UJ/P			
12	4/28/17	5/2/17	4 days	J/UJ/P			
13	4/28/17	5/2/17	4 days	J/UJ/P			

Method:	EPA 300.0						
Parameters:	Nitrate as N						
Technical holding time:	48 hours						
Sample ID	Sampling date	Analysis date	Total Time	Qualifier	Analysis date	Total Time	Qualifier
7	4/28/17 13:00	4/29/17 13:09	48.15	J/UJ/P (det)			
8	4/28/17 12:00	4/29/17 12:51	48.85	J/UJ/P (det)			

LDC #: 38952D6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: VB
2nd Reviewer: [signature]

METHOD: Inorganics, Method See Cover

Conc. units: mg/L **Associated Samples:** 1 - 9

Analyte	Blank ID	Blank ID	Blank Action Limit										
	PB	ICB/CCB (mg/L)		2	3	4	6	7	8	9			
Cr6+	0.00091900		0.004595	0.0014	0.0029	0.0032	0.0036	0.00080	0.0018	0.0010			

Conc. units: mg/L **Associated Samples:** 6

Analyte	Blank ID	Blank ID	Blank Action Limit										
	PB	ICB/CCB (mg/L)		6									
Cr6+		0.00098800	0.00494	0.0036									

Conc. units: mg/L **Associated Samples:** 2, 4, 9

Analyte	Blank ID	Blank ID	Blank Action Limit										
	PB	ICB/CCB (mg/L)		2	4	9							
Cr6+		0.00085000	0.00425	0.0014	0.0032	0.0010							

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

LDC #: 38952D6

VALIDATION FINDINGS WORKSHEET
Field Blanks

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

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

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

Sample: 13 Field Blank / Trip Blank / Rinsate / Other EB (circle one)

Analyte	Concentration Units ( )
Cl^-	0.18 mg/L
NO_2	0.10 mg/L

Sample: _____ Field Blank / Trip Blank / Rinsate / Other_____ (circle one)

Analyte	Concentration Units ( )

LDC# 38952D6

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JB
2nd Reviewer:

Inorganics: Method See Cover

Analyte	Concentration (mg/L) 4	Concentration (mg/L) 6	RPD	
Chloride	12	12	0	
Sulfate	10	10	0	
Nitrate as N	4.0	4.0	0	
Perchlorate	0.94 MB	0.67 MB	34	
Hexavalent Chromium	0.0032	0.0036	12	
Alkalinity total	150	150	0	
pH	8.36 (pH units)	8.29 (pH units)	1	
TDS	230	240	4	

Analyte	Concentration (mg/L) 8	Concentration (mg/L) 12	RPD	
Chloride	120	120	0	
Sulfate	180	180	0	
Nitrate as N	11	11	0	
Perchlorate	4.8 MB	3.8 MB	23	
Nitrite as N	1.4	1.6	13	
Hexavalent Chromium	0.0018	0.0017	6	
Alkalinity total	250	250	0	
pH	7.92 (pH units)	8.09 (pH units)	2	
TDS	820	850	4	

LDC #: 38952D6

Validation Findings Worksheet
Initial and Continuing Calibration Calculation Verification

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

Method: Inorganics, Method See Cover

The correlation coefficient (r) for the calibration of Cr^{6+} was recalculated. Calibration date: 4/19/17

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. (ug/L)	Area	Recalculated r or r^2	Reported r or r^2	Acceptable (Y/N)
Initial calibration	Cr^{6+}	s1	0	-0.00008	*0.999817*	*0.999817*	Y
		s2	0.002	0.00131			
		s3	0.005	0.00354			
		s4	0.025	0.01847			
		s5	0.05	0.03756			
		s6	0.1	0.07325			
Calibration verification	SO_4^-	Icv	99.538mg/L	100.00 mg/L	99.5%	98.3%	Y
Calibration verification	NO_2	CCV	0.50986mg/L	0.50000mg/L	102%	102%	Y
Calibration verification							

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

LDC #: 38952D6

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: JB
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 = Found x 100 Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True
True = concentration of each analyte in the source.

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

RPD = |S-D| x 100 Where, S = Original sample concentration
(S+D)/2 D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
LCS	Laboratory control sample	Cr^{6+}	0.0516 mg/L	0.050000 mg/L	103%	103%	Y
MS	Matrix spike sample 23-1	NO_3	SR = 10.618 mg/L (SSR-SR) 21.1834 - 10.618 = 10.5654 mg/L	10.101 mg/L	105%	105%	Y
MSD	Duplicate sample	NO_3	21.2622 mg/L	Found: 21.1834 mg/L	0.155% RPD	0.362% RPD	Y

Comments: _____

LDC #: 38952D4

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

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

METHOD: Inorganics, Method See Cover

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

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

Compound (analyte) results for Cl^- reported with a positive detect were recalculated and verified using the following equation:

Concentration = Recalculation:

$$Cl^- = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$a = 0.0003$
$b = 0.1959$
$c = -0.0156$

$Cl^- = 96.6362\ mg/L$

#	Sample ID	Analyte	Reported Concentration ( )	Calculated Concentration ( )	Acceptable (Y/N)
	1	pH	7.62 pH units	7.62 pH units	Y
	1	TDS	770 mg/L	770 mg/L	Y
	1	Cl^-	97 mg/L	97 mg/L	Y
	1	NO_3	11 mg/L	11 mg/L	Y
	1	SO_4	170 mg/L	170 mg/L	Y
	9	ClO_4^-	5.0 ug/L	5.0 ug/L	Y
	9	NO_2	0.51 mg/L	0.51 mg/L	Y
	9	$Cr6^+$	0.0010 mg/L	0.0013 mg/L	Y
	9	Alk	220 mg/L	220 mg/L	Y

Note:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2017

LDC Report Date: July 6, 2017

Parameters: Volatiles

Validation Level: Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 17-11629

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TB-11-050117	1711629-01	Water	05/01/17
MW-11-1	1711629-02	Water	05/01/17
MW-11-2	1711629-03	Water	05/01/17
MW-11-3**	1711629-04**	Water	05/01/17
MW-11-4	1711629-05	Water	05/01/17
MW-11-5	1711629-06	Water	05/01/17
MW-12-1	1711629-07	Water	05/01/17
MW-12-2	1711629-08	Water	05/01/17
MW-12-3	1711629-09	Water	05/01/17
MW-12-4	1711629-10	Water	05/01/17
MW-12-5	1711629-11	Water	05/01/17
MW-24-1	1711629-12	Water	05/01/17
EB-10-050117	1711629-13	Water	05/01/17
MW-11-2MS	1711629-03MS	Water	05/01/17
MW-11-2MSD	1711629-03MSD	Water	05/01/17
MW-12-3MS	1711629-09MS	Water	05/01/17
MW-12-3MSD	1711629-09MSD	Water	05/01/17

**Indicates sample underwent Level IV review

Introduction

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

The analyses were performed by the following method:

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

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

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

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

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

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

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

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

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

Date	Compound	%D	Associated Samples	Flag	A or P
05/07/17 (07MAY02)	Methyl iodide	43.5	TB-11-050117 MW-11-1 MW-11-2 MW-11-3** MW-11-4 MW-11-5 MW-12-1	UJ (all non-detects)	P
05/08/17 (08MAY02)	Bromomethane	63.1	MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-24-1 EB-10-050117	UJ (all non-detects)	P
05/08/17 (08MAY03)	trans-1,4-Dichloro-2-butene Methyl iodide	53.3 49.3	MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-24-1 EB-10-050117	UJ (all non-detects) UJ (all non-detects)	P

V. Laboratory Blanks

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

VI. Field Blanks

Sample TB-11-050117 was identified as a trip blank. No contaminants were found.

Sample EB-10-050117 was identified as an equipment blank. No contaminants were found with the following exceptions:

Blank ID	Compound	Concentration
EB-10-050117	Chloroform	9.1 ug/L

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

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

IX. Laboratory Control Samples

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

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

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

XII. Compound Quantitation

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

XIII. Target Compound Identifications

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

XIV. System Performance

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

XV. Overall Assessment of Data

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

Due ICV %D and continuing calibration %D, data were qualified as estimated in thirteen samples.

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

NASA JPL, 2Q2017
Volatiles - Data Qualification Summary - SDG 17-11629

Sample	Compound	Flag	A or P	Reason
TB-11-050117 MW-11-1 MW-11-2 MW-11-3** MW-11-4 MW-11-5 MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-24-1 EB-10-050117	Pentachloroethane	UJ (all non-detects)	P	Initial calibration verification (%D)
TB-11-050117 MW-11-1 MW-11-2 MW-11-3** MW-11-4 MW-11-5 MW-12-1	Bromomethane Methyl iodide	UJ (all non-detects)	P	Continuing calibration (%D)
MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-24-1 EB-10-050117	Bromomethane trans-1,4-Dichloro-2-butene Methyl iodide	UJ (all non-detects) UJ (all non-detects) UJ (all non-detects)	P	Continuing calibration (%D)

NASA JPL, 2Q2017
Volatiles - Laboratory Blank Data Qualification Summary - SDG 17-11629

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-11-050117

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-01	File ID:	07MAY15.D
Sampled:	05/01/17 06:30	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 11:51
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707891	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U UJ
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-11-050117

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-01	File ID:	07MAY15.D
Sampled:	05/01/17 06:30	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 11:51
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707891	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-11-050117

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-01	File ID:	07MAY15.D
Sampled:	05/01/17 06:30	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 11:51
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJE0786	Sequence:	1707891	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U US
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U US
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.5200	95.2	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.7700	97.7	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2400	92.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	214789	6.58	205570	6.58	
Chlorobenzene-d5 (IS)	79524	9.62	83858	9.62	
1,4-Difluorobenzene (IS)	329069	7.39	323277	7.39	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

TB-11-050117

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-01	File ID:	07MAY15.D
Sampled:	05/01/17 06:30	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 11:51
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707891	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-1

Laboratory: BC Laboratories | SDG: 17-11629
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711629-02 | File ID: 07MAY16.D
Sampled: 05/01/17 14:45 | Prepared: 05/07/17 10:06 | Analyzed: 05/07/17 12:14
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: BJE0786 | Sequence: 1707891 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-1

Laboratory:	BC Laboratories			SDG:	17-11629
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1711629-02	File ID:	07MAY16.D
Sampled:	05/01/17 14:45	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 12:14
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: BJE0786 Sequence: 1707891 Calibration: 1704006 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-1

Laboratory:	BC Laboratories			SDG:	17-11629		
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells		
Matrix:	Water	Laboratory ID:	1711629-02	File ID:	07MAY16.D		
Sampled:	05/01/17 14:45	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 12:14		
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml		
Batch:	B[E0786	Sequence:	1707891	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.6800	96.8	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9100	99.1	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2400	92.4	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	212338	6.58	205570	6.58	
Chlorobenzene-d5 (IS)	79428	9.62	83858	9.62	
1,4-Difluorobenzene (IS)	311249	7.39	323277	7.39	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-1

Laboratory:	BC Laboratories			SDG:	17-11629		
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells		
Matrix:	Water	Laboratory ID:	1711629-02	File ID:	07MAY16.D		
Sampled:	05/01/17 14:45	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 12:14		
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml		
Batch:	B[E0786	Sequence:	1707891	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-2

Laboratory: BC Laboratories | SDG: 17-11629
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711629-03 | File ID: 07MAY14.D
Sampled: 05/01/17 14:20 | Prepared: 05/07/17 10:06 | Analyzed: 05/07/17 11:28
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: BIE0786 | Sequence: 1707891 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U LCS
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-2

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-03	File ID:	07MAY14.D
Sampled:	05/01/17 14:20	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 11:28
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707891	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-2

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-03	File ID:	07MAY14.D
Sampled:	05/01/17 14:20	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 11:28
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707891	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.0400	90.4	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8200	98.2	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.9700	99.7	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	218225	6.58	205570	6.58	
Chlorobenzene-d5 (IS)	78361	9.62	83858	9.62	
1,4-Difluorobenzene (IS)	323026	7.39	323277	7.39	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-2

Laboratory:	BC Laboratories			SDG:	17-11629		
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells		
Matrix:	Water	Laboratory ID:	1711629-03	File ID:	07MAY14.D		
Sampled:	05/01/17 14:20	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 11:28		
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml		
Batch:	B[E0786	Sequence:	1707891	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-3

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-04	File ID:	07MAY17.D
Sampled:	05/01/17 13:40	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 12:38
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707891	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U UJ
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-3

Laboratory:	BC Laboratories			SDG:	17-11629		
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells		
Matrix:	Water	Laboratory ID:	1711629-04	File ID:	07MAY17.D		
Sampled:	05/01/17 13:40	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 12:38		
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml		
Batch:	B[E0786	Sequence:	1707891	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.19	J
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.30	J
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.79	
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.29	J
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.42	J
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/6/17 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-3

Laboratory: BC Laboratories | SDG: 17-11629
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711629-04 | File ID: 07MAY17.D
Sampled: 05/01/17 13:40 | Prepared: 05/07/17 10:06 | Analyzed: 05/07/17 12:38
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0786 | Sequence: 1707891 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U U5
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U U5
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.030	100	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9300	99.3	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.5300	95.3	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	200402	6.58	205570	6.58	
Chlorobenzene-d5 (IS)	75282	9.62	83858	9.62	
1,4-Difluorobenzene (IS)	302728	7.39	323277	7.39	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-3

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-04	File ID:	07MAY17.D
Sampled:	05/01/17 13:40	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 12:38
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707891	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-4

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-05	File ID:	07MAY18.D
Sampled:	05/01/17 13:10	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 13:01
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJE0786	Sequence: 1707891	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U UJ
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

7/6/17 [illegible]

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-4

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-05	File ID:	07MAY18.D
Sampled:	05/01/17 13:10	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 13:01
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJE0786	Sequence: 1707891	Calibration:	1704006	Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.18	J
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-4

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-05	File ID:	07MAY18.D
Sampled:	05/01/17 13:10	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 13:01
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707891	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.7500	97.5	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9000	99.0	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.7200	87.2	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	187862	6.58	205570	6.58	
Chlorobenzene-d5 (IS)	70401	9.62	83858	9.62	
1,4-Difluorobenzene (IS)	282219	7.38	323277	7.39	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-4

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-05	File ID:	07MAY18.D
Sampled:	05/01/17 13:10	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 13:01
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707891	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-5

Laboratory: BC Laboratories | SDG: 17-11629
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711629-06 | File ID: 07MAY19.D
Sampled: 05/01/17 12:25 | Prepared: 05/07/17 10:06 | Analyzed: 05/07/17 13:24
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0786 | Sequence: 1707891 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U UJ
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-5

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-06	File ID:	07MAY19.D
Sampled:	05/01/17 12:25	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 13:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707891	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/6/17 q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-5

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-06	File ID:	07MAY19.D
Sampled:	05/01/17 12:25	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 13:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707891	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.8900	98.9	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8400	98.4	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.1800	91.8	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	206147	6.58	205570	6.58	
Chlorobenzene-d5 (IS)	78557	9.62	83858	9.62	
1,4-Difluorobenzene (IS)	308435	7.39	323277	7.39	

* Values outside of QC limits

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-11-5

Laboratory:	BC Laboratories			SDG:	17-11629		
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells		
Matrix:	Water	Laboratory ID:	1711629-06	File ID:	07MAY19.D		
Sampled:	05/01/17 12:25	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 13:24		
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml		
Batch:	B[E0786	Sequence:	1707891	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-1

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-07	File ID:	07MAY20.D
Sampled:	05/01/17 09:15	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 13:47
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707891	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U MS
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-1

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-07	File ID:	07MAY20.D
Sampled:	05/01/17 09:15	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 13:47
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJE0786	Sequence:	1707891	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-1

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-07	File ID:	07MAY20.D
Sampled:	05/01/17 09:15	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 13:47
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJE0786	Sequence:	1707891	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.000	100	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.5900	95.9	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.9300	89.3	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	200767	6.58	205570	6.58	
Chlorobenzene-d5 (IS)	79394	9.62	83858	9.62	
1,4-Difluorobenzene (IS)	307397	7.39	323277	7.39	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-1

Laboratory:	BC Laboratories			SDG:	17-11629		
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells		
Matrix:	Water	Laboratory ID:	1711629-07	File ID:	07MAY20.D		
Sampled:	05/01/17 09:15	Prepared:	05/07/17 10:06	Analyzed:	05/07/17 13:47		
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml		
Batch:	BJE0786	Sequence:	1707891	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-2

Laboratory: BC Laboratories | SDG: 17-11629
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711629-08 | File ID: 08MAY13.D
Sampled: 05/01/17 08:45 | Prepared: 05/07/17 10:06 | Analyzed: 05/08/17 11:01
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0786 | Sequence: 1707902 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U LS
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.14	U
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

6/6/17 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-2

Laboratory: BC Laboratories | SDG: 17-11629
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711629-08 | File ID: 08MAY13.D
Sampled: 05/01/17 08:45 | Prepared: 05/07/17 10:06 | Analyzed: 05/08/17 11:01
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0786 | Sequence: 1707902 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-2

Laboratory: BC Laboratories | SDG: 17-11629
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711629-08 | File ID: 08MAY13.D
Sampled: 05/01/17 08:45 | Prepared: 05/07/17 10:06 | Analyzed: 05/08/17 11:01
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0786 | Sequence: 1707902 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	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	9.7200	97.2	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.8200	98.2	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	192873	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	68378	9.61	75608	9.62	
1,4-Difluorobenzene (IS)	297916	7.38	295651	7.38	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-2

Laboratory:	BC Laboratories			SDG:	17-11629		
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells		
Matrix:	Water	Laboratory ID:	1711629-08	File ID:	08MAY13.D		
Sampled:	05/01/17 08:45	Prepared:	05/07/17 10:06	Analyzed:	05/08/17 11:01		
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml		
Batch:	B[E0786	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-3

Laboratory:	BC Laboratories			SDG:	17-11629
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells
Matrix:	Water	Laboratory ID:	1711629-09	File ID:	08MAY07.D
Sampled:	05/01/17 08:15	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 08:42
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml

Batch: B[E0790 Sequence: 1707902 Calibration: 1704006 Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U U5
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.53	
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.58	
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-3

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-09	File ID:	08MAY07.D
Sampled:	05/01/17 08:15	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 08:42
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-3

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-09	File ID:	08MAY07.D
Sampled:	05/01/17 08:15	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 08:42
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	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	9.5900	95.9	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.4300	94.3	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	185624	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	71321	9.62	75608	9.62	
1,4-Difluorobenzene (IS)	293157	7.39	295651	7.38	

* Values outside of QC limits

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-3

Laboratory:	BC Laboratories			SDG:	17-11629		
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells		
Matrix:	Water	Laboratory ID:	1711629-09	File ID:	08MAY07.D		
Sampled:	05/01/17 08:15	Prepared:	05/08/17 07:00	Analyzed:	05/08/17 08:42		
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml		
Batch:	B[E0790	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-4

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-10	File ID:	08MAY14.D
Sampled:	05/01/17 07:35	Prepared:	05/07/17 10:06	Analyzed:	05/08/17 11:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U U5
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.34	J
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.39	J
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-4

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-10	File ID:	08MAY14.D
Sampled:	05/01/17 07:35	Prepared:	05/07/17 10:06	Analyzed:	05/08/17 11:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/6/17 D

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-4

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-10	File ID:	08MAY14.D
Sampled:	05/01/17 07:35	Prepared:	05/07/17 10:06	Analyzed:	05/08/17 11:24
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.8000	98.0	75 - 125	
Toluene-d8 (Surrogate)	10.000	10.080	101	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.7100	97.1	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	186335	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	67620	9.62	75608	9.62	
1,4-Difluorobenzene (IS)	281473	7.39	295651	7.38	

* Values outside of QC limits

6/6/17 Q

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-4

Laboratory:	BC Laboratories			SDG:	17-11629		
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells		
Matrix:	Water	Laboratory ID:	1711629-10	File ID:	08MAY14.D		
Sampled:	05/01/17 07:35	Prepared:	05/07/17 10:06	Analyzed:	05/08/17 11:24		
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml		
Batch:	BJE0786	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-5

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-11	File ID:	08MAY15.D
Sampled:	05/01/17 07:15	Prepared:	05/07/17 10:06	Analyzed:	05/08/17 11:47
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U LCS
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.25	J
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	0.28	J
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-5

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-11	File ID:	08MAY15.D
Sampled:	05/01/17 07:15	Prepared:	05/07/17 10:06	Analyzed:	05/08/17 11:47
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	BJE0786	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

6/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-5

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-11	File ID:	08MAY15.D
Sampled:	05/01/17 07:15	Prepared:	05/07/17 10:06	Analyzed:	05/08/17 11:47
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.430	104	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.8000	98.0	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	9.2500	92.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	191636	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	71666	9.62	75608	9.62	
1,4-Difluorobenzene (IS)	281424	7.39	295651	7.38	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-12-5

Laboratory:	BC Laboratories			SDG:	17-11629		
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells		
Matrix:	Water	Laboratory ID:	1711629-11	File ID:	08MAY15.D		
Sampled:	05/01/17 07:15	Prepared:	05/07/17 10:06	Analyzed:	05/08/17 11:47		
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml		
Batch:	B[E0786	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-1

Laboratory: BC Laboratories | SDG: 17-11629
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711629-12 | File ID: 08MAY16.D
Sampled: 05/01/17 10:30 | Prepared: 05/07/17 10:06 | Analyzed: 05/08/17 12:10
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0786 | Sequence: 1707902 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U UJ
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	2.4	
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-1

Laboratory: BC Laboratories | SDG: 17-11629
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711629-12 | File ID: 08MAY16.D
Sampled: 05/01/17 10:30 | Prepared: 05/07/17 10:06 | Analyzed: 05/08/17 12:10
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0786 | Sequence: 1707902 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-1

Laboratory: BC Laboratories | SDG: 17-11629
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711629-12 | File ID: 08MAY16.D
Sampled: 05/01/17 10:30 | Prepared: 05/07/17 10:06 | Analyzed: 05/08/17 12:10
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0786 | Sequence: 1707902 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U U5
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U U5
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U U5
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	10.030	100	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9400	99.4	80 - 120	
4-Bromofluorobenzene (Surrogate)	10.000	8.9500	89.5	80 - 120	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
Pentafluorobenzene (IS)	185482	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	73659	9.62	75608	9.62	
1,4-Difluorobenzene (IS)	276762	7.38	295651	7.38	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

MW-24-1

Laboratory:	BC Laboratories			SDG:	17-11629		
Client:	Tidewater Inc.			Project:	JPL- GW Monitoring Wells		
Matrix:	Water	Laboratory ID:	1711629-12	File ID:	08MAY16.D		
Sampled:	05/01/17 10:30	Prepared:	05/07/17 10:06	Analyzed:	05/08/17 12:10		
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml		
Batch:	B[E0786	Sequence:	1707902	Calibration:	1704006	Instrument:	MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-10-050117

Laboratory: BC Laboratories | SDG: 17-11629
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711629-13 | File ID: 08MAY17.D
Sampled: 05/01/17 15:00 | Prepared: 05/07/17 10:06 | Analyzed: 05/08/17 12:33
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0786 | Sequence: 1707902 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
71-43-2	Benzene	1	0.11	U
108-86-1	Bromobenzene	1	0.15	U
74-97-5	Bromochloromethane	1	0.27	U
75-27-4	Bromodichloromethane	1	0.20	U
75-25-2	Bromoform	1	0.46	U
74-83-9	Bromomethane	1	0.20	U LS
104-51-8	n-Butylbenzene	1	0.15	U
135-98-8	sec-Butylbenzene	1	0.13	U
98-06-6	tert-Butylbenzene	1	0.18	U
56-23-5	Carbon tetrachloride	1	0.17	U
108-90-7	Chlorobenzene	1	0.14	U
75-00-3	Chloroethane	1	0.17	U
67-66-3	Chloroform	1	9.1	
74-87-3	Chloromethane	1	0.11	U
95-49-8	2-Chlorotoluene	1	0.14	U
106-43-4	4-Chlorotoluene	1	0.093	U
124-48-1	Dibromochloromethane	1	0.22	U
96-12-8	1,2-Dibromo-3-chloropropane	1	0.89	U
106-93-4	1,2-Dibromoethane	1	0.22	U
74-95-3	Dibromomethane	1	0.23	U
95-50-1	1,2-Dichlorobenzene	1	0.21	U
541-73-1	1,3-Dichlorobenzene	1	0.16	U
106-46-7	1,4-Dichlorobenzene	1	0.15	U
75-71-8	Dichlorodifluoromethane	1	0.15	U
75-34-3	1,1-Dichloroethane	1	0.15	U
107-06-2	1,2-Dichloroethane	1	0.17	U
75-35-4	1,1-Dichloroethene	1	0.27	U
156-59-2	cis-1,2-Dichloroethene	1	0.27	U
156-60-5	trans-1,2-Dichloroethene	1	0.17	U
78-87-5	1,2-Dichloropropane	1	0.15	U
142-28-9	1,3-Dichloropropane	1	0.13	U
594-20-7	2,2-Dichloropropane	1	0.18	U

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-10-050117

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-13	File ID:	08MAY17.D
Sampled:	05/01/17 15:00	Prepared:	05/07/17 10:06	Analyzed:	05/08/17 12:33
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
563-58-6	1,1-Dichloropropene	1	0.19	U
10061-01-5	cis-1,3-Dichloropropene	1	0.14	U
10061-02-6	trans-1,3-Dichloropropene	1	0.13	U
100-41-4	Ethylbenzene	1	0.15	U
87-68-3	Hexachlorobutadiene	1	0.20	U
98-82-8	Isopropylbenzene	1	0.14	U
99-87-6	p-Isopropyltoluene	1	0.14	U
75-09-2	Methylene chloride	1	0.21	U
1634-04-4	Methyl t-butyl ether	1	0.14	U
91-20-3	Naphthalene	1	0.16	U
103-65-1	n-Propylbenzene	1	0.12	U
100-42-5	Styrene	1	0.12	U
630-20-6	1,1,1,2-Tetrachloroethane	1	0.21	U
79-34-5	1,1,2,2-Tetrachloroethane	1	0.17	U
127-18-4	Tetrachloroethene	1	0.23	U
108-88-3	Toluene	1	0.17	U
87-61-6	1,2,3-Trichlorobenzene	1	0.19	U
120-82-1	1,2,4-Trichlorobenzene	1	0.15	U
71-55-6	1,1,1-Trichloroethane	1	0.21	U
79-00-5	1,1,2-Trichloroethane	1	0.21	U
79-01-6	Trichloroethene	1	0.19	U
75-69-4	Trichlorofluoromethane	1	0.14	U
96-18-4	1,2,3-Trichloropropane	1	0.78	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	1	0.19	U
95-63-6	1,2,4-Trimethylbenzene	1	0.17	U
108-67-8	1,3,5-Trimethylbenzene	1	0.14	U
75-01-4	Vinyl chloride	1	0.18	U
67-64-1	Acetone	1	6.6	U
107-13-1	Acrylonitrile	1	1.5	U
107-05-1	Allyl chloride	1	0.47	U
994-05-8	t-Amyl Methyl ether	1	0.19	U
75-65-0	t-Butyl alcohol	1	9.4	U

7/4/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-10-050117

Laboratory: BC Laboratories | SDG: 17-11629
Client: Tidewater Inc. | Project: JPL- GW Monitoring Wells
Matrix: Water | Laboratory ID: 1711629-13 | File ID: 08MAY17.D
Sampled: 05/01/17 15:00 | Prepared: 05/07/17 10:06 | Analyzed: 05/08/17 12:33
Solids: | Preparation: EPA 5030 Water MS | Initial/Final: 25 ml / 25 ml
Batch: B[E0786 | Sequence: 1707902 | Calibration: 1704006 | Instrument: MS-V5

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
75-15-0	Carbon disulfide	1	0.48	U
110-57-6	trans-1,4-Dichloro-2-butene	1	1.8	U UJ
60-29-7	Diethyl ether	1	0.33	U
97-63-2	Ethyl methacrylate	1	1.3	U
637-92-3	Ethyl t-butyl ether	1	0.32	U
67-72-1	Hexachloroethane	1	0.11	U
591-78-6	2-Hexanone	1	5.0	U
126-98-7	Methacrylonitrile	1	2.3	U
78-93-3	Methyl ethyl ketone	1	3.3	U
74-88-4	Methyl iodide	1	1.1	U UJ
108-10-1	Methyl isobutyl ketone	1	2.4	U
80-62-6	Methyl methacrylate	1	1.2	U
76-01-7	Pentachloroethane	1	0.63	U UJ
107-12-0	Propionitrile	1	6.2	U
109-99-9	Tetrahydrofuran	1	5.2	U
179601-23-1	p- & m-Xylenes	1	0.34	U
95-47-6	o-Xylene	1	0.13	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
1,2-Dichloroethane-d4 (Surrogate)	10.000	9.9600	99.6	75 - 125	
Toluene-d8 (Surrogate)	10.000	9.9200	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)	191710	6.58	191226	6.58	
Chlorobenzene-d5 (IS)	70139	9.62	75608	9.62	
1,4-Difluorobenzene (IS)	287316	7.39	295651	7.38	

* Values outside of QC limits

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 11:11:22AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-524.2

EB-10-050117

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-13	File ID:	08MAY17.D
Sampled:	05/01/17 15:00	Prepared:	05/07/17 10:06	Analyzed:	05/08/17 12:33
Solids:		Preparation:	EPA 5030 Water MS	Initial/Final:	25 ml / 25 ml
Batch:	B[E0786	Sequence:	1707902	Calibration:	1704006
Instrument:	MS-V5				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
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

* Values outside of QC limits

7/6/17 8

LDC #: 38952E1 **VALIDATION COMPLETENESS WORKSHEET** Date: 4/30/17
SDG #: 17-11629 Level III/IV Page: 1 of 2
Laboratory: BC Laboratories, Inc. Reviewer: 9
2nd Reviewer: KK

METHOD: GC/MS Volatiles (EPA Method 524.2)

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

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A SW	RSD ≤ 20%. r^2 ICV ≤ 30%
IV.	Continuing calibration	SW	CCV ≤ 20%
V.	Laboratory Blanks	A	
VI.	Field blanks	SW	TB=1. EB=13
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	A	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level III validation.
XIII.	Target compound identification	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank
** Indicates sample was underwent Level IV review

	Client ID	Lab ID	Matrix	Date
1	TB-11-050117	1711629-01	Water	05/01/17
2	MW-11-1	1711629-02	Water	05/01/17
3	MW-11-2	1711629-03	Water	05/01/17
4	MW-11-3**	1711629-04**	Water	05/01/17
5	MW-11-4	1711629-05	Water	05/01/17
6	MW-11-5	1711629-06	Water	05/01/17
7	MW-12-1	1711629-07	Water	05/01/17
8	MW-12-2	1711629-08	Water	05/01/17
9	MW-12-3	1711629-09	Water	05/01/17
10	MW-12-4	1711629-10	Water	05/01/17
11	MW-12-5	1711629-11	Water	05/01/17
12	MW-24-1	1711629-12	Water	05/01/17
13	EB-10-050117	1711629-13	Water	05/01/17

LDC #: 38952E1

SDG #: 17-11629

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 6/26/17

Page: 2 of 2

Reviewer: Q

2nd Reviewer: KK

METHOD: GC/MS Volatiles (EPA Method 524.2)

	Client ID	Lab ID	Matrix	Date
14	MW-11-2MS	1711629-03MS	Water	05/01/17
15	MW-11-2MSD	1711629-03MSD	Water	05/01/17
16	MW-12-3MS	1711629-09MS	Water	05/01/17
17	MW-12-3MSD	1711629-09MSD	Water	05/01/17
18				
19				
20				
21				
22				

Notes:

LDC #: 38952B1

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: 9
2nd Reviewer: KK

Method: Volatiles (EPA Method 524.2)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS Instrument performance check				
Was a tune check performed prior to establishing and/or re-establishing an initial calibration?	✓			
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
III. Initial calibration				
Did the laboratory perform at least 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
IIIa. Initial Calibration Verification calibration				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 30%?		✓		
IV. Continuing calibration				
Was a continuing calibration standard analyzed at the beginning of each analysis batch?	✓			
Were all percent differences (%D) of continuing calibration ≤ 30%?		✓		
V.Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed with each analysis batch?	✓			
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.	✓			
VII. Surrogate spikes				
Were all surrogate %R within the 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?			✓	
VIII. Matrix spike/Matrix spike duplicates				
Was a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for this SDG?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
IX. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			

LDC #: 38525C1

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: KK

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) within 70-130%?	✓			
X. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	
XI. Internal standards				
Were internal standard area counts within +/-30% of the area of the most recent continuing calibration standard and +/-50% of the average peak area in the initial calibration?	✓			
Were retention times within +/-30 seconds of the associated calibration standard?	✓			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) or regression equations used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane
C. Vinyl choride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO.1,1-Difluoroethane	O1. 3-Methylpentane
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.

LDC #: 38952 1

VALIDATION FINDINGS WORKSHEET
Initial Calibration Verification

Page: 1 of 1
Reviewer: 2
2nd Reviewer: VV

METHOD: GC/MS VOA (EPA Method 524.2)

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

Y N N/A Was an initial calibration verification standard analyzed after each ICAL for each instrument?

Y N N/A Were all %D within the validation criteria of ≤30 %D?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0%)	Associated Samples	Qualifications
	4/14/17	13APR17	2222	25.4	All (ND)	J (all ND) A

ICVvoa_524.2.wpd

LDC #: 39952J1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: 9
2nd Reviewer: MM

METHOD: GC/MS VOA (EPA Method 524.2)

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

Y N N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

Y N N/A Were all percent differences (%D) ≤ 30% ?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0%)	Associated Samples	Qualifications
	5/7/17	07MAY02	B	45.0	1-7. MB (ND)	J/UJ/A
	↓	07MAY03	Methyl iodide	43.5	4-15	↓
	5/8/17	08MAY02	B	63.1	8-13. 16-17. MB	J/UJ/A
	↓	08MAY03	YYYY	53.3	(ND)	
			Methyl iodide	49.3		↓

CONCAL.1S5

LDC #: 38952E1
SDG #: _____

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: A
2nd reviewer: KK

METHOD: GC/MS VOA (EPA ~~SW 846~~ Method ~~8260B~~) 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: 13 Field Blank / Trip Blank / Rinsate / Other ZB (circle one)

Compound	Concentration Units (ug/L)
K	9.1

Sample: _____ Field Blank / Trip Blank / Rinsate / Other_____ (circle one)

Compound	Concentration Units ( )

Sample: _____ Field Blank / Trip Blank / Rinsate / Other_____ (circle one)

Compound	Concentration Units ( )

LDC #: 30952Z1

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GCMS 524.2

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

RRF = (Ax)(Cis)/(Ais)(Cx)
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

Where:

Ax = Area of compound
Cx = Concentration of compound
S = Standard deviation of the RRFs
X = Mean of the RRFs
Ais = Area of associated internal standard
Cis = Concentration of internal Standard

#	Standard ID	Calibration Date	Compound	Reported (RRF 10 std)	Recalculated (RRF 10 std)	Reported AverageRRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
	ICAL	4/13/2017	C	0.6738509	0.6738509	0.6507252	0.6507252	5.77474	5.77474
			CC	0.7608310	0.7608310	0.7401395	0.7401395	4.89008	4.89008
			EE	1.7287610	1.7287610	1.6995870	1.6995870	8.26667	8.26667

#	Standard ID	Calibration Date	Compound	Reported (RRF 160/40/8 std)	Recalculated (RRF160/40/8 std)	Reported AverageRRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
	ICAL	4/13/2017	F	0.0343799	0.0343799	0.03573499	0.03573499	12.094280	12.094280
			VVVV	0.0704187	0.0704187	0.07240331	0.07240331	11.825840	11.825840
			ZZZZ	0.5104179	0.5104179	0.48355100	0.48355100	10.086370	10.086370

LDC #: 38952E1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: MW

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

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

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

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

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	07MAY02	5/7/17	C (1st internal standard)	0.650252	0.644358	0.644358	1.0	1.0
			CC (2nd internal standard)	0.7401395	0.7718904	0.7718903	4.3	4.3
			EE (3rd internal standard)	1.6995870	1.749114	1.749114	2.9	2.9
			(4th internal standard)					
2	07MAY03	5/7/17	F (1st internal standard)	0.0353499	0.0356518	0.0356751	0.3	0.3
			VVVV (2nd internal standard)	0.0724033	0.0709524	0.0709572	2.0	2.0
			ZZZZ (3rd internal standard)	0.4835700	0.475819	0.475819	1.6	1.6
			(4th internal standard)					
3			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					
4			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					

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

LDC #: 38952Z1

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

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

METHOD: GC/MS VOA (EPA ~~SW 846~~ Method ~~8260C)~~ 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 Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4	10.00	10.03	100	100	0
Toluene-d8	↓	9.93	99.3	99.3	↓
Bromofluorobenzene	↓	9.53	95.3	95.3	↓

Sample ID:

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

Sample ID:

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

Sample ID:

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

Sample ID:

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

LDC #: 38952

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: 9
2nd Reviewer: VW

METHOD: GC/MS VOA (EPA ~~SW 846~~ Method ~~8260C~~) 524.2)

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

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

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

MS/MSD sample: 14/15

Compound	Spike Added (ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration (ug/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
1,1-Dichloroethene	25.000	25.000	ND	27.690	26.480	111	111	106	106	4.47	4.47
Trichloroethene	↓	↓	↓	26.130	25.420	105	105	102	102	2.75	2.75
Benzene				26.940	26.730	108	108	107	107	0.783	0.783
Toluene				27.790	27.070	111	111	108	108	2.62	2.62
Chlorobenzene				27.360	25.460	109	109	102	102	6.80	6.80

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 #: 38952/

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer: 9
2nd Reviewer: VV

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

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

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

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

LCS ID: BI20786-BS1

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	25.000	NA	25.590	NA	102	102				
Trichloroethene	↓	↓	26.500	↓	106	106				
Benzene			25.180		101	101				
Toluene			26.340		105	105				
Chlorobenzene			25.630		103	103				

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

LDC #38932 (21)

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd reviewer: KK

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

Y N N/A Were all reported results recalculated and verified for all level IV samples?

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

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

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. 4, EE:

Conc. = $\frac{(2389)(10.0)(1)}{(75282)(1.8958)}$

= 0.19 µg/L

#	Sample ID	Compound	Reported Concentration (µg/L)	Calculated Concentration ( )	Qualification
	4	EE	0.19		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2017

LDC Report Date: July 6, 2017

Parameters: N-Nitrosodimethylamine

Validation Level: Level III

Laboratory: BC Laboratories, Inc./Weck Laboratories, Inc.

Sample Delivery Group (SDG): 17-11629/7E04018

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-24-1	1711629-12/7E04018-01	Water	05/01/17

Introduction

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

The analyses were performed by the following method:

N-Nitrosodimethylamine by Environmental Protection Agency (EPA) Method 1625M

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

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

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

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

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

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

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

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

I. Sample Receipt and Technical Holding Times

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

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

Instrument performance was not required by the method.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

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

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

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

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

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

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were not required by the method.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

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

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

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

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

NASA JPL, 2Q2017
N-Nitrosodimethylamine - Data Qualification Summary - SDG 17-11629/7E04018

No Sample Data Qualified in this SDG

NASA JPL, 2Q2017
N-Nitrosodimethylamine - Laboratory Blank Data Qualification Summary - SDG 17-11629/7E04018

No Sample Data Qualified in this SDG

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders: 7E04018

Project: 1711629

Attn: Misty Orton

Client: BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

Report Date: 5/10/2017
Received Date: 5/4/2017
Turnaround Time: Normal
Phones: (661) 327-4911
Fax: (661) 327-1918
P.O. #:
Billing Code:

Dear Misty Orton,

Enclosed are the results of analyses for samples received 5/04/17 with the Chain-of-Custody document. The samples were received in good condition, at 1.1 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: 1711629-12 — Sampled: 05/01/17 10:30 by Client
7E04018-01 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 1625M **Batch ID:** W7E0230 **Instr:** GCMS09 **Prepared:** 05/04/17 08:51 **Analyst:** mld						
N-Nitrosodimethylamine	ND	2.0	ng/l	1	05/08/17 23:12	

14859 East Clark Avenue,City of Industry CA, 91745 | Phone: (626) 336-2139 | Fax: (626) 336-2634
www.wecklabs.com

LDC #: 38952E2b **VALIDATION COMPLETENESS WORKSHEET** Date: 6/30/17
SDG #: 17-11629/7E04018 Level III Page: 1 of 1
Laboratory: BC Laboratories, Inc./Weck Laboratories, Inc. Reviewer: 9
2nd Reviewer: KK

METHOD: GC/MS N-Nitrosodimethylamine (EPA Method 1625M)

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

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	N	
III.	Initial calibration/ICV	A A	r^2, ICV ≤ 30%
IV.	Continuing calibration	A	CCV ≤ 30%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	CS
IX.	Laboratory control samples	A	LCS/D
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

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

	Client ID	Sub Lab ID	Lab ID	Matrix	Date
1	MW-24-1	7E04018-01	1711629-12	Water	05/01/17
2					
3					
4					
5					
6					
7					
8					

Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2017

LDC Report Date: July 6, 2017

Parameters: 1,4-Dioxane

Validation Level: Level III

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 17-11629

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-24-1	1711629-12	Water	05/01/17

Introduction

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

The analyses were performed by the following method:

1,4-Dioxane by Environmental Protection Agency (EPA) SW 846 Method 8270C

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

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

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

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

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

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

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

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

I. Sample Receipt and Technical Holding Times

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

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

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

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

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

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

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

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

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

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

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

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

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

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

NASA JPL, 2Q2017
1,4-Dioxane - Data Qualification Summary - SDG 17-11629

No Sample Data Qualified in this SDG

NASA JPL, 2Q2017
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 17-11629

No Sample Data Qualified in this SDG

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 10:26:11AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

ORGANIC ANALYSIS DATA SHEET
EPA-8270D

MW-24-1

Laboratory:	BC Laboratories		SDG:	17-11629	
Client:	Tidewater Inc.		Project:	JPL- GW Monitoring Wells	
Matrix:	Water	Laboratory ID:	1711629-12	File ID:	10MAY008.D
Sampled:	05/01/17 10:30	Prepared:	05/04/17 18:20	Analyzed:	05/10/17 15:37
Solids:		Preparation:	EPA 3510B	Initial/Final:	1000 ml / 0.95 ml
Batch:	B[E1077	Sequence:	1708245	Calibration:	1705022
Instrument:	MS-B4				

CAS NO.	COMPOUND	DILUTION	CONC. (ug/L)	Q
123-91-1	1,4-Dioxane	0.95	0.10	U

SYSTEM MONITORING COMPOUND	ADDED (ug/L)	CONC (ug/L)	% REC	QC LIMITS	Q
Naphthalene-d8 (Surrogate)	40.000	43.880	110	70 - 130	

INTERNAL STANDARD	AREA	RT	REF AREA	REF RT	Q
1,4-Dioxane-d8 (IS)	465582	3.14	550509	3.14	

* Values outside of QC limits

7/6/17

LDC #: 38952E2c

VALIDATION COMPLETENESS WORKSHEET

SDG #: 17-11629

Level III

Laboratory: BC Laboratories, Inc.

Date: 6/30/17

Page: 1 of 1

Reviewer:

2nd Reviewer: KK

METHOD: GC/MS 1,4-Dioxane (EPA SW846 Method 8270C)

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

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	r^2. ICV ≤ 20%
IV.	Continuing calibration	A	CCV ≤ 20%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

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

	Client ID	Lab ID	Matrix	Date
1	MW-24-1	1711629-12	Water	05/01/17
2				
3				
4				
5				
6				
7				
8				

Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2017

LDC Report Date: July 6, 2017

Parameters: Metals

Validation Level: Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 17-11629

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-11-1	1711629-02	Water	05/01/17
MW-11-2	1711629-03	Water	05/01/17
MW-11-3**	1711629-04**	Water	05/01/17
MW-11-4	1711629-05	Water	05/01/17
MW-11-5	1711629-06	Water	05/01/17
MW-12-1	1711629-07	Water	05/01/17
MW-12-2	1711629-08	Water	05/01/17
MW-12-3	1711629-09	Water	05/01/17
MW-12-4	1711629-10	Water	05/01/17
MW-12-5	1711629-11	Water	05/01/17
MW-24-1	1711629-12	Water	05/01/17
EB-10-050117	1711629-13	Water	05/01/17
MW-11-2MS	1711629-03MS	Water	05/01/17
MW-11-2MSD	1711629-03MSD	Water	05/01/17
MW-11-2DUP	1711629-03DUP	Water	05/01/17
MW-12-3MS	1711629-09MS	Water	05/01/17
MW-12-3MSD	1711629-09MSD	Water	05/01/17
MW-12-3DUP	1711629-09DUP	Water	05/01/17

**Indicates sample underwent Level IV validation

Introduction

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

The analyses were performed by the following methods:

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

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

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

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

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

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

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

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

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

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met.

II. ICPMS Tune

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

III. Instrument Calibration

Initial and continuing calibrations were performed as required by the methods.

The initial calibration verification (ICV) and continuing calibration verification (CCV) standards were within QC limits with the following exceptions:

Date	Lab. Reference/ID	Analyte	%R (Limits)	Associated Samples	Flag	A or P
05/06/17	CCV (05:02)	Chromium	114 (90-110)	MW-24-1 EB-10-050117	NA	-

IV. ICP Interference Check Sample Analysis

The frequency of interference check sample (ICS) analysis was met. All criteria were within QC limits.

V. Laboratory Blanks

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

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Sodium	0.080630 mg/L	MW-11-1 MW-11-2 MW-11-3** MW-11-5 MW-12-1 MW-12-4 MW-12-5
PB (prep blank)	Sodium	0.090068 mg/L	MW-11-4 MW-12-2 MW-12-3 MW-24-1

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Chromium	1.1780 mg/L	MW-24-1 EB-10-050117
ICB/CCB	Chromium Iron	1.6780 mg/L 0.040159 mg/L	MW-24-1 EB-10-050117
ICB/CCB	Iron	0.039803 mg/L	MW-12-3
ICB/CCB	Calcium Sodium	0.014907 mg/L 0.075155 mg/L	MW-11-1
ICB/CCB	Sodium	0.060590 mg/L	MW-11-2 MW-11-3** MW-11-5 MW-12-1 MW-12-4 MW-12-5
ICB/CCB	Potassium	0.11874 mg/L	EB-10-050117

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

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-24-1	Chromium	4.7 ug/L	4.7U ug/L
EB-10-050117	Chromium Potassium	2.7 ug/L 0.14 mg/L	2.7U ug/L 0.14U mg/L

VI. Field Blanks

Sample EB-10-050117 was identified as an equipment blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-10-050117	Chromium Potassium	2.7 ug/L 0.14 mg/L

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. For MW-12-3MS/MSD, no data were qualified for Calcium percent recoveries (%R) outside the QC limits since the parent sample results were greater than 4X the spike concentration. Relative percent differences (RPD) were within QC limits.

VIII. Duplicate Sample Analysis

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

IX. Serial Dilution

Serial dilution analysis was performed on an associated project sample. Percent differences (%D) were within QC limits.

X. Laboratory Control Samples

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

XI. Field Duplicates

No field duplicates were identified in this SDG.

XII. Internal Standards (ICP-MS)

All internal standard percent recoveries (%R) were within QC limits for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIII. Sample Result Verification

All sample result verifications were acceptable for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIV. Overall Assessment of Data

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

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

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Based upon the data validation all other results are considered valid and usable for all purposes.

NASA JPL, 2Q2017
Metals - Data Qualification Summary - SDG 17-11629

No Sample Data Qualified in this SDG

NASA JPL, 2Q2017
Metals - Laboratory Blank Data Qualification Summary - SDG 17-11629

Sample	Analyte	Modified Final Concentration	A or P
MW-24-1	Chromium	4.7U ug/L	A
EB-10-050117	Chromium Potassium	2.7U ug/L 0.14U mg/L	A

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:57:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-11-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-02
File ID: PE2_170510-198
Sampled: 05/01/17 14:45
Prepared: 05/09/17 12:15
Analyzed: 05/10/17 18:39
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BIE1037
Sequence: 1708326
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	82	1		EPA-200.7

7/6/17

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:57:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-11-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-03
File ID: PE2_170510-202
Sampled: 05/01/17 14:20
Prepared: 05/09/17 12:15
Analyzed: 05/10/17 18:49
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E1037
Sequence: 1708326
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

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Tidewater Inc.
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Reported: 6/21/2017 9:57:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-11-3

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-04
File ID: PE2_170510-203
Sampled: 05/01/17 13:40
Prepared: 05/09/17 12:15
Analyzed: 05/10/17 18:52
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E1037
Sequence: 1708326
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	210	1		EPA-200.7

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Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-11-4

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-05
File ID: PE2_170510-204
Sampled: 05/01/17 13:10
Prepared: 05/09/17 12:15
Analyzed: 05/10/17 18:54
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E1037
Sequence: 1708326
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	30	1	U	EPA-200.7

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Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-11-5

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-06
File ID: PE2_170510-205
Sampled: 05/01/17 12:25
Prepared: 05/09/17 12:15
Analyzed: 05/10/17 18:57
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BJE1037
Sequence: 1708326
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	840	1		EPA-200.7

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Project Number: 2Q17
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INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-12-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-07
File ID: PE2_170510-206
Sampled: 05/01/17 09:15
Prepared: 05/09/17 12:15
Analyzed: 05/10/17 19:00
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E1037
Sequence: 1708326
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	310	1		EPA-200.7

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Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-12-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-08
File ID: PE2_170510-207
Sampled: 05/01/17 08:45
Prepared: 05/09/17 12:15
Analyzed: 05/10/17 19:02
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E1037
Sequence: 1708326
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	700	1		EPA-200.7

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Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-12-3

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 05/01/17 08:15
Solids: 0.00
Batch: BJE1726 Sequence: 1708748

SDG: 17-11629
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711629-09RE1
Prepared: 05/16/17 08:30
Preparation: EPA 200.2
File ID: PE2_170517-063
Analyzed: 05/17/17 13:01
Initial/Final: 50 ml / 50 ml
Calibration: UNASSIGNED Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	30	1	U	EPA-200.7

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Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-12-4

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 05/01/17 07:35
Solids: 0.00
Batch: B[E1037 Sequence: 1708326

SDG: 17-11629
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711629-10
Prepared: 05/09/17 12:15
Preparation: EPA 200.2
File ID: PE2_170510-208
Analyzed: 05/10/17 19:05
Initial/Final: 50 ml / 50 ml
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	44	1	J	EPA-200.7

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Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-12-5

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 05/01/17 07:15
Solids: 0.00
Batch: BIE1037 Sequence: 1708326

SDG: 17-11629
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711629-11
Prepared: 05/09/17 12:15
Preparation: EPA 200.2
File ID: PE2_170510-209
Analyzed: 05/10/17 19:07
Initial/Final: 50 ml / 50 ml
Calibration: UNASSIGNED Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	710	1		EPA-200.7

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Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-24-1

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 05/01/17 10:30
Solids: 0.00
Batch: BJE1125 Sequence: 1708385

SDG: 17-11629
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711629-12
Prepared: 05/10/17 08:00
Preparation: EPA 200.2
File ID: PE2_170511-063
Analyzed: 05/11/17 16:04
Initial/Final: 50 ml / 50 ml
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

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INORGANIC ANALYSIS DATA SHEET
EPA-200.7

EB-10-050117

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-13
File ID: PE2_170511-060
Sampled: 05/01/17 15:00
Prepared: 05/10/17 08:00
Analyzed: 05/11/17 15:56
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BJE1125
Sequence: 1708385
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7439-89-6	Total Recoverable Iron	30	1	U	EPA-200.7

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INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-11-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-02
File ID: PE-EL3_170504-255
Sampled: 05/01/17 14:45
Prepared: 05/04/17 11:30
Analyzed: 05/05/17 02:46
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0552
Sequence: 1707800
Calibration: UNASSIGNED
Instrument: PE-EL3

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.50	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Project Number: 2Q17
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INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-11-2

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 05/01/17 14:20
Solids: 0.00
Batch: B[E0552 Sequence: 1707800

SDG: 17-11629
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711629-03
Prepared: 05/04/17 11:30
Preparation: EPA 200.2
File ID: PE-EL3_170504-245
Analyzed: 05/05/17 02:11
Initial/Final: 50 ml / 50 ml
Calibration: UNASSIGNED
Instrument: PE-EL3

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.70	1	U	EPA-200.8
7440-47-3	Total Recoverable Chromium	0.72	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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INORGANIC ANALYSIS DATA SHEET
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MW-11-3

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-04
File ID: PE-EL3_170504-256
Sampled: 05/01/17 13:40
Prepared: 05/04/17 11:30
Analyzed: 05/05/17 02:49
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0552
Sequence: 1707800
Calibration: UNASSIGNED
Instrument: PE-EL3

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

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Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-11-4

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-05
File ID: PE-EL3_170504-257
Sampled: 05/01/17 13:10
Prepared: 05/04/17 11:30
Analyzed: 05/05/17 02:53
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0552
Sequence: 1707800
Calibration: UNASSIGNED
Instrument: PE-EL3

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

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Tidewater Inc.
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Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-11-5

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 05/01/17 12:25
Solids: 0.00
Batch: B[E0552 Sequence: 1707800

SDG: 17-11629
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711629-06
Prepared: 05/04/17 11:30
Preparation: EPA 200.2
File ID: PE-EL3_170504-258
Analyzed: 05/05/17 02:56
Initial/Final: 50 ml / 50 ml
Calibration: UNASSIGNED Instrument: PE-EL3

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	6.1	1		EPA-200.8
7440-47-3	Total Recoverable Chromium	2.1	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.38	1	J	EPA-200.8

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Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
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MW-12-1

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 05/01/17 09:15
Solids: 0.00
Batch: B[E0552 Sequence: 1707800

SDG: 17-11629
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711629-07
Prepared: 05/04/17 11:30
Preparation: EPA 200.2
File ID: PE-EL3_170504-259
Analyzed: 05/05/17 02:59
Initial/Final: 50 ml / 50 ml
Calibration: UNASSIGNED
Instrument: PE-EL3

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	1.8	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 6/21/2017 9:57:08AM
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Project Number: 2Q17
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INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-12-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-08
File ID: PE-EL3_170504-260
Sampled: 05/01/17 08:45
Prepared: 05/04/17 11:30
Analyzed: 05/05/17 03:03
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0552
Sequence: 1707800
Calibration: UNASSIGNED
Instrument: PE-EL3

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

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Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-12-3

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 05/01/17 08:15
Solids: 0.00
Batch: B[E0552 Sequence: 1707800

SDG: 17-11629
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711629-09
Prepared: 05/04/17 11:30
Preparation: EPA 200.2
File ID: PE-EL3_170504-261
Analyzed: 05/05/17 03:06
Initial/Final: 50 ml / 50 ml
Calibration: UNASSIGNED
Instrument: PE-EL3

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	0.94	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
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MW-12-4

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-10
File ID: PE-EL3_170504-262
Sampled: 05/01/17 07:35
Prepared: 05/04/17 11:30
Analyzed: 05/05/17 03:10
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0552
Sequence: 1707800
Calibration: UNASSIGNED
Instrument: PE-EL3

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	1.1	1	J	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Powell, OH 43065

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Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-12-5

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-11
File ID: PE-EL3_170504-263
Sampled: 05/01/17 07:15
Prepared: 05/04/17 11:30
Analyzed: 05/05/17 03:13
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0552
Sequence: 1707800
Calibration: UNASSIGNED
Instrument: PE-EL3

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	1.8	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

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Tidewater Inc.
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Reported: 6/21/2017 9:57:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-24-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-12
File ID: PE_EL2_170505-278
Sampled: 05/01/17 10:30
Prepared: 05/04/17 11:30
Analyzed: 05/06/17 04:55
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0553
Sequence: 1707911
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-47-3	Total Recoverable Chromium	4.7	1	U	EPA-200.8
7439-92-1	Total Recoverable Lead	0.10	1	U	EPA-200.8

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Reported: 6/21/2017 9:57:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

MW-24-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-12
File ID: PE_EL2_170509-186
Sampled: 05/01/17 10:30
Prepared: 05/04/17 11:30
Analyzed: 05/10/17 05:15
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E0553
Sequence: 1708142
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
7440-38-2	Total Recoverable Arsenic	0.92	1	J	EPA-200.8

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Tidewater Inc.
3761 Attucks Drive
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Reported: 6/21/2017 9:57:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

EB-10-050117

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 05/01/17 15:00
Solids: 0.00
Batch: B[E0553 Sequence: 1707911

SDG: 17-11629
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711629-13
Prepared: 05/04/17 11:30
Preparation: EPA 200.2
File ID: PE_EL2_170505-279
Analyzed: 05/06/17 04:58
Initial/Final: 50 ml / 50 ml
Calibration: UNASSIGNED
Instrument: PE-EL2

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
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

7/6/17 CL

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:57:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.8

EB-10-050117

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 05/01/17 15:00
Solids: 0.00
Batch: B[E0553 Sequence: 1708142

SDG: 17-11629
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711629-13
Prepared: 05/04/17 11:30
Preparation: EPA 200.2
File ID: PE_EL2_170509-187
Analyzed: 05/10/17 05:18
Initial/Final: 50 ml / 50 ml
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

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:57:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-11-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-02
File ID: PE2_170510-198
Sampled: 05/01/17 14:45
Prepared: 05/09/17 12:15
Analyzed: 05/10/17 18:39
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BJE1037
Sequence: 1708326
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	68	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	23	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	30	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.5	1		EPA-200.7

7/6/17

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Project: JPL- GW Monitoring Wells
Project Number: 2Q17
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INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-11-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-03
File ID: PE2_170510-202
Sampled: 05/01/17 14:20
Prepared: 05/09/17 12:15
Analyzed: 05/10/17 18:49
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E1037
Sequence: 1708326
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	21	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	25	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.2	1		EPA-200.7

7/6/17

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Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-11-3

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-04
File ID: PE2_170510-203
Sampled: 05/01/17 13:40
Prepared: 05/09/17 12:15
Analyzed: 05/10/17 18:52
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E1037
Sequence: 1708326
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	41	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	14	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	28	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.3	1		EPA-200.7

7/6/17

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Reported: 6/21/2017 9:57:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-11-4

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 05/01/17 13:10
Solids: 0.00
Batch: BJE1726 Sequence: 1708748

SDG: 17-11629
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711629-05RE1
Prepared: 05/16/17 08:30
Preparation: EPA 200.2
File ID: PE2_170517-060
Analyzed: 05/17/17 12:53
Initial/Final: 50 ml / 50 ml
Calibration: UNASSIGNED Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	12	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	12	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	26	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.2	1		EPA-200.7

7/6/17

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Project: JPL- GW Monitoring Wells
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Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-11-5

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-06
File ID: PE2_170510-205
Sampled: 05/01/17 12:25
Prepared: 05/09/17 12:15
Analyzed: 05/10/17 18:57
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BJE1037
Sequence: 1708326
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	22	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	2.6	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	52	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	1.3	1		EPA-200.7

7/6/17

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Powell, OH 43065

Reported: 6/21/2017 9:57:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-12-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-07
File ID: PE2_170510-206
Sampled: 05/01/17 09:15
Prepared: 05/09/17 12:15
Analyzed: 05/10/17 19:00
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: BIE1037
Sequence: 1708326
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	72	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	24	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	27	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.7	1		EPA-200.7

6/6/17

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Reported: 6/21/2017 9:57:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-12-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-08RE1
File ID: PE2_170517-062
Sampled: 05/01/17 08:45
Prepared: 05/16/17 08:30
Analyzed: 05/17/17 12:58
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E1726
Sequence: 1708748
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	60	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	20	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	25	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	3.4	1		EPA-200.7

7/6/17

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:57:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-12-3

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 05/01/17 08:15
Solids: 0.00
Batch: B[E1726 Sequence: 1708748

SDG: 17-11629
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711629-09RE1
Prepared: 05/16/17 08:30
Preparation: EPA 200.2
Calibration: UNASSIGNED

File ID: PE2_170517-063
Analyzed: 05/17/17 13:01
Initial/Final: 50 ml / 50 ml
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	15	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	26	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.8	1		EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:57:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-12-4

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-10
File ID: PE2_170510-208
Sampled: 05/01/17 07:35
Prepared: 05/09/17 12:15
Analyzed: 05/10/17 19:05
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E1037
Sequence: 1708326
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	16	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	25	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.3	1		EPA-200.7

7/6/17

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Reported: 6/21/2017 9:57:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-12-5

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-11
File ID: PE2_170510-209
Sampled: 05/01/17 07:15
Prepared: 05/09/17 12:15
Analyzed: 05/10/17 19:07
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E1037
Sequence: 1708326
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	15	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	34	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	2.4	1		EPA-200.7

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:57:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

MW-24-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-12RE1
File ID: PE2_170517-065
Sampled: 05/01/17 10:30
Prepared: 05/16/17 08:30
Analyzed: 05/17/17 13:06
Solids: 0.00
Preparation: EPA 200.2
Initial/Final: 50 ml / 50 ml
Batch: B[E1726
Sequence: 1708748
Calibration: UNASSIGNED
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	77	1		EPA-200.7
7439-95-4	Total Recoverable Magnesium	25	1		EPA-200.7
7440-23-5	Total Recoverable Sodium	45	1		EPA-200.7
7440-09-7	Total Recoverable Potassium	4.4	1		EPA-200.7

6/16/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/21/2017 9:57:08AM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-200.7

EB-10-050117

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 05/01/17 15:00
Solids: 0.00
Batch: B[E1125 Sequence: 1708385

SDG: 17-11629
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711629-13
Prepared: 05/10/17 08:00
Preparation: EPA 200.2
Calibration: UNASSIGNED

File ID: PE2_170511-060
Analyzed: 05/11/17 15:56
Initial/Final: 50 ml / 50 ml
Instrument: PE-OP2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
7440-70-2	Total Recoverable Calcium	0.014	1	U	EPA-200.7
7439-95-4	Total Recoverable Magnesium	0.019	1	U	EPA-200.7
7440-23-5	Total Recoverable Sodium	0.051	1	U	EPA-200.7
7440-09-7	Total Recoverable Potassium	0.14	1	J U	EPA-200.7

7/6/17

LDC #: 38952E4a

SDG #: 17-11629

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 7/6/17

Page: 1 of 2

Reviewer: 43

2nd Reviewer: CT

METHOD: Metals (EPA Method 200.7/200.8)

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

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	ICP/MS Tune	A	
III.	Instrument Calibration	SW	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Laboratory Blanks	SW	
VI.	Field Blanks	SW	
VII.	Matrix Spike/Matrix Spike Duplicates	A	(13,14) ; (16,17) - Ca > 4x
VIII.	Duplicate sample analysis	A	
IX.	Serial Dilution	A	
X.	Laboratory control samples	A	LCS
XI.	Field Duplicates	N	
XII.	Internal Standard (ICP-MS)	A	
XIII.	Sample Result Verification	A	Not reviewed for Level III validation.
XIV.	Overall Assessment of Data	A	

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

** Indicates sample was underwent Level IV review

	Client ID	Lab ID	Matrix	Date
1	MW-11-1	1711629-02	Water	05/01/17
2	MW-11-2	1711629-03	Water	05/01/17
3	MW-11-3**	1711629-04**	Water	05/01/17
4	MW-11-4	1711629-05	Water	05/01/17
5	MW-11-5	1711629-06	Water	05/01/17
6	MW-12-1	1711629-07	Water	05/01/17
7	MW-12-2	1711629-08	Water	05/01/17
8	MW-12-3	1711629-09	Water	05/01/17
9	MW-12-4	1711629-10	Water	05/01/17
10	MW-12-5	1711629-11	Water	05/01/17
11	MW-24-1	1711629-12	Water	05/01/17
12	EB-10-050117	1711629-13	Water	05/01/17
13	MW-11-2MS	1711629-03MS	Water	05/01/17
14	MW-11-2MSD	1711629-03MSD	Water	05/01/17
15	MW-11-2DUP	1711629-03DUP	Water	05/01/17

LDC #: 38952E4a

SDG #: 17-11629

Laboratory: BC Laboratories, Inc.

VALIDATION COMPLETENESS WORKSHEET

Level III/IV

Date: 7/6/17

Reviewer: SB

2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 200.7/200.8)

	Client ID	Lab ID	Matrix	Date
16	MW-12-3MS F	1711629-09MS	Water	05/01/17
17	MW-12-3MSD	1711629-09MSD	Water	05/01/17
18	MW-12-3DUP	1711629-09DUP	Water	05/01/17
19				
20				
21				
22				
23				

Notes:

LDC #: 38952E4c

VALIDATION FINDINGS CHECKLIST

Reviewer: JB
2nd Reviewer: CY

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

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution ≤5%?	✓			
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?		✓		
Were the low standard checks within 70-130%		✓		
Were all initial calibration correlation coefficients within limits as specified by the method?	✓			
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were ≤ 5X the RL.	✓			
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

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

LDC #: 38952E4c

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: JB
2nd reviewer: [illegible]

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-12	W	Al, Sb, **As**, Ba, Be, Cd, **Ca**, **Cr**, Co, Cu, **Fe**, **Pb**, **Mg**, Mn, Hg, Ni, **K**, Se, Ag, **Na**, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
QC		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
13-15	W	Al, Sb, **As**, Ba, Be, Cd, Ca, **Cr**, Co, Cu, Fe, **Pb**, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
16-18	W	Al, Sb, As, Ba, Be, Cd, **Ca**, Cr, Co, Cu, **Fe**, Pb, **Mg**, Mn, Hg, Ni, **K**, Se, Ag, **Na**, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
Analysis Method		
ICP		Al, Sb, As, Ba, Be, Cd, **Ca**, Cr, Co, Cu, **Fe**, Pb, **Mg**, Mn, Hg, Ni, **K**, Se, Ag, **Na**, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
ICP-MS		Al, Sb, **As**, Ba, Be, Cd, Ca, **Cr**, Co, Cu, Fe, **Pb**, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U, ___
GFAA		Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn, Mo, B, Sn, Ti, U

Comments: Mercury by CVAA if performed

LDC #: 38952E4a
SDG #: 17-11629

VALIDATION FINDINGS WORKSHEET
Calibration

Reviewer: JB
2nd Reviewer:

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

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

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

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

LEVEL IV ONLY:

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

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

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

#	Date	Calibration ID	Analyte	%R	Associated Samples	Qualification of Data
	5/6/17 (05:02)	CCV	Cr	114 (90 - 110)	11, 12	Jdet/P (ND)

Comments:

LDC #: 38952E4a

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

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

Reviewer: VB
2nd Reviewer: [illegible]

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 1 - 3, 5, 6, 9, 10

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Level									
Na		0.080630		0.40315									

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 4, 7, 8, 11

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Level									
Na		0.090068		0.45034									

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 11, 12

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Level									
					~~11~~	12	11						
Cr		1.1780	1.6780	8.39	~~0.82~~	2.7	4.7 U						
Fe			0.040159	0.200795									

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 8

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Level									
Fe			0.039803	0.199015									

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 1

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Level									
Ca			0.014907	0.07454									
Na			0.075155	0.375775									

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 2, 3, 5, 6, 9, 10

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Level									
Na			0.060590	0.30295									

Sample Concentration units, unless otherwise noted: mg/L Associated Samples: 12

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (mg/L)	Maximum ICB/CCB[a] (mg/L)	Action Level	12								
K			0.11874	0.5937	0.14								

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 #: 38952E4

VALIDATION FINDINGS WORKSHEET
Field Blanks

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

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

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

Sample: 12 Field Blank / Trip Blank / Rinsate / Other EB (circle one)

Analyte	Concentration Units ( )
Cr	2.7 ug/L
K	0.14 mg/L

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

Analyte	Concentration Units ( )

LDC #: 38952E4a

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: JB
2nd Reviewer:

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

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

%R = Found x 100 / True

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

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
ICV	ICP (Initial calibration) 5/4 8:20	Cr	51.956 mg/L	50.000 ug/L	104%	104%	Y
ICV	ICP/MS (Initial calibration)	Mg	49.70 mg/L	50.000 ug/L	99.4%	99.4% ~~98.97%~~ JB	Y
	CVAA (Initial calibration)						
CCV2	ICP (Continuing calibration) 10 13:42	Fe	50.91 mg/L	50.000 mg/L	102%	102%	Y
CCV	ICP/MS (Continuing calibration) 5/11 5:25	As	102.352 ug/L	100.00 ug/L	102%	102%	Y
	CVAA (Continuing calibration)						

Comments:

LDC #: 38952E4a
SDG #: 17-11629

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: JB
2nd Reviewer: [illegible]

METHOD: Trace metals (EPA CLP SOW ILM02.1)

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

$$\%R = \frac{Found}{True} \times 100$$

Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

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

$$RPD = \frac{|S-D|}{(S+D)/2} \times 100$$

Where, S = Original sample concentration
D = Duplicate sample concentration

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

$$\%D = \frac{|I-SDR|}{I} \times 100$$

Where, I = Initial Sample Result (ug/L)
SDR = Serial Dilution Result (ug/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
IFB	ICP interference check 16:59 17:02 5110	Ca	512.6 mg/L	500.00 mg/L	103%	103%	Y
LCS	Laboratory control sample 515 02:01	Pb	106.828 ug/L	100.00 ug/L	107%	107%	Y
MS	Matrix spike	Fe	SR = ND (SSR-SR) 1.112 mg/L	1000.0 ug/L	111%	111%	Y
MSD	Duplicate	Fe	1.124 mg/L	Found: 1.112 mg/L	1.07% RPD	1.11 RPD	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.

LDC #: 38952E4a
SDG #: 17-11629

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: JB
2nd reviewer:

METHOD: Trace metals (EPA CLP SOW ILM02.1)

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

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

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

Concentration = $\frac{(RD)(FV)(Dil)}{(In.\ Vol.)}$

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

Recalculation:

Cr From Raw Data = 1.081 ug/L

#	Sample ID	Analyte	Reported Concentration ( )	Calculated Concentration ( )	Acceptable (Y/N)
	3	Fe	210 ug/L	210 ug/L	Y
	3	Cr	1.1 ug/L	1.1 ug/L	Y
	3	Ca	41 mg/L	41 mg/L	Y
	3	Mg	14 mg/L	14 mg/L	Y
	3	Na	28 mg/L	28 mg/L	Y
	3	K	2.3 mg/L	2.3 mg/L	Y

Note:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: NASA JPL, 2Q2017

LDC Report Date: July 6, 2017

Parameters: Wet Chemistry

Validation Level: Level III & IV

Laboratory: BC Laboratories, Inc.

Sample Delivery Group (SDG): 17-11629

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
MW-11-1	1711629-02	Water	05/01/17
MW-11-2	1711629-03	Water	05/01/17
MW-11-3**	1711629-04**	Water	05/01/17
MW-11-4	1711629-05	Water	05/01/17
MW-11-5	1711629-06	Water	05/01/17
MW-12-1	1711629-07	Water	05/01/17
MW-12-2	1711629-08	Water	05/01/17
MW-12-3	1711629-09	Water	05/01/17
MW-12-4	1711629-10	Water	05/01/17
MW-12-5	1711629-11	Water	05/01/17
MW-24-1	1711629-12	Water	05/01/17
EB-10-050117	1711629-13	Water	05/01/17
MW-11-2MS	1711629-03MS	Water	05/01/17
MW-11-2MSD	1711629-03MSD	Water	05/01/17
MW-11-2DUP	1711629-03DUP	Water	05/01/17
MW-12-3MS	1711629-09MS	Water	05/01/17
MW-12-3MSD	1711629-09MSD	Water	05/01/17
MW-12-3DUP	1711629-09DUP	Water	05/01/17
MW-24-1DUP	1711629-12DUP	Water	05/01/17

**Indicates sample underwent Level IV validation

Introduction

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

The analyses were performed by the following methods:

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

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

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

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

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

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

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

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

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

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met 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-11-1	pH	49.47 hours	48 hours	J (all detects)	P
MW-11-2	pH	49.68 hours	48 hours	J (all detects)	P
MW-11-3**	pH	50.65 hours	48 hours	J (all detects)	P
MW-11-4	pH	51.25 hours	48 hours	J (all detects)	P
MW-11-5	pH	52.10 hours	48 hours	J (all detects)	P
MW-12-1	pH	55.37 hours	48 hours	J (all detects)	P
MW-12-2	pH	55.98 hours	48 hours	J (all detects)	P
MW-12-3	pH	56.58 hours	48 hours	J (all detects)	P
MW-12-4	pH	57.35 hours	48 hours	J (all detects)	P
MW-12-5	pH	57.78 hours	48 hours	J (all detects)	P
MW-24-1	pH	54.88 hours	48 hours	J (all detects)	P
EB-10-050117	pH	50.62 hours	48 hours	J (all detects)	P

II. Initial Calibration

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

III. Continuing Calibration

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

IV. Laboratory Blanks

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

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Hexavalent chromium	0.00072900 mg/L	MW-11-1 MW-11-2 MW-11-3** MW-11-4 MW-11-5 MW-24-1 EB-10-050117

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

Sample	Analyte	Reported Concentration	Modified Final Concentration
MW-11-2	Hexavalent chromium	0.00095 mg/L	0.00095U mg/L
MW-24-1	Hexavalent chromium	0.00099 mg/L	0.00099U mg/L

V. Field Blanks

Sample EB-10-050117 was identified as an equipment blank. No contaminants were found with the following exceptions:

Blank ID	Analyte	Concentration
EB-10-050117	Chloride Nitrate as N	0.20 mg/L 0.069 mg/L

VI. Matrix Spike/Matrix Spike Duplicates

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

VII. Duplicate Sample Analysis

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

VIII. Laboratory Control Samples

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

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Sample Result Verification

All sample result verifications were acceptable for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XI. Overall Assessment of Data

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

Due to technical holding time, data were qualified as estimated in twelve samples.

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

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

NASA JPL, 2Q2017
Wet Chemistry - Data Qualification Summary - SDG 17-11629

Sample	Analyte	Flag	A or P	Reason
MW-11-1 MW-11-2 MW-11-3** MW-11-4 MW-11-5 MW-12-1 MW-12-2 MW-12-3 MW-12-4 MW-12-5 MW-24-1 EB-10-050117	pH	J (all detects)	P	Technical holding times

NASA JPL, 2Q2017
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 17-11629

Sample	Analyte	Modified Final Concentration	A or P
MW-11-2	Hexavalent chromium	0.00095U mg/L	A
MW-24-1	Hexavalent chromium	0.00099U mg/L	A

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-11-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-02
File ID: Tiamo050317-100
Sampled: 05/01/17 14:45
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 16:13
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0193
Sequence: 1707737
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

7/6/17

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Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-11-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-03
File ID: Tiamo050317-098
Sampled: 05/01/17 14:20
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 16:01
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0193
Sequence: 1707737
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

7/6/17

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Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-11-3

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-04
File ID: Tiamo050317-101
Sampled: 05/01/17 13:40
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 16:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0193
Sequence: 1707737
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-11-4

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-05
File ID: Tiamo050317-102
Sampled: 05/01/17 13:10
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 16:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0193
Sequence: 1707737
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	8.4	1		SM-2320B
---	Total Alkalinity as CaCO3	110	1		SM-2320B

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-11-5

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-06
File ID: Tiamo050317-103
Sampled: 05/01/17 12:25
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 16:31
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0193
Sequence: 1707737
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	3.7	1		SM-2320B
---	Total Alkalinity as CaCO3	130	1		SM-2320B

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-12-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-07
File ID: Tiamo050317-104
Sampled: 05/01/17 09:15
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 16:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0193
Sequence: 1707737
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-12-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-08
File ID: Tiamo050317-105
Sampled: 05/01/17 08:45
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 16:44
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0193
Sequence: 1707737
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-12-3

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-09
File ID: Tiamo050317-106
Sampled: 05/01/17 08:15
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 16:50
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0193
Sequence: 1707737
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-12-4

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-10
File ID: Tiamo050317-107
Sampled: 05/01/17 07:35
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 16:56
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0193
Sequence: 1707737
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-12-5

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-11
File ID: Tiamo050317-108
Sampled: 05/01/17 07:15
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 17:02
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0193
Sequence: 1707737
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

MW-24-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-12
File ID: Tiamo050317-113
Sampled: 05/01/17 10:30
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 17:23
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0194
Sequence: 1707737
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

6/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
SM-2320B

EB-10-050117

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-13
File ID: Tiamo050317-116
Sampled: 05/01/17 15:00
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 17:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0194
Sequence: 1707737
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-11-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-02
File ID: B050117A.seq-16
Sampled: 05/01/17 14:45
Prepared: 05/01/17 23:00
Analyzed: 05/02/17 03:51
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BIE0207
Sequence: 1707600
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	20	1		EPA-300.0
14797-55-8	Nitrate as N	0.35	1		EPA-300.0
14808-79-8	Sulfate	41	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-11-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-03
File ID: B050117A.seq-17
Sampled: 05/01/17 14:20
Prepared: 05/01/17 23:00
Analyzed: 05/02/17 04:08
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0207
Sequence: 1707600
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	0.021	1	U	EPA-300.0
14808-79-8	Sulfate	35	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-11-3

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-04
File ID: B050117A.seq-21
Sampled: 05/01/17 13:40
Prepared: 05/01/17 23:00
Analyzed: 05/02/17 05:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0208
Sequence: 1707600
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	0.042	1	J	EPA-300.0
14808-79-8	Sulfate	22	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-11-4

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-05
File ID: B050117A.seq-22
Sampled: 05/01/17 13:10
Prepared: 05/01/17 23:00
Analyzed: 05/02/17 05:33
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0208
Sequence: 1707600
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	0.021	1	U	EPA-300.0
14808-79-8	Sulfate	1.1	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-11-5

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-06
File ID: B050117A.seq-23
Sampled: 05/01/17 12:25
Prepared: 05/01/17 23:00
Analyzed: 05/02/17 05:51
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BIE0208
Sequence: 1707600
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	0.057	1	J	EPA-300.0
14808-79-8	Sulfate	18	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-12-1

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 05/01/17 09:15
Solids: 0.00
Batch: B[E0208 Sequence: 1707600

SDG: 17-11629
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711629-07
Prepared: 05/01/17 23:00
Preparation: No Prep
Calibration: UNASSIGNED

File ID: B050117A.seq-24
Analyzed: 05/02/17 06:08
Initial/Final: 20 ml / 20 ml
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	0.91	1		EPA-300.0
14808-79-8	Sulfate	66	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-12-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-08
File ID: B050117A.seq-25
Sampled: 05/01/17 08:45
Prepared: 05/01/17 23:00
Analyzed: 05/02/17 06:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0208
Sequence: 1707600
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	17	1		EPA-300.0
14797-55-8	Nitrate as N	0.51	1		EPA-300.0
14808-79-8	Sulfate	38	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-12-3

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-09
File ID: B050117A.seq-28
Sampled: 05/01/17 08:15
Prepared: 05/01/17 23:00
Analyzed: 05/02/17 07:16
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BIE0208
Sequence: 1707600
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	0.58	1		EPA-300.0
14808-79-8	Sulfate	29	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-12-4

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-10
File ID: B050117A.seq-32
Sampled: 05/01/17 07:35
Prepared: 05/01/17 23:00
Analyzed: 05/02/17 08:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0208
Sequence: 1707600
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	1.3	1		EPA-300.0
14808-79-8	Sulfate	32	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-12-5

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-11
File ID: B050117A.seq-33
Sampled: 05/01/17 07:15
Prepared: 05/01/17 23:00
Analyzed: 05/02/17 08:42
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0208
Sequence: 1707600
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	1.6	1		EPA-300.0
14808-79-8	Sulfate	26	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

MW-24-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-12
File ID: B050117A.seq-34
Sampled: 05/01/17 10:30
Prepared: 05/01/17 23:00
Analyzed: 05/02/17 08:59
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0208
Sequence: 1707600
Calibration: UNASSIGNED
Instrument: IC2

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
16887-00-6	Chloride	94	1		EPA-300.0
14797-55-8	Nitrate as N	1.5	1		EPA-300.0
14808-79-8	Sulfate	54	1		EPA-300.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-300.0

EB-10-050117

Laboratory: BC Laboratories
Client: Tidewater Inc.
Matrix: Water
Sampled: 05/01/17 15:00
Solids: 0.00
Batch: BJE0208 Sequence: 1707600

SDG: 17-11629
Project: JPL- GW Monitoring Wells
Laboratory ID: 1711629-13
Prepared: 05/01/17 23:00
Preparation: No Prep
Calibration: UNASSIGNED

File ID: B050117A.seq-37
Analyzed: 05/02/17 09:50
Initial/Final: 20 ml / 20 ml
Instrument: IC2

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	0.069	1	J	EPA-300.0
14808-79-8	Sulfate	0.13	1	U	EPA-300.0

5/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-11-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-02
File ID: 170502 0910 NO2-127
Sampled: 05/01/17 14:45
Prepared: 05/02/17 09:10
Analyzed: 05/02/17 10:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0628
Sequence: 1707969
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-11-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-03
File ID: 170502 0910 NO2-123
Sampled: 05/01/17 14:20
Prepared: 05/02/17 09:10
Analyzed: 05/02/17 10:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BIE0628
Sequence: 1707969
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

7/6/17

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-11-3

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-04
File ID: 170502 0910 NO2-128
Sampled: 05/01/17 13:40
Prepared: 05/02/17 09:10
Analyzed: 05/02/17 10:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BIE0628
Sequence: 1707969
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-11-4

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-05
File ID: 170502 0910 NO2-129
Sampled: 05/01/17 13:10
Prepared: 05/02/17 09:10
Analyzed: 05/02/17 10:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0628
Sequence: 1707969
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-11-5

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-06
File ID: 170502 0910 NO2-130
Sampled: 05/01/17 12:25
Prepared: 05/02/17 09:10
Analyzed: 05/02/17 10:30
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0628
Sequence: 1707969
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-12-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-07
File ID: 170502 0910 NO2-133
Sampled: 05/01/17 09:15
Prepared: 05/02/17 09:10
Analyzed: 05/02/17 10:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0628
Sequence: 1707969
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

7/6/17

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-12-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-08
File ID: 170502 0910 NO2-134
Sampled: 05/01/17 08:45
Prepared: 05/02/17 09:10
Analyzed: 05/02/17 10:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0628
Sequence: 1707969
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-12-3

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-09
File ID: 170502 0910 NO2-137
Sampled: 05/01/17 08:15
Prepared: 05/02/17 09:10
Analyzed: 05/02/17 10:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0629
Sequence: 1707969
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

6/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-12-4

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-10
File ID: 170502 0910 NO2-141
Sampled: 05/01/17 07:35
Prepared: 05/02/17 09:10
Analyzed: 05/02/17 10:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0629
Sequence: 1707969
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

7/6/17

Tidewater Inc.
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Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-12-5

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-11
File ID: 170502 0910 NO2-142
Sampled: 05/01/17 07:15
Prepared: 05/02/17 09:10
Analyzed: 05/02/17 10:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0629
Sequence: 1707969
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

7/6/17

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

MW-24-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-12
File ID: 170502 0910 NO2-145
Sampled: 05/01/17 10:30
Prepared: 05/02/17 09:10
Analyzed: 05/02/17 10:39
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0629
Sequence: 1707969
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-353.2

EB-10-050117

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-13
File ID: 170502 0910 NO2-146
Sampled: 05/01/17 15:00
Prepared: 05/02/17 09:10
Analyzed: 05/02/17 10:39
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0629
Sequence: 1707969
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
14797-65-0	Nitrite as N	0.010	1	U	EPA-353.2

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Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-365.1

MW-11-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-02
File ID: 170502 0943 PO4-200
Sampled: 05/01/17 14:45
Prepared: 05/02/17 09:43
Analyzed: 05/02/17 12:33
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0649
Sequence: 1707921
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	ortho-Phosphate as P	0.017	1	U	EPA-365.1

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-365.1

MW-24-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-12
File ID: 170502 0943 PO4-201
Sampled: 05/01/17 10:30
Prepared: 05/02/17 09:43
Analyzed: 05/02/17 12:33
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0649
Sequence: 1707921
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	ortho-Phosphate as P	0.017	1	U	EPA-365.1

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-11-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-02
File ID: 170501 2206 CR6-066
Sampled: 05/01/17 14:45
Prepared: 05/02/17 07:32
Analyzed: 05/02/17 07:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0623
Sequence: 1707815
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-11-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-03
File ID: 170501 2206 CR6-082
Sampled: 05/01/17 14:20
Prepared: 05/02/17 07:32
Analyzed: 05/02/17 08:15
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0623
Sequence: 1707815
Calibration: UNASSIGNED
Instrument: KONE-1

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

7/6/17

Tidewater Inc.
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Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-11-3

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-04
File ID: 170501 2206 CR6-067
Sampled: 05/01/17 13:40
Prepared: 05/02/17 07:32
Analyzed: 05/02/17 07:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0623
Sequence: 1707815
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

7/6/17

Tidewater Inc.
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Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-11-4

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-05
File ID: 170501 2206 CR6-068
Sampled: 05/01/17 13:10
Prepared: 05/02/17 07:32
Analyzed: 05/02/17 07:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0623
Sequence: 1707815
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-11-5

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-06
File ID: 170501 2206 CR6-069
Sampled: 05/01/17 12:25
Prepared: 05/02/17 07:32
Analyzed: 05/02/17 07:53
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0623
Sequence: 1707815
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-12-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-07
File ID: 170501 2206 CR6-017
Sampled: 05/01/17 09:15
Prepared: 05/01/17 22:06
Analyzed: 05/01/17 22:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0622
Sequence: 1707815
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

7/6/17

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-12-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-08
File ID: 170501 2206 CR6-010
Sampled: 05/01/17 08:45
Prepared: 05/01/17 22:06
Analyzed: 05/01/17 22:06
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0622
Sequence: 1707815
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-12-3

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-09
File ID: 170501 2206 CR6-005
Sampled: 05/01/17 08:15
Prepared: 05/01/17 22:06
Analyzed: 05/01/17 22:06
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0622
Sequence: 1707815
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00076	1	J	EPA-7196

6/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-12-4

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-10
File ID: 170501 2206 CR6-035
Sampled: 05/01/17 07:35
Prepared: 05/01/17 22:06
Analyzed: 05/01/17 23:21
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0622
Sequence: 1707815
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00080	1	J	EPA-7196

7/6/17

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-12-5

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-11
File ID: 170501 2206 CR6-019
Sampled: 05/01/17 07:15
Prepared: 05/01/17 22:06
Analyzed: 05/01/17 22:36
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0622
Sequence: 1707815
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.0015	1	J	EPA-7196

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

MW-24-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-12
File ID: 170501 2206 CR6-072
Sampled: 05/01/17 10:30
Prepared: 05/02/17 07:32
Analyzed: 05/02/17 07:55
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E0623
Sequence: 1707815
Calibration: UNASSIGNED
Instrument: KONE-1

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
18540-29-9	Hexavalent Chromium	0.00099	1	J H	EPA-7196

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-7196

EB-10-050117

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-13
File ID: 170501 2206 CR6-073
Sampled: 05/01/17 15:00
Prepared: 05/02/17 07:32
Analyzed: 05/02/17 07:55
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE0623
Sequence: 1707815
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-11-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-02
File ID: F051617.seq-13.0000.txt
Sampled: 05/01/17 14:45
Prepared: 05/16/17 14:00
Analyzed: 05/16/17 17:21
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1812
Sequence: 1708784
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-11-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-03
File ID: F051617.seq-19.0000.txt
Sampled: 05/01/17 14:20
Prepared: 05/16/17 14:00
Analyzed: 05/16/17 18:41
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1966
Sequence: 1708784
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-11-3

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-04
File ID: F051617.seq-20.0000.txt
Sampled: 05/01/17 13:40
Prepared: 05/16/17 14:00
Analyzed: 05/16/17 18:54
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1812
Sequence: 1708784
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-11-4

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-05
File ID: F051617.seq-21.0000.txt
Sampled: 05/01/17 13:10
Prepared: 05/16/17 14:00
Analyzed: 05/16/17 19:08
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1812
Sequence: 1708784
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-11-5

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-06
File ID: F051617.seq-22.0000.txt
Sampled: 05/01/17 12:25
Prepared: 05/16/17 14:00
Analyzed: 05/16/17 19:21
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1812
Sequence: 1708784
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-12-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-07
File ID: F051617.seq-23.0000.txt
Sampled: 05/01/17 09:15
Prepared: 05/16/17 14:00
Analyzed: 05/16/17 19:34
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1812
Sequence: 1708784
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-12-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-08
File ID: F051617.seq-24.0000.txt
Sampled: 05/01/17 08:45
Prepared: 05/16/17 14:00
Analyzed: 05/16/17 19:48
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1812
Sequence: 1708784
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

7/6/17

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-12-3

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-09RE1
File ID: F051617.seq-47.0000.txt
Sampled: 05/01/17 08:15
Prepared: 05/16/17 23:00
Analyzed: 05/17/17 00:54
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1812
Sequence: 1708784
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	4.2	1		EPA-314.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-12-4

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-10
File ID: F051617.seq-26.0000.txt
Sampled: 05/01/17 07:35
Prepared: 05/16/17 14:00
Analyzed: 05/16/17 20:14
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1812
Sequence: 1708784
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-12-5

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-11
File ID: F051617.seq-27.0000.txt
Sampled: 05/01/17 07:15
Prepared: 05/16/17 14:00
Analyzed: 05/16/17 20:28
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: B[E1812
Sequence: 1708784
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	1.8	1	J	EPA-314.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

MW-24-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-12
File ID: F051617.seq-63.0000.txt
Sampled: 05/01/17 10:30
Prepared: 05/16/17 14:00
Analyzed: 05/17/17 11:28
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE1812
Sequence: 1708784
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	58	10	D	EPA-314.0

7/6/17 8

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-314.0

EB-10-050117

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-13
File ID: F051617.seq-32.0000.txt
Sampled: 05/01/17 15:00
Prepared: 05/16/17 14:00
Analyzed: 05/16/17 21:34
Solids: 0.00
Preparation: No Prep
Initial/Final: 20 ml / 20 ml
Batch: BJE1812
Sequence: 1708784
Calibration: UNASSIGNED
Instrument: IC6

CAS NO.	Analyte	Concentration (ug/L)	Dilution Factor	Q	Method
14797-73-0	Perchlorate	0.58	1	U	EPA-314.0

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-11-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-02
File ID: Tiamo050317-100
Sampled: 05/01/17 14:45
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 16:13
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0193
Sequence: 1707737
Calibration: UNASSIGNED
Instrument: MET-1

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

7/6/07

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-11-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-03
File ID: Tiamo050317-098
Sampled: 05/01/17 14:20
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 16:01
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BIE0193
Sequence: 1707737
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.17	1	J	EPA-150.1

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-11-3

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-04
File ID: Tiamo050317-101
Sampled: 05/01/17 13:40
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 16:19
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0193
Sequence: 1707737
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.22	1	J	EPA-150.1

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-11-4

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-05
File ID: Tiamo050317-102
Sampled: 05/01/17 13:10
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 16:25
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0193
Sequence: 1707737
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.71	1	J	EPA-150.1

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-11-5

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-06
File ID: Tiamo050317-103
Sampled: 05/01/17 12:25
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 16:31
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0193
Sequence: 1707737
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.38	1	J	EPA-150.1

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-12-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-07
File ID: Tiamo050317-104
Sampled: 05/01/17 09:15
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 16:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0193
Sequence: 1707737
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.76	1	5	EPA-150.1

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-12-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-08
File ID: Tiamo050317-105
Sampled: 05/01/17 08:45
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 16:44
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0193
Sequence: 1707737
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.77	1	J	EPA-150.1

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-12-3

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-09
File ID: Tiamo050317-106
Sampled: 05/01/17 08:15
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 16:50
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0193
Sequence: 1707737
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.26	1	J	EPA-150.1

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-12-4

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-10
File ID: Tiamo050317-107
Sampled: 05/01/17 07:35
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 16:56
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: BJE0193
Sequence: 1707737
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.20	1	J	EPA-150.1

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-12-5

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-11
File ID: Tiamo050317-108
Sampled: 05/01/17 07:15
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 17:02
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0193
Sequence: 1707737
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	8.21	1	J	EPA-150.1

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

MW-24-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-12
File ID: Tiamo050317-113
Sampled: 05/01/17 10:30
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 17:23
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0194
Sequence: 1707737
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	7.90	1	J	EPA-150.1

6/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-150.1

EB-10-050117

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-13
File ID: Tiamo050317-116
Sampled: 05/01/17 15:00
Prepared: 05/03/17 08:00
Analyzed: 05/03/17 17:37
Solids: 0.00
Preparation: No Prep
Initial/Final: 50 ml / 50 ml
Batch: B[E0194
Sequence: 1707737
Calibration: UNASSIGNED
Instrument: MET-1

CAS NO.	Analyte	Concentration (pH Units)	Dilution Factor	Q	Method
---	pH	4.70	1	J	EPA-150.1

7/6/17 JR

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-11-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-02
File ID:
Sampled: 05/01/17 14:45
Prepared: 05/06/17 13:00
Analyzed: 05/06/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0782
Sequence: 1708440
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-11-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-03
File ID:
Sampled: 05/01/17 14:20
Prepared: 05/06/17 13:00
Analyzed: 05/06/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0782
Sequence: 1708440
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-11-3

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-04
File ID:
Sampled: 05/01/17 13:40
Prepared: 05/06/17 13:00
Analyzed: 05/06/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0782
Sequence: 1708440
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	240	2	D	EPA-160.1

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-11-4

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-05
File ID:
Sampled: 05/01/17 13:10
Prepared: 05/06/17 13:00
Analyzed: 05/06/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0782
Sequence: 1708440
Calibration: UNASSIGNED
Instrument: MANUAL

CAS NO.	Analyte	Concentration (mg/L)	Dilution Factor	Q	Method
---	Total Dissolved Solids @ 180 C	140	1		EPA-160.1

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-11-5

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-06
File ID:
Sampled: 05/01/17 12:25
Prepared: 05/06/17 13:00
Analyzed: 05/06/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0782
Sequence: 1708440
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-12-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-07
File ID:
Sampled: 05/01/17 09:15
Prepared: 05/06/17 13:00
Analyzed: 05/06/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: BJE0782
Sequence: 1708440
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-12-2

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-08
File ID:
Sampled: 05/01/17 08:45
Prepared: 05/06/17 13:00
Analyzed: 05/06/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0782
Sequence: 1708440
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-12-3

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-09
File ID:
Sampled: 05/01/17 08:15
Prepared: 05/06/17 13:00
Analyzed: 05/06/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0783
Sequence: 1708440
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-12-4

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-10
File ID:
Sampled: 05/01/17 07:35
Prepared: 05/06/17 13:00
Analyzed: 05/06/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0782
Sequence: 1708440
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

5/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-12-5

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-11
File ID:
Sampled: 05/01/17 07:15
Prepared: 05/06/17 13:00
Analyzed: 05/06/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0782
Sequence: 1708440
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

MW-24-1

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-12
File ID:
Sampled: 05/01/17 10:30
Prepared: 05/06/17 13:00
Analyzed: 05/06/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0782
Sequence: 1708440
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

7/6/17

Tidewater Inc.
3761 Attucks Drive
Powell, OH 43065

Reported: 6/20/2017 2:04:33PM
Project: JPL- GW Monitoring Wells
Project Number: 2Q17
Project Manager: David Conner

INORGANIC ANALYSIS DATA SHEET
EPA-160.1

EB-10-050117

Laboratory: BC Laboratories
SDG: 17-11629
Client: Tidewater Inc.
Project: JPL- GW Monitoring Wells
Matrix: Water
Laboratory ID: 1711629-13
File ID:
Sampled: 05/01/17 15:00
Prepared: 05/06/17 13:00
Analyzed: 05/06/17 13:00
Solids: 0.00
Preparation: No Prep
Initial/Final: 100 ml / 100 ml
Batch: B[E0783
Sequence: 1708440
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

7/6/17

LDC #: 38952E6 **VALIDATION COMPLETENESS WORKSHEET** Date: 7/6/17
SDG #: 17-11629 Level III/IV Page: 1 of 2
Laboratory: BC Laboratories, Inc. Reviewer: VB
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), Orthophosphate (EPA Method 365.1), Perchlorate (EPA Method 314.0), pH EPA Method 150.1), TDS (EPA Method 160.1)

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

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A /SW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	
V	Field blanks	SW	
VI.	Matrix Spike/Matrix Spike Duplicates	A	
VII.	Duplicate sample analysis	A	
VIII.	Laboratory control samples	A	LCS
IX.	Field duplicates	N	
X.	Sample result verification	A	Not reviewed for Level III validation.
XI	Overall assessment of data	A	

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

** Indicates sample was underwent Level IV review

	Client ID	Lab ID	Matrix	Date
1	MW-11-1	1711629-02	Water	05/01/17
2	MW-11-2	1711629-03	Water	05/01/17
3	MW-11-3**	1711629-04**	Water	05/01/17
4	MW-11-4	1711629-05	Water	05/01/17
5	MW-11-5	1711629-06	Water	05/01/17
6	MW-12-1	1711629-07	Water	05/01/17
7	MW-12-2	1711629-08	Water	05/01/17
8	MW-12-3	1711629-09	Water	05/01/17
9	MW-12-4	1711629-10	Water	05/01/17
10	MW-12-5	1711629-11	Water	05/01/17
11	MW-24-1	1711629-12	Water	05/01/17
12	EB-10-050117	1711629-13	Water	05/01/17
13	MW-11-2MS	1711629-03MS	Water	05/01/17
14	MW-11-2MSD	1711629-03MSD	Water	05/01/17
15	MW-11-2DUP	1711629-03DUP	Water	05/01/17
16	MW-12-3MS	1711629-09MS	Water	05/01/17
17	MW-12-3MSD	1711629-09MSD	Water	05/01/17

LDC #: 38952E6 **VALIDATION COMPLETENESS WORKSHEET** Date: 7/6/17

SDG #: 17-11629 Level III/IV Page: 2 of 2

Laboratory: BC Laboratories, Inc. Reviewer: JN

2nd Reviewer: [illegible]

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 (EPA Method 365.1), Perchlorate (EPA Method 314.0), pH EPA Method 150.1), TDS (EPA Method 160.1)

	Client ID	Lab ID	Matrix	Date
18	MW-12-3DUP	1711629-09DUP	Water	05/01/17
19	MW-24-1DUP	1711629-12DUP	Water	05/01/17
20				
21				
22				
23				
24				

Notes:

DC #: 38952Eq

VALIDATION FINDINGS CHECKLIST

Reviewer: JB
2nd Reviewer: [illegible]

Method: Inorganics (EPA Method See Cover)

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

DC #: 38952E4

VALIDATION FINDINGS CHECKLIST

Reviewer: JB
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
X. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			

SDG #: 38952E4

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

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

All circled methods are applicable to each sample.

Sample ID	Parameter
1-12	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
1, 11	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
QC	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
15	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
19	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
18	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
13, 14	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
16, 17	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4
	pH TDS Cl F NO_3 NO_2 SO_4 O-PO_4 Alk CN NH_3 TKN TOC Cr6+ ClO_4

Comments:

LDC #: 38952E6

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: JB
2nd reviewer:

All circled dates have exceeded the technical holding time.
Y N N/A Were all samples preserved as applicable to each method ?
Y N N/A Were all cooler temperatures within validation criteria?

Method:	EPA 150.1						
Parameters:	pH						
Technical holding time:	48 hours						
Sample ID	Sampling date	Analysis date	Total Time	Qualifier	Analysis date	Total Time	Qualifier
1	5/1/17 14:45	5/3/17 16:13	49.47	J/UJ/P			
2	5/1/17 14:20	5/3/17 16:01	49.68	J/UJ/P			
3	5/1/17 13:40	5/3/17 16:19	50.65	J/UJ/P			
4	5/1/17 13:10	5/3/17 16:25	51.25	J/UJ/P			
5	5/1/17 12:25	5/3/17 16:31	52.10	J/UJ/P			
6	5/1/17 09:15	5/3/17 16:37	55.37	J/UJ/P			
7	5/1/17 08:45	5/3/17 16:44	55.98	J/UJ/P			
8	5/1/17 08:15	5/3/17 16:50	56.58	J/UJ/P			
9	5/1/17 07:35	5/3/17 16:56	57.35	J/UJ/P			
10	5/1/17 07:15	5/3/17 17:02	57.78	J/UJ/P			
11	5/1/17 10:30	5/3/17 17:23	54.88	J/UJ/P			
12	5/1/17 15:00	5/3/17 17:37	50.62	J/UJ/P			

LDC #: 38952E6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: JB
2nd Reviewer:

METHOD: Inorganics, Method See Cover

Conc. units: mg/L **Associated Samples:** 1 - 5, 11, 12

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		2	~~12~~ 11							
Cr6+	0.00072900		0.003645	0.00095	0.00099							

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

LDC #: 38952E4

VALIDATION FINDINGS WORKSHEET
Field Blanks

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

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

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

Sample: 12 Field Blank / Trip Blank / Rinsate / Other EB (circle one)

Analyte	Concentration Units ( )
Cl^-	0.20 mg/L
NO_3^-	0.069 mg/L J

Sample: _____ Field Blank / Trip Blank / Rinsate / Other_____ (circle one)

Analyte	Concentration Units ( )

LDC #: 38952E4e

Validation Findings Worksheet
Initial and Continuing Calibration Calculation Verification

Page: 1 of 1
Reviewer: JB
2nd Reviewer: CL

Method: Inorganics, Method See Cover

The correlation coefficient (r) for the calibration of OPO_4^- was recalculated. Calibration date: 2/5/17

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. (ug/L)	Response	Recalculated r or r^2	Reported r or r^2	Acceptable (Y/N)
Initial calibration	Orthophosphate	s1	0	0.00715	*0.999565*	0.999565	Y
		s2	0.02	0.01614			
		s3	0.1	0.02608			
		s4	0.2	0.04522			
		s5	0.5	0.11701			
		s6	1	0.2293			
		s7	2	0.4541			
Calibration verification	SO_4	ICV	103457mg/L	100.00mg/L	103%	102%	Y
20:41 Calibration verification	ClO_4^-	CCV2	8.41078	10.000 ug/L	84.1%	86.6%	Y
Calibration verification							

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

LDC #: 38952E6

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: JB
2nd Reviewer: [illegible]

METHOD: Inorganics, Method See Cover

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

%R = Found / True x 100 Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = concentration of each analyte in the source.

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

RPD = |S-D| / (S+D)/2 x 100 Where, S = Original sample concentration
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
LCS	Laboratory control sample	TDS	640 mg/L	586.00 mg/L	109%	109%	Y
MS	629.3 Matrix spike sample 4:42	NO_3	SR= ND (SSR-SR) 5.332 mg/L	5.0505 mg/L	106%	106	Y
MSD	Duplicate sample 59	NO_3	5.3241 mg/L	Found ND: 5.332 mg/L ~~0.2032~~	0.1487% RPD	0.263% RPD	Y

Comments: _____

LDC #: 38952E6

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: JB
2nd reviewer: ~~X~~

METHOD: Inorganics, Method See Cover

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

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

Compound (analyte) results for Alk- reported with a positive detect were recalculated and verified using the following equation:

Concentration = Recalculation:

$$Alk = \frac{(\text{Total mL titrated}) \times N \times 50{,}000}{\text{Sample vol.}} \qquad Alk^- = \frac{2.158\,mL \times 0.01\,N \times 50{,}000}{50\,mL} = 164.008\,mg/L$$

#	Sample ID	Analyte	Reported Concentration ( )	Calculated Concentration ( )	Acceptable (Y/N)
	3	pH	8.22 pH units	8.22 pH units	Y
	3	TDS	240 mg/L	240 mg/L	Y
	3	Cl^-	11 mg/L	11 mg/L	Y
	3	NO_3	0.042 mg/L	0.043 mg/L	Y
	3	SO_4	22 mg/L	22 mg/L	Y
	3	Alk^-	160 mg/L	140 mg/L	X

Note: