



25-May-2018

Jake Janicek
Caerus Oil and Gas LLC
143 Diamond Ave.
Parachute, CO 81635

Re: **NPR Water**

Work Order: **18051040**

Dear Jake,

ALS Environmental received 12 samples on 16-May-2018 10:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 46.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton", is written over a light blue horizontal line.

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

Certificate No: MN 998501

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RIGHT SOLUTIONS RIGHT PARTNER

Client: Caerus Oil and Gas LLC
Project: NPR Water
Work Order: 18051040

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
18051040-01	20180515-NPRDUPA	Water		5/15/2018 08:00	5/16/2018 10:00	<input type="checkbox"/>
18051040-02	20180515-NPR8MW	Water		5/15/2018 09:00	5/16/2018 10:00	<input type="checkbox"/>
18051040-03	20180515-NPR14ST	Water		5/15/2018 09:15	5/16/2018 10:00	<input type="checkbox"/>
18051040-04	20180515-NPR9MW	Water		5/15/2018 09:35	5/16/2018 10:00	<input type="checkbox"/>
18051040-05	20180515-NPR11MW	Water		5/15/2018 09:55	5/16/2018 10:00	<input type="checkbox"/>
18051040-06	20180515-NPR10MW	Water		5/15/2018 10:20	5/16/2018 10:00	<input type="checkbox"/>
18051040-07	20180515-NPR4WW	Water		5/15/2018 10:50	5/16/2018 10:00	<input type="checkbox"/>
18051040-08	20180515-NPR12ST	Water		5/15/2018 11:00	5/16/2018 10:00	<input type="checkbox"/>
18051040-09	20180515-NPR14MW	Water		5/15/2018 12:20	5/16/2018 10:00	<input type="checkbox"/>
18051040-10	20180515-NPR15MW	Water		5/15/2018 12:40	5/16/2018 10:00	<input type="checkbox"/>
18051040-11	20180515-NPR16MW	Water		5/15/2018 13:00	5/16/2018 10:00	<input type="checkbox"/>
18051040-12	20180515-NPR15ST	Water		5/15/2018 13:20	5/16/2018 10:00	<input type="checkbox"/>

Client: Caerus Oil and Gas LLC
Project: NPR Water
Work Order: 18051040

Case Narrative

Batch 118576B, Method NH3_4500BG_W, Sample 18051040-09F MSD: The MSD recovery was below the lower control limit for Ammonia. However, the MS recovery and the RPD between the MS and MSD were within control limits. No qualification is required.

Batch R236101, Method NO3_353.2_W, Sample 18051040-09F MS/MSD: The MS/MSD recovery was below the lower control limit for Nitrate. The corresponding result in the parent sample may be biased low.

Batch R236133, Method IC_9056_W, Samples 18051040-05D, -06D, -07D, -08D, -09D, and -10D: The reporting limits for Bromide are elevated due to dilution for high concentrations of non-target analytes.

Qualifier	Description
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

Acronym	Description
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

Units Reported	Description
µg/L	Micrograms per Liter
µmhos/cm	Micromhos per Centimeter
mg NH3-N/L	Milligrams Ammonia-Nitrogen per Liter
mg/L	Milligrams per Liter
s.u.	Standard Units

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPRDUPA
Collection Date: 5/15/2018 08:00 AM

Work Order: 18051040
Lab ID: 18051040-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER			RSK-175			Analyst: MEB
Ethane	U		5.0	µg/L	1	5/23/2018 01:45 PM
Ethene	U		5.0	µg/L	1	5/23/2018 01:45 PM
Methane	U		5.0	µg/L	1	5/23/2018 01:45 PM
Propane	U		5.0	µg/L	1	5/23/2018 01:45 PM
METALS BY ICP-MS (DISSOLVED)			SW6020A		Prep: FILTER 5/17/18 11:40	Analyst: JF
Arsenic	0.0043	J	0.0050	mg/L	1	5/17/2018 03:04 PM
Barium	0.062		0.0050	mg/L	1	5/17/2018 03:04 PM
Cadmium	U		0.0020	mg/L	1	5/17/2018 03:04 PM
Calcium	56		0.50	mg/L	1	5/17/2018 03:04 PM
Chromium	0.00073	J	0.0050	mg/L	1	5/17/2018 03:04 PM
Copper	0.00051	J	0.0050	mg/L	1	5/17/2018 03:04 PM
Iron	0.0067	J	0.080	mg/L	1	5/17/2018 03:04 PM
Lead	U		0.0050	mg/L	1	5/17/2018 03:04 PM
Magnesium	34		0.20	mg/L	1	5/17/2018 03:04 PM
Manganese	U		0.0050	mg/L	1	5/17/2018 03:04 PM
Potassium	2.3		0.20	mg/L	1	5/17/2018 03:04 PM
Selenium	0.0026	J	0.0050	mg/L	1	5/17/2018 03:04 PM
Silver	U		0.0050	mg/L	1	5/17/2018 03:04 PM
Sodium	48		2.0	mg/L	10	5/18/2018 12:46 PM
VOLATILE ORGANIC COMPOUNDS			SW8260C			Analyst: WH
Benzene	U		1.0	µg/L	1	5/21/2018 10:43 PM
Ethylbenzene	U		1.0	µg/L	1	5/21/2018 10:43 PM
m,p-Xylene	U		2.0	µg/L	1	5/21/2018 10:43 PM
Methyl tert-butyl ether	U		1.0	µg/L	1	5/21/2018 10:43 PM
o-Xylene	U		1.0	µg/L	1	5/21/2018 10:43 PM
Toluene	U		1.0	µg/L	1	5/21/2018 10:43 PM
Xylenes, Total	U		3.0	µg/L	1	5/21/2018 10:43 PM
Surr: 1,2-Dichloroethane-d4	101		75-120	%REC	1	5/21/2018 10:43 PM
Surr: 4-Bromofluorobenzene	98.3		80-110	%REC	1	5/21/2018 10:43 PM
Surr: Dibromofluoromethane	97.0		85-115	%REC	1	5/21/2018 10:43 PM
Surr: Toluene-d8	97.9		85-110	%REC	1	5/21/2018 10:43 PM
ALKALINITY			A2320 B-11			Analyst: ED
Alkalinity, Bicarbonate (as CaCO3)	260		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Carbonate (as CaCO3)	20		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Total (as CaCO3)	280		10	mg/L	1	5/17/2018 03:20 PM
ANIONS BY ION CHROMATOGRAPHY			SW9056A			Analyst: EE
Bromide	U		0.20	mg/L	1	5/17/2018 11:48 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPRDUPA
Collection Date: 5/15/2018 08:00 AM

Work Order: 18051040
Lab ID: 18051040-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloride	10		1.0	mg/L	1	5/17/2018 11:48 AM
Fluoride	0.60		0.10	mg/L	1	5/17/2018 11:48 AM
Sulfate	68		10	mg/L	10	5/17/2018 12:07 PM
AMMONIA AS NITROGEN			A4500-NH3 G-11			Analyst: JJG
Ammonia as Nitrogen	0.095	J	0.15	mg NH3-N/L	1	5/21/2018 10:57 AM
NITROGEN, NITRITE			A4500-NO2 B-11			Analyst: STP
Nitrogen, Nitrite	0.0010	J	0.020	mg/L	1	5/16/2018 12:30 PM
NITROGEN, NITRATE			E353.2 R2.0			Analyst: JJG
Nitrogen, Nitrate	0.74		0.020	mg/L	1	5/17/2018 09:57 AM
PH (LABORATORY)			SW9040C			Analyst: ED
pH (laboratory)	8.5		0.10	s.u.	1	5/17/2018 03:20 PM
SULFIDE			E376.1			Analyst: EE
Sulfide	U		1.0	mg/L	1	5/21/2018 08:45 AM
SPECIFIC CONDUCTANCE @ 25°C			A2510 B-11			Analyst: ED
Specific Conductance	630		5.0	µmhos/cm	1	5/17/2018 03:20 PM
TOTAL DISSOLVED SOLIDS			A2540 C-11		Prep: FILTER 5/19/18 12:00	Analyst: MT
Total Dissolved Solids	360		10	mg/L	1	5/21/2018 11:43 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPR8MW
Collection Date: 5/15/2018 09:00 AM

Work Order: 18051040
Lab ID: 18051040-02
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER			RSK-175			Analyst: MEB
Ethane	U		5.0	µg/L	1	5/23/2018 01:46 PM
Ethene	U		5.0	µg/L	1	5/23/2018 01:46 PM
Methane	U		5.0	µg/L	1	5/23/2018 01:46 PM
Propane	U		5.0	µg/L	1	5/23/2018 01:46 PM
METALS BY ICP-MS (DISSOLVED)			SW6020A		Prep: FILTER 5/17/18 11:40	Analyst: JF
Arsenic	0.0039	J	0.0050	mg/L	1	5/17/2018 03:09 PM
Barium	0.063		0.0050	mg/L	1	5/17/2018 03:09 PM
Cadmium	0.000054	J	0.0020	mg/L	1	5/17/2018 03:09 PM
Calcium	57		0.50	mg/L	1	5/17/2018 03:09 PM
Chromium	0.00097	J	0.0050	mg/L	1	5/17/2018 03:09 PM
Copper	0.0011	J	0.0050	mg/L	1	5/17/2018 03:09 PM
Iron	0.024	J	0.080	mg/L	1	5/17/2018 03:09 PM
Lead	U		0.0050	mg/L	1	5/17/2018 03:09 PM
Magnesium	32		0.20	mg/L	1	5/17/2018 03:09 PM
Manganese	0.00074	J	0.0050	mg/L	1	5/17/2018 03:09 PM
Potassium	2.2		0.20	mg/L	1	5/17/2018 03:09 PM
Selenium	0.0023	J	0.0050	mg/L	1	5/17/2018 03:09 PM
Silver	U		0.0050	mg/L	1	5/17/2018 03:09 PM
Sodium	40		2.0	mg/L	10	5/18/2018 12:51 PM
VOLATILE ORGANIC COMPOUNDS			SW8260C			Analyst: WH
Benzene	U		1.0	µg/L	1	5/21/2018 10:58 PM
Ethylbenzene	U		1.0	µg/L	1	5/21/2018 10:58 PM
m,p-Xylene	U		2.0	µg/L	1	5/21/2018 10:58 PM
Methyl tert-butyl ether	U		1.0	µg/L	1	5/21/2018 10:58 PM
o-Xylene	U		1.0	µg/L	1	5/21/2018 10:58 PM
Toluene	U		1.0	µg/L	1	5/21/2018 10:58 PM
Xylenes, Total	U		3.0	µg/L	1	5/21/2018 10:58 PM
Surr: 1,2-Dichloroethane-d4	101		75-120	%REC	1	5/21/2018 10:58 PM
Surr: 4-Bromofluorobenzene	100		80-110	%REC	1	5/21/2018 10:58 PM
Surr: Dibromofluoromethane	100		85-115	%REC	1	5/21/2018 10:58 PM
Surr: Toluene-d8	96.8		85-110	%REC	1	5/21/2018 10:58 PM
ALKALINITY			A2320 B-11			Analyst: ED
Alkalinity, Bicarbonate (as CaCO3)	280		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Carbonate (as CaCO3)	U		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Total (as CaCO3)	280		10	mg/L	1	5/17/2018 03:20 PM
ANIONS BY ION CHROMATOGRAPHY			SW9056A			Analyst: EE
Bromide	U		0.20	mg/L	1	5/17/2018 12:26 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPR8MW
Collection Date: 5/15/2018 09:00 AM

Work Order: 18051040
Lab ID: 18051040-02
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloride	9.4		1.0	mg/L	1	5/17/2018 12:26 PM
Fluoride	0.55		0.10	mg/L	1	5/17/2018 12:26 PM
Sulfate	49		10	mg/L	10	5/17/2018 12:45 PM
AMMONIA AS NITROGEN			A4500-NH3 G-11			Analyst: JJG
Ammonia as Nitrogen	0.10	J	0.15	mg NH3-N/L	1	5/21/2018 10:57 AM
NITROGEN, NITRITE			A4500-NO2 B-11			Analyst: STP
Nitrogen, Nitrite	U		0.020	mg/L	1	5/16/2018 12:30 PM
NITROGEN, NITRATE			E353.2 R2.0			Analyst: JJG
Nitrogen, Nitrate	0.79		0.020	mg/L	1	5/17/2018 09:57 AM
PH (LABORATORY)			SW9040C			Analyst: ED
pH (laboratory)	7.9		0.10	s.u.	1	5/17/2018 03:20 PM
SULFIDE			E376.1			Analyst: EE
Sulfide	U		1.0	mg/L	1	5/21/2018 08:45 AM
SPECIFIC CONDUCTANCE @ 25°C			A2510 B-11			Analyst: ED
Specific Conductance	590		5.0	µmhos/cm	1	5/17/2018 03:20 PM
TOTAL DISSOLVED SOLIDS			A2540 C-11		Prep: FILTER 5/19/18 12:00	Analyst: MT
Total Dissolved Solids	340		10	mg/L	1	5/21/2018 11:43 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPR14ST
Collection Date: 5/15/2018 09:15 AM

Work Order: 18051040
Lab ID: 18051040-03
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER			RSK-175			Analyst: MEB
Ethane	0.46	J	5.0	µg/L	1	5/23/2018 01:52 PM
Ethene	0.76	J	5.0	µg/L	1	5/23/2018 01:52 PM
Methane	1.6	J	5.0	µg/L	1	5/23/2018 01:52 PM
Propane	U		5.0	µg/L	1	5/23/2018 01:52 PM
METALS BY ICP-MS (DISSOLVED)			SW6020A		Prep: FILTER 5/17/18 11:40	Analyst: JF
Arsenic	0.0043	J	0.0050	mg/L	1	5/17/2018 03:11 PM
Barium	0.063		0.0050	mg/L	1	5/17/2018 03:11 PM
Cadmium	U		0.0020	mg/L	1	5/17/2018 03:11 PM
Calcium	60		0.50	mg/L	1	5/17/2018 03:11 PM
Chromium	0.00083	J	0.0050	mg/L	1	5/17/2018 03:11 PM
Copper	0.00049	J	0.0050	mg/L	1	5/17/2018 03:11 PM
Iron	U		0.080	mg/L	1	5/17/2018 03:11 PM
Lead	U		0.0050	mg/L	1	5/17/2018 03:11 PM
Magnesium	34		0.20	mg/L	1	5/17/2018 03:11 PM
Manganese	U		0.0050	mg/L	1	5/17/2018 03:11 PM
Potassium	2.3		0.20	mg/L	1	5/17/2018 03:11 PM
Selenium	0.0019	J	0.0050	mg/L	1	5/17/2018 03:11 PM
Silver	U		0.0050	mg/L	1	5/17/2018 03:11 PM
Sodium	44		2.0	mg/L	10	5/18/2018 12:53 PM
VOLATILE ORGANIC COMPOUNDS			SW8260C			Analyst: WH
Benzene	U		1.0	µg/L	1	5/21/2018 11:14 PM
Ethylbenzene	U		1.0	µg/L	1	5/21/2018 11:14 PM
m,p-Xylene	U		2.0	µg/L	1	5/21/2018 11:14 PM
Methyl tert-butyl ether	U		1.0	µg/L	1	5/21/2018 11:14 PM
o-Xylene	U		1.0	µg/L	1	5/21/2018 11:14 PM
Toluene	U		1.0	µg/L	1	5/21/2018 11:14 PM
Xylenes, Total	U		3.0	µg/L	1	5/21/2018 11:14 PM
Surr: 1,2-Dichloroethane-d4	100		75-120	%REC	1	5/21/2018 11:14 PM
Surr: 4-Bromofluorobenzene	96.6		80-110	%REC	1	5/21/2018 11:14 PM
Surr: Dibromofluoromethane	100		85-115	%REC	1	5/21/2018 11:14 PM
Surr: Toluene-d8	97.0		85-110	%REC	1	5/21/2018 11:14 PM
ALKALINITY			A2320 B-11			Analyst: ED
Alkalinity, Bicarbonate (as CaCO3)	290		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Carbonate (as CaCO3)	U		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Total (as CaCO3)	290		10	mg/L	1	5/17/2018 03:20 PM
ANIONS BY ION CHROMATOGRAPHY			SW9056A			Analyst: EE
Bromide	U		0.20	mg/L	1	5/17/2018 01:04 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC

Project: NPR Water

Work Order: 18051040

Sample ID: 20180515-NPR14ST

Lab ID: 18051040-03

Collection Date: 5/15/2018 09:15 AM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloride	10		1.0	mg/L	1	5/17/2018 01:04 PM
Fluoride	0.58		0.10	mg/L	1	5/17/2018 01:04 PM
Sulfate	61		10	mg/L	10	5/17/2018 01:23 PM
AMMONIA AS NITROGEN			A4500-NH3 G-11			Analyst: JJG
Ammonia as Nitrogen	U		0.15	mg NH3-N/L	1	5/21/2018 10:57 AM
NITROGEN, NITRITE			A4500-NO2 B-11			Analyst: STP
Nitrogen, Nitrite	U		0.020	mg/L	1	5/16/2018 12:30 PM
NITROGEN, NITRATE			E353.2 R2.0			Analyst: JJG
Nitrogen, Nitrate	0.85		0.020	mg/L	1	5/17/2018 09:57 AM
PH (LABORATORY)			SW9040C			Analyst: ED
pH (laboratory)	8.0		0.10	s.u.	1	5/17/2018 03:20 PM
SULFIDE			E376.1			Analyst: EE
Sulfide	U		1.0	mg/L	1	5/21/2018 08:45 AM
SPECIFIC CONDUCTANCE @ 25°C			A2510 B-11			Analyst: ED
Specific Conductance	620		5.0	µmhos/cm	1	5/17/2018 03:20 PM
TOTAL DISSOLVED SOLIDS			A2540 C-11		Prep: FILTER 5/19/18 12:00	Analyst: MT
Total Dissolved Solids	360		10	mg/L	1	5/21/2018 11:43 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPR9MW
Collection Date: 5/15/2018 09:35 AM

Work Order: 18051040
Lab ID: 18051040-04
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER			RSK-175			Analyst: MEB
Ethane	1.0	J	5.0	µg/L	1	5/23/2018 01:54 PM
Ethene	U		5.0	µg/L	1	5/23/2018 01:54 PM
Methane	2.5	J	5.0	µg/L	1	5/23/2018 01:54 PM
Propane	U		5.0	µg/L	1	5/23/2018 01:54 PM
METALS BY ICP-MS (DISSOLVED)			SW6020A		Prep: FILTER 5/17/18 11:40	Analyst: JF
Arsenic	0.0040	J	0.0050	mg/L	1	5/17/2018 03:13 PM
Barium	0.054		0.0050	mg/L	1	5/17/2018 03:13 PM
Cadmium	U		0.0020	mg/L	1	5/17/2018 03:13 PM
Calcium	65		0.50	mg/L	1	5/17/2018 03:13 PM
Chromium	0.0010	J	0.0050	mg/L	1	5/17/2018 03:13 PM
Copper	0.0011	J	0.0050	mg/L	1	5/17/2018 03:13 PM
Iron	0.065	J	0.080	mg/L	1	5/17/2018 03:13 PM
Lead	U		0.0050	mg/L	1	5/17/2018 03:13 PM
Magnesium	45		0.20	mg/L	1	5/17/2018 03:13 PM
Manganese	0.0012	J	0.0050	mg/L	1	5/17/2018 03:13 PM
Potassium	2.6		0.20	mg/L	1	5/17/2018 03:13 PM
Selenium	0.0054		0.0050	mg/L	1	5/17/2018 03:13 PM
Silver	U		0.0050	mg/L	1	5/17/2018 03:13 PM
Sodium	59		2.0	mg/L	10	5/18/2018 12:55 PM
VOLATILE ORGANIC COMPOUNDS			SW8260C			Analyst: WH
Benzene	U		1.0	µg/L	1	5/21/2018 11:30 PM
Ethylbenzene	U		1.0	µg/L	1	5/21/2018 11:30 PM
m,p-Xylene	U		2.0	µg/L	1	5/21/2018 11:30 PM
Methyl tert-butyl ether	U		1.0	µg/L	1	5/21/2018 11:30 PM
o-Xylene	U		1.0	µg/L	1	5/21/2018 11:30 PM
Toluene	U		1.0	µg/L	1	5/21/2018 11:30 PM
Xylenes, Total	U		3.0	µg/L	1	5/21/2018 11:30 PM
Surr: 1,2-Dichloroethane-d4	102		75-120	%REC	1	5/21/2018 11:30 PM
Surr: 4-Bromofluorobenzene	97.5		80-110	%REC	1	5/21/2018 11:30 PM
Surr: Dibromofluoromethane	101		85-115	%REC	1	5/21/2018 11:30 PM
Surr: Toluene-d8	98.0		85-110	%REC	1	5/21/2018 11:30 PM
ALKALINITY			A2320 B-11			Analyst: ED
Alkalinity, Bicarbonate (as CaCO3)	310		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Carbonate (as CaCO3)	U		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Total (as CaCO3)	310		10	mg/L	1	5/17/2018 03:20 PM
ANIONS BY ION CHROMATOGRAPHY			SW9056A			Analyst: EE
Bromide	U		0.20	mg/L	1	5/17/2018 01:43 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC

Project: NPR Water

Work Order: 18051040

Sample ID: 20180515-NPR9MW

Lab ID: 18051040-04

Collection Date: 5/15/2018 09:35 AM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloride	13		1.0	mg/L	1	5/17/2018 01:43 PM
Fluoride	0.71		0.10	mg/L	1	5/17/2018 01:43 PM
Sulfate	120		10	mg/L	10	5/17/2018 02:02 PM
AMMONIA AS NITROGEN			A4500-NH3 G-11			Analyst: JJG
Ammonia as Nitrogen	0.16		0.15	mg NH3-N/L	1	5/21/2018 10:57 AM
NITROGEN, NITRITE			A4500-NO2 B-11			Analyst: STP
Nitrogen, Nitrite	U		0.020	mg/L	1	5/16/2018 12:30 PM
NITROGEN, NITRATE			E353.2 R2.0			Analyst: JJG
Nitrogen, Nitrate	2.3		0.020	mg/L	1	5/17/2018 09:57 AM
PH (LABORATORY)			SW9040C			Analyst: ED
pH (laboratory)	7.9		0.10	s.u.	1	5/17/2018 03:20 PM
SULFIDE			E376.1			Analyst: EE
Sulfide	U		1.0	mg/L	1	5/21/2018 08:45 AM
SPECIFIC CONDUCTANCE @ 25°C			A2510 B-11			Analyst: ED
Specific Conductance	760		5.0	µmhos/cm	1	5/17/2018 03:20 PM
TOTAL DISSOLVED SOLIDS			A2540 C-11		Prep: FILTER 5/19/18 12:00	Analyst: MT
Total Dissolved Solids	480		20	mg/L	1	5/21/2018 11:43 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPR11MW
Collection Date: 5/15/2018 09:55 AM

Work Order: 18051040
Lab ID: 18051040-05
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER			RSK-175			Analyst: MEB
Ethane	1.1	J	5.0	µg/L	1	5/23/2018 02:32 PM
Ethene	U		5.0	µg/L	1	5/23/2018 02:32 PM
Methane	0.84	J	5.0	µg/L	1	5/23/2018 02:32 PM
Propane	U		5.0	µg/L	1	5/23/2018 02:32 PM
METALS BY ICP-MS (DISSOLVED)			SW6020A		Prep: FILTER 5/17/18 11:40	Analyst: JF
Arsenic	0.0032	J	0.0050	mg/L	1	5/17/2018 03:15 PM
Barium	0.11		0.0050	mg/L	1	5/17/2018 03:15 PM
Cadmium	U		0.0020	mg/L	1	5/17/2018 03:15 PM
Calcium	85		0.50	mg/L	1	5/17/2018 03:15 PM
Chromium	0.00071	J	0.0050	mg/L	1	5/17/2018 03:15 PM
Copper	0.00080	J	0.0050	mg/L	1	5/17/2018 03:15 PM
Iron	0.093		0.080	mg/L	1	5/18/2018 12:56 PM
Lead	U		0.0050	mg/L	1	5/17/2018 03:15 PM
Magnesium	53		0.20	mg/L	1	5/17/2018 03:15 PM
Manganese	0.0018	J	0.0050	mg/L	1	5/17/2018 03:15 PM
Potassium	3.0		0.20	mg/L	1	5/17/2018 03:15 PM
Selenium	0.0074		0.0050	mg/L	1	5/17/2018 03:15 PM
Silver	U		0.0050	mg/L	1	5/17/2018 03:15 PM
Sodium	64		2.0	mg/L	10	5/18/2018 12:58 PM
VOLATILE ORGANIC COMPOUNDS			SW8260C			Analyst: WH
Benzene	U		1.0	µg/L	1	5/21/2018 11:46 PM
Ethylbenzene	U		1.0	µg/L	1	5/21/2018 11:46 PM
m,p-Xylene	U		2.0	µg/L	1	5/21/2018 11:46 PM
Methyl tert-butyl ether	U		1.0	µg/L	1	5/21/2018 11:46 PM
o-Xylene	U		1.0	µg/L	1	5/21/2018 11:46 PM
Toluene	U		1.0	µg/L	1	5/21/2018 11:46 PM
Xylenes, Total	U		3.0	µg/L	1	5/21/2018 11:46 PM
Surr: 1,2-Dichloroethane-d4	101		75-120	%REC	1	5/21/2018 11:46 PM
Surr: 4-Bromofluorobenzene	101		80-110	%REC	1	5/21/2018 11:46 PM
Surr: Dibromofluoromethane	102		85-115	%REC	1	5/21/2018 11:46 PM
Surr: Toluene-d8	98.2		85-110	%REC	1	5/21/2018 11:46 PM
ALKALINITY			A2320 B-11			Analyst: ED
Alkalinity, Bicarbonate (as CaCO3)	350		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Carbonate (as CaCO3)	U		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Total (as CaCO3)	350		10	mg/L	1	5/17/2018 03:20 PM
ANIONS BY ION CHROMATOGRAPHY			SW9056A			Analyst: EE
Bromide	U		0.40	mg/L	2	5/17/2018 02:21 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPR11MW
Collection Date: 5/15/2018 09:55 AM

Work Order: 18051040
Lab ID: 18051040-05
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloride	17		2.0	mg/L	2	5/17/2018 02:21 PM
Fluoride	0.62		0.20	mg/L	2	5/17/2018 02:21 PM
Sulfate	150		20	mg/L	20	5/17/2018 02:40 PM
AMMONIA AS NITROGEN			A4500-NH3 G-11			Analyst: JJG
Ammonia as Nitrogen	0.22		0.15	mg NH3-N/L	1	5/21/2018 10:57 AM
NITROGEN, NITRITE			A4500-NO2 B-11			Analyst: STP
Nitrogen, Nitrite	U		0.020	mg/L	1	5/16/2018 12:30 PM
NITROGEN, NITRATE			E353.2 R2.0			Analyst: JJG
Nitrogen, Nitrate	3.3		0.020	mg/L	1	5/17/2018 09:57 AM
PH (LABORATORY)			SW9040C			Analyst: ED
pH (laboratory)	7.8		0.10	s.u.	1	5/17/2018 03:20 PM
SULFIDE			E376.1			Analyst: EE
Sulfide	U		1.0	mg/L	1	5/21/2018 08:45 AM
SPECIFIC CONDUCTANCE @ 25°C			A2510 B-11			Analyst: ED
Specific Conductance	890		5.0	µmhos/cm	1	5/17/2018 03:20 PM
TOTAL DISSOLVED SOLIDS			A2540 C-11		Prep: FILTER 5/19/18 12:00	Analyst: MT
Total Dissolved Solids	590		20	mg/L	1	5/21/2018 11:43 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPR10MW
Collection Date: 5/15/2018 10:20 AM

Work Order: 18051040
Lab ID: 18051040-06
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER			RSK-175			Analyst: MEB
Ethane	U		5.0	µg/L	1	5/23/2018 02:36 PM
Ethene	U		5.0	µg/L	1	5/23/2018 02:36 PM
Methane	1.3	J	5.0	µg/L	1	5/23/2018 02:36 PM
Propane	U		5.0	µg/L	1	5/23/2018 02:36 PM
METALS BY ICP-MS (DISSOLVED)			SW6020A		Prep: FILTER 5/17/18 11:40	Analyst: JF
Arsenic	0.0031	J	0.0050	mg/L	1	5/17/2018 03:44 PM
Barium	0.089		0.0050	mg/L	1	5/17/2018 03:44 PM
Cadmium	U		0.0020	mg/L	1	5/17/2018 03:44 PM
Calcium	82		0.50	mg/L	1	5/17/2018 03:44 PM
Chromium	U		0.0050	mg/L	1	5/17/2018 03:44 PM
Copper	0.00060	J	0.0050	mg/L	1	5/17/2018 03:44 PM
Iron	U		0.080	mg/L	1	5/17/2018 03:44 PM
Lead	U		0.0050	mg/L	1	5/17/2018 03:44 PM
Magnesium	55		0.20	mg/L	1	5/17/2018 03:44 PM
Manganese	0.010		0.0050	mg/L	1	5/17/2018 03:44 PM
Potassium	3.2		0.20	mg/L	1	5/17/2018 03:44 PM
Selenium	0.0080		0.0050	mg/L	1	5/17/2018 03:44 PM
Silver	U		0.0050	mg/L	1	5/17/2018 03:44 PM
Sodium	72		0.20	mg/L	1	5/17/2018 03:44 PM
VOLATILE ORGANIC COMPOUNDS			SW8260C			Analyst: WH
Benzene	U		1.0	µg/L	1	5/22/2018 12:02 PM
Ethylbenzene	U		1.0	µg/L	1	5/22/2018 12:02 PM
m,p-Xylene	U		2.0	µg/L	1	5/22/2018 12:02 PM
Methyl tert-butyl ether	U		1.0	µg/L	1	5/22/2018 12:02 PM
o-Xylene	U		1.0	µg/L	1	5/22/2018 12:02 PM
Toluene	U		1.0	µg/L	1	5/22/2018 12:02 PM
Xylenes, Total	U		3.0	µg/L	1	5/22/2018 12:02 PM
Surr: 1,2-Dichloroethane-d4	102		75-120	%REC	1	5/22/2018 12:02 PM
Surr: 4-Bromofluorobenzene	97.8		80-110	%REC	1	5/22/2018 12:02 PM
Surr: Dibromofluoromethane	101		85-115	%REC	1	5/22/2018 12:02 PM
Surr: Toluene-d8	96.4		85-110	%REC	1	5/22/2018 12:02 PM
ALKALINITY			A2320 B-11			Analyst: ED
Alkalinity, Bicarbonate (as CaCO3)	370		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Carbonate (as CaCO3)	U		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Total (as CaCO3)	370		10	mg/L	1	5/17/2018 03:20 PM
ANIONS BY ION CHROMATOGRAPHY			SW9056A			Analyst: EE
Bromide	U		0.40	mg/L	2	5/17/2018 03:38 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPR10MW
Collection Date: 5/15/2018 10:20 AM

Work Order: 18051040
Lab ID: 18051040-06
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloride	20		2.0	mg/L	2	5/17/2018 03:38 PM
Fluoride	0.68		0.20	mg/L	2	5/17/2018 03:38 PM
Sulfate	190		20	mg/L	20	5/17/2018 03:57 PM
AMMONIA AS NITROGEN			A4500-NH3 G-11			Analyst: JJG
Ammonia as Nitrogen	0.18		0.15	mg NH3-N/L	1	5/21/2018 10:57 AM
NITROGEN, NITRITE			A4500-NO2 B-11			Analyst: STP
Nitrogen, Nitrite	U		0.020	mg/L	1	5/16/2018 12:30 PM
NITROGEN, NITRATE			E353.2 R2.0			Analyst: JJG
Nitrogen, Nitrate	4.1		0.020	mg/L	1	5/17/2018 09:57 AM
PH (LABORATORY)			SW9040C			Analyst: ED
pH (laboratory)	7.7		0.10	s.u.	1	5/17/2018 03:20 PM
SULFIDE			E376.1			Analyst: EE
Sulfide	U		1.0	mg/L	1	5/21/2018 08:45 AM
SPECIFIC CONDUCTANCE @ 25°C			A2510 B-11			Analyst: ED
Specific Conductance	980		5.0	µmhos/cm	1	5/17/2018 03:20 PM
TOTAL DISSOLVED SOLIDS			A2540 C-11		Prep: FILTER 5/19/18 12:00	Analyst: MT
Total Dissolved Solids	640		20	mg/L	1	5/21/2018 11:43 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPR4WW
Collection Date: 5/15/2018 10:50 AM

Work Order: 18051040
Lab ID: 18051040-07
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER			RSK-175			Analyst: MEB
Ethane	U		5.0	µg/L	1	5/23/2018 02:39 PM
Ethene	U		5.0	µg/L	1	5/23/2018 02:39 PM
Methane	0.92	J	5.0	µg/L	1	5/23/2018 02:39 PM
Propane	U		5.0	µg/L	1	5/23/2018 02:39 PM
METALS BY ICP-MS (DISSOLVED)			SW6020A		Prep: FILTER 5/17/18 11:40	Analyst: JF
Arsenic	0.0015	J	0.0050	mg/L	1	5/17/2018 03:45 PM
Barium	0.040		0.0050	mg/L	1	5/17/2018 03:45 PM
Cadmium	U		0.0020	mg/L	1	5/17/2018 03:45 PM
Calcium	48		0.50	mg/L	1	5/17/2018 03:45 PM
Chromium	U		0.0050	mg/L	1	5/17/2018 03:45 PM
Copper	U		0.0050	mg/L	1	5/17/2018 03:45 PM
Iron	0.044	J	0.080	mg/L	1	5/17/2018 03:45 PM
Lead	U		0.0050	mg/L	1	5/17/2018 03:45 PM
Magnesium	40		0.20	mg/L	1	5/17/2018 03:45 PM
Manganese	0.084		0.0050	mg/L	1	5/17/2018 03:45 PM
Potassium	2.2		0.20	mg/L	1	5/17/2018 03:45 PM
Selenium	0.00094	J	0.0050	mg/L	1	5/17/2018 03:45 PM
Silver	U		0.0050	mg/L	1	5/17/2018 03:45 PM
Sodium	69		0.20	mg/L	1	5/17/2018 03:45 PM
VOLATILE ORGANIC COMPOUNDS			SW8260C			Analyst: WH
Benzene	U		1.0	µg/L	1	5/22/2018 12:17 PM
Ethylbenzene	U		1.0	µg/L	1	5/22/2018 12:17 PM
m,p-Xylene	U		2.0	µg/L	1	5/22/2018 12:17 PM
Methyl tert-butyl ether	U		1.0	µg/L	1	5/22/2018 12:17 PM
o-Xylene	U		1.0	µg/L	1	5/22/2018 12:17 PM
Toluene	U		1.0	µg/L	1	5/22/2018 12:17 PM
Xylenes, Total	U		3.0	µg/L	1	5/22/2018 12:17 PM
Surr: 1,2-Dichloroethane-d4	105		75-120	%REC	1	5/22/2018 12:17 PM
Surr: 4-Bromofluorobenzene	99.2		80-110	%REC	1	5/22/2018 12:17 PM
Surr: Dibromofluoromethane	102		85-115	%REC	1	5/22/2018 12:17 PM
Surr: Toluene-d8	95.7		85-110	%REC	1	5/22/2018 12:17 PM
ALKALINITY			A2320 B-11			Analyst: ED
Alkalinity, Bicarbonate (as CaCO3)	300		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Carbonate (as CaCO3)	U		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Total (as CaCO3)	300		10	mg/L	1	5/17/2018 03:20 PM
ANIONS BY ION CHROMATOGRAPHY			SW9056A			Analyst: EE
Bromide	U		0.40	mg/L	2	5/17/2018 04:16 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPR4WW
Collection Date: 5/15/2018 10:50 AM

Work Order: 18051040
Lab ID: 18051040-07
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloride	6.3		2.0	mg/L	2	5/17/2018 04:16 PM
Fluoride	0.85		0.20	mg/L	2	5/17/2018 04:16 PM
Sulfate	130		20	mg/L	20	5/17/2018 04:35 PM
AMMONIA AS NITROGEN			A4500-NH3 G-11			Analyst: JJG
Ammonia as Nitrogen	U		0.15	mg NH3-N/L	1	5/21/2018 10:57 AM
NITROGEN, NITRITE			A4500-NO2 B-11			Analyst: STP
Nitrogen, Nitrite	0.0010	J	0.020	mg/L	1	5/16/2018 12:30 PM
NITROGEN, NITRATE			E353.2 R2.0			Analyst: JJG
Nitrogen, Nitrate	0.059		0.020	mg/L	1	5/17/2018 09:57 AM
PH (LABORATORY)			SW9040C			Analyst: ED
pH (laboratory)	8.2		0.10	s.u.	1	5/17/2018 03:20 PM
SULFIDE			E376.1			Analyst: EE
Sulfide	U		1.0	mg/L	1	5/21/2018 08:45 AM
SPECIFIC CONDUCTANCE @ 25°C			A2510 B-11			Analyst: ED
Specific Conductance	740		5.0	µmhos/cm	1	5/17/2018 03:20 PM
TOTAL DISSOLVED SOLIDS			A2540 C-11		Prep: FILTER 5/19/18 12:00	Analyst: MT
Total Dissolved Solids	440		10	mg/L	1	5/21/2018 11:43 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Caerus Oil and Gas LLC
 Project: NPR Water
 Sample ID: 20180515-NPR12ST
 Collection Date: 5/15/2018 11:00 AM

Work Order: 18051040
 Lab ID: 18051040-08
 Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER			RSK-175			Analyst: MEB
Ethane	U		5.0	µg/L	1	5/23/2018 03:17 PM
Ethene	U		5.0	µg/L	1	5/23/2018 03:17 PM
Methane	U		5.0	µg/L	1	5/23/2018 03:17 PM
Propane	U		5.0	µg/L	1	5/23/2018 03:17 PM
METALS BY ICP-MS (DISSOLVED)			SW6020A		Prep: FILTER 5/17/18 11:40	Analyst: JF
Arsenic	0.0040	J	0.0050	mg/L	1	5/17/2018 03:47 PM
Barium	0.055		0.0050	mg/L	1	5/17/2018 03:47 PM
Cadmium	U		0.0020	mg/L	1	5/17/2018 03:47 PM
Calcium	61		0.50	mg/L	1	5/17/2018 03:47 PM
Chromium	0.0012	J	0.0050	mg/L	1	5/17/2018 03:47 PM
Copper	0.00048	J	0.0050	mg/L	1	5/17/2018 03:47 PM
Iron	U		0.080	mg/L	1	5/17/2018 03:47 PM
Lead	U		0.0050	mg/L	1	5/17/2018 03:47 PM
Magnesium	44		0.20	mg/L	1	5/17/2018 03:47 PM
Manganese	U		0.0050	mg/L	1	5/17/2018 03:47 PM
Potassium	3.1		0.20	mg/L	1	5/17/2018 03:47 PM
Selenium	0.0040	J	0.0050	mg/L	1	5/17/2018 03:47 PM
Silver	U		0.0050	mg/L	1	5/17/2018 03:47 PM
Sodium	60		0.20	mg/L	1	5/17/2018 03:47 PM
VOLATILE ORGANIC COMPOUNDS			SW8260C			Analyst: WH
Benzene	U		1.0	µg/L	1	5/22/2018 12:33 PM
Ethylbenzene	U		1.0	µg/L	1	5/22/2018 12:33 PM
m,p-Xylene	U		2.0	µg/L	1	5/22/2018 12:33 PM
Methyl tert-butyl ether	U		1.0	µg/L	1	5/22/2018 12:33 PM
o-Xylene	U		1.0	µg/L	1	5/22/2018 12:33 PM
Toluene	U		1.0	µg/L	1	5/22/2018 12:33 PM
Xylenes, Total	U		3.0	µg/L	1	5/22/2018 12:33 PM
Surr: 1,2-Dichloroethane-d4	101		75-120	%REC	1	5/22/2018 12:33 PM
Surr: 4-Bromofluorobenzene	99.9		80-110	%REC	1	5/22/2018 12:33 PM
Surr: Dibromofluoromethane	101		85-115	%REC	1	5/22/2018 12:33 PM
Surr: Toluene-d8	97.0		85-110	%REC	1	5/22/2018 12:33 PM
ALKALINITY			A2320 B-11			Analyst: ED
Alkalinity, Bicarbonate (as CaCO3)	310		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Carbonate (as CaCO3)	U		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Total (as CaCO3)	310		10	mg/L	1	5/17/2018 03:20 PM
ANIONS BY ION CHROMATOGRAPHY			SW9056A			Analyst: EE
Bromide	U		0.40	mg/L	2	5/17/2018 04:55 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPR12ST
Collection Date: 5/15/2018 11:00 AM

Work Order: 18051040
Lab ID: 18051040-08
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloride	8.1		2.0	mg/L	2	5/17/2018 04:55 PM
Fluoride	0.72		0.20	mg/L	2	5/17/2018 04:55 PM
Sulfate	130		20	mg/L	20	5/17/2018 05:14 PM
AMMONIA AS NITROGEN			A4500-NH3 G-11			Analyst: JJG
Ammonia as Nitrogen	U		0.15	mg NH3-N/L	1	5/21/2018 10:57 AM
NITROGEN, NITRITE			A4500-NO2 B-11			Analyst: STP
Nitrogen, Nitrite	U		0.020	mg/L	1	5/16/2018 12:30 PM
NITROGEN, NITRATE			E353.2 R2.0			Analyst: JJG
Nitrogen, Nitrate	1.2		0.020	mg/L	1	5/17/2018 09:57 AM
PH (LABORATORY)			SW9040C			Analyst: ED
pH (laboratory)	8.2		0.10	s.u.	1	5/17/2018 03:20 PM
SULFIDE			E376.1			Analyst: EE
Sulfide	U		1.0	mg/L	1	5/21/2018 08:45 AM
SPECIFIC CONDUCTANCE @ 25°C			A2510 B-11			Analyst: ED
Specific Conductance	770		5.0	µmhos/cm	1	5/17/2018 03:20 PM
TOTAL DISSOLVED SOLIDS			A2540 C-11		Prep: FILTER 5/19/18 12:00	Analyst: MT
Total Dissolved Solids	480		10	mg/L	1	5/21/2018 11:43 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPR14MW
Collection Date: 5/15/2018 12:20 PM

Work Order: 18051040
Lab ID: 18051040-09
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER			RSK-175			Analyst: MEB
Ethane	U		5.0	µg/L	1	5/23/2018 02:45 PM
Ethene	U		5.0	µg/L	1	5/23/2018 02:45 PM
Methane	U		5.0	µg/L	1	5/23/2018 02:45 PM
Propane	U		5.0	µg/L	1	5/23/2018 02:45 PM
METALS BY ICP-MS (DISSOLVED)			SW6020A		Prep: FILTER 5/17/18 11:40	Analyst: JF
Arsenic	0.0030	J	0.0050	mg/L	1	5/17/2018 03:49 PM
Barium	0.049		0.0050	mg/L	1	5/17/2018 03:49 PM
Cadmium	U		0.0020	mg/L	1	5/17/2018 03:49 PM
Calcium	91		0.50	mg/L	1	5/17/2018 03:49 PM
Chromium	0.00088	J	0.0050	mg/L	1	5/17/2018 03:49 PM
Copper	0.00075	J	0.0050	mg/L	1	5/17/2018 03:49 PM
Iron	0.13		0.080	mg/L	1	5/17/2018 03:49 PM
Lead	U		0.0050	mg/L	1	5/17/2018 03:49 PM
Magnesium	77		0.20	mg/L	1	5/17/2018 03:49 PM
Manganese	0.0029	J	0.0050	mg/L	1	5/17/2018 03:49 PM
Potassium	3.9		0.20	mg/L	1	5/17/2018 03:49 PM
Selenium	0.0093		0.0050	mg/L	1	5/17/2018 03:49 PM
Silver	U		0.0050	mg/L	1	5/17/2018 03:49 PM
Sodium	100		0.20	mg/L	1	5/17/2018 03:49 PM
VOLATILE ORGANIC COMPOUNDS			SW8260C			Analyst: WH
Benzene	U		1.0	µg/L	1	5/22/2018 12:49 PM
Ethylbenzene	U		1.0	µg/L	1	5/22/2018 12:49 PM
m,p-Xylene	U		2.0	µg/L	1	5/22/2018 12:49 PM
Methyl tert-butyl ether	U		1.0	µg/L	1	5/22/2018 12:49 PM
o-Xylene	U		1.0	µg/L	1	5/22/2018 12:49 PM
Toluene	U		1.0	µg/L	1	5/22/2018 12:49 PM
Xylenes, Total	U		3.0	µg/L	1	5/22/2018 12:49 PM
Surr: 1,2-Dichloroethane-d4	103		75-120	%REC	1	5/22/2018 12:49 PM
Surr: 4-Bromofluorobenzene	99.4		80-110	%REC	1	5/22/2018 12:49 PM
Surr: Dibromofluoromethane	102		85-115	%REC	1	5/22/2018 12:49 PM
Surr: Toluene-d8	98.2		85-110	%REC	1	5/22/2018 12:49 PM
ALKALINITY			A2320 B-11			Analyst: ED
Alkalinity, Bicarbonate (as CaCO3)	460		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Carbonate (as CaCO3)	U		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Total (as CaCO3)	460		10	mg/L	1	5/17/2018 03:20 PM
ANIONS BY ION CHROMATOGRAPHY			SW9056A			Analyst: EE
Bromide	U		1.0	mg/L	5	5/17/2018 05:33 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC

Project: NPR Water

Work Order: 18051040

Sample ID: 20180515-NPR14MW

Lab ID: 18051040-09

Collection Date: 5/15/2018 12:20 PM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloride	22		5.0	mg/L	5	5/17/2018 05:33 PM
Fluoride	0.85		0.50	mg/L	5	5/17/2018 05:33 PM
Sulfate	270		50	mg/L	50	5/17/2018 05:52 PM
AMMONIA AS NITROGEN			A4500-NH3 G-11			Analyst: JJG
Ammonia as Nitrogen	U		0.15	mg NH3-N/L	1	5/21/2018 10:57 AM
NITROGEN, NITRITE			A4500-NO2 B-11			Analyst: STP
Nitrogen, Nitrite	U		0.020	mg/L	1	5/16/2018 12:30 PM
NITROGEN, NITRATE			E353.2 R2.0			Analyst: JJG
Nitrogen, Nitrate	5.9		0.020	mg/L	1	5/17/2018 09:57 AM
PH (LABORATORY)			SW9040C			Analyst: ED
pH (laboratory)	7.8		0.10	s.u.	1	5/17/2018 03:20 PM
SULFIDE			E376.1			Analyst: EE
Sulfide	U		1.0	mg/L	1	5/21/2018 08:45 AM
SPECIFIC CONDUCTANCE @ 25°C			A2510 B-11			Analyst: ED
Specific Conductance	1,300		5.0	µmhos/cm	1	5/17/2018 03:20 PM
TOTAL DISSOLVED SOLIDS			A2540 C-11		Prep: FILTER 5/19/18 12:00	Analyst: MT
Total Dissolved Solids	870		20	mg/L	1	5/21/2018 11:43 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPR15MW
Collection Date: 5/15/2018 12:40 PM

Work Order: 18051040
Lab ID: 18051040-10
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER			RSK-175			Analyst: MEB
Ethane	U		5.0	µg/L	1	5/23/2018 02:49 PM
Ethene	U		5.0	µg/L	1	5/23/2018 02:49 PM
Methane	U		5.0	µg/L	1	5/23/2018 02:49 PM
Propane	U		5.0	µg/L	1	5/23/2018 02:49 PM
METALS BY ICP-MS (DISSOLVED)			SW6020A		Prep: FILTER 5/17/18 11:40	Analyst: JF
Arsenic	0.0029	J	0.0050	mg/L	1	5/17/2018 03:51 PM
Barium	0.085		0.0050	mg/L	1	5/17/2018 03:51 PM
Cadmium	U		0.0020	mg/L	1	5/17/2018 03:51 PM
Calcium	110		0.50	mg/L	1	5/17/2018 03:51 PM
Chromium	0.0014	J	0.0050	mg/L	1	5/17/2018 03:51 PM
Copper	0.0013	J	0.0050	mg/L	1	5/17/2018 03:51 PM
Iron	0.12		0.080	mg/L	1	5/17/2018 03:51 PM
Lead	U		0.0050	mg/L	1	5/17/2018 03:51 PM
Magnesium	85		0.20	mg/L	1	5/17/2018 03:51 PM
Manganese	0.0054		0.0050	mg/L	1	5/17/2018 03:51 PM
Potassium	4.4		0.20	mg/L	1	5/17/2018 03:51 PM
Selenium	0.020		0.0050	mg/L	1	5/17/2018 03:51 PM
Silver	U		0.0050	mg/L	1	5/17/2018 03:51 PM
Sodium	100		0.20	mg/L	1	5/17/2018 03:51 PM
VOLATILE ORGANIC COMPOUNDS			SW8260C			Analyst: WH
Benzene	U		1.0	µg/L	1	5/22/2018 01:05 AM
Ethylbenzene	U		1.0	µg/L	1	5/22/2018 01:05 AM
m,p-Xylene	U		2.0	µg/L	1	5/22/2018 01:05 AM
Methyl tert-butyl ether	U		1.0	µg/L	1	5/22/2018 01:05 AM
o-Xylene	U		1.0	µg/L	1	5/22/2018 01:05 AM
Toluene	U		1.0	µg/L	1	5/22/2018 01:05 AM
Xylenes, Total	U		3.0	µg/L	1	5/22/2018 01:05 AM
Surr: 1,2-Dichloroethane-d4	103		75-120	%REC	1	5/22/2018 01:05 AM
Surr: 4-Bromofluorobenzene	99.7		80-110	%REC	1	5/22/2018 01:05 AM
Surr: Dibromofluoromethane	100		85-115	%REC	1	5/22/2018 01:05 AM
Surr: Toluene-d8	97.6		85-110	%REC	1	5/22/2018 01:05 AM
ALKALINITY			A2320 B-11			Analyst: ED
Alkalinity, Bicarbonate (as CaCO3)	470		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Carbonate (as CaCO3)	U		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Total (as CaCO3)	470		10	mg/L	1	5/17/2018 03:20 PM
ANIONS BY ION CHROMATOGRAPHY			SW9056A			Analyst: EE
Bromide	U		1.0	mg/L	5	5/17/2018 06:11 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPR15MW
Collection Date: 5/15/2018 12:40 PM

Work Order: 18051040
Lab ID: 18051040-10
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloride	28		5.0	mg/L	5	5/17/2018 06:11 PM
Fluoride	0.75		0.50	mg/L	5	5/17/2018 06:11 PM
Sulfate	300		50	mg/L	50	5/17/2018 06:30 PM
AMMONIA AS NITROGEN			A4500-NH3 G-11			Analyst: JJG
Ammonia as Nitrogen	0.18		0.15	mg NH3-N/L	1	5/21/2018 10:57 AM
NITROGEN, NITRITE			A4500-NO2 B-11			Analyst: STP
Nitrogen, Nitrite	U		0.020	mg/L	1	5/16/2018 12:30 PM
NITROGEN, NITRATE			E353.2 R2.0			Analyst: JJG
Nitrogen, Nitrate	5.1		0.020	mg/L	1	5/17/2018 09:57 AM
PH (LABORATORY)			SW9040C			Analyst: ED
pH (laboratory)	7.7		0.10	s.u.	1	5/17/2018 03:20 PM
SULFIDE			E376.1			Analyst: EE
Sulfide	U		1.0	mg/L	1	5/21/2018 08:45 AM
SPECIFIC CONDUCTANCE @ 25°C			A2510 B-11			Analyst: ED
Specific Conductance	1,300		5.0	µmhos/cm	1	5/17/2018 03:20 PM
TOTAL DISSOLVED SOLIDS			A2540 C-11		Prep: FILTER 5/19/18 12:00	Analyst: MT
Total Dissolved Solids	920		20	mg/L	1	5/21/2018 11:43 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPR16MW
Collection Date: 5/15/2018 01:00 PM

Work Order: 18051040
Lab ID: 18051040-11
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER			RSK-175			Analyst: MEB
Ethane	1.1	J	5.0	µg/L	1	5/23/2018 02:51 PM
Ethene	U		5.0	µg/L	1	5/23/2018 02:51 PM
Methane	3.9	J	5.0	µg/L	1	5/23/2018 02:51 PM
Propane	U		5.0	µg/L	1	5/23/2018 02:51 PM
METALS BY ICP-MS (DISSOLVED)			SW6020A		Prep: FILTER 5/17/18 11:40	Analyst: JF
Arsenic	0.0035	J	0.0050	mg/L	1	5/17/2018 03:52 PM
Barium	0.091		0.0050	mg/L	1	5/17/2018 03:52 PM
Cadmium	U		0.0020	mg/L	1	5/17/2018 03:52 PM
Calcium	72		0.50	mg/L	1	5/17/2018 03:52 PM
Chromium	0.00090	J	0.0050	mg/L	1	5/17/2018 03:52 PM
Copper	0.00089	J	0.0050	mg/L	1	5/17/2018 03:52 PM
Iron	0.14		0.080	mg/L	1	5/17/2018 03:52 PM
Lead	U		0.0050	mg/L	1	5/17/2018 03:52 PM
Magnesium	41		0.20	mg/L	1	5/17/2018 03:52 PM
Manganese	0.0036	J	0.0050	mg/L	1	5/17/2018 03:52 PM
Potassium	2.4		0.20	mg/L	1	5/17/2018 03:52 PM
Selenium	0.0042	J	0.0050	mg/L	1	5/17/2018 03:52 PM
Silver	U		0.0050	mg/L	1	5/17/2018 03:52 PM
Sodium	52		0.20	mg/L	1	5/17/2018 03:52 PM
VOLATILE ORGANIC COMPOUNDS			SW8260C			Analyst: WH
Benzene	U		1.0	µg/L	1	5/22/2018 01:21 AM
Ethylbenzene	U		1.0	µg/L	1	5/22/2018 01:21 AM
m,p-Xylene	U		2.0	µg/L	1	5/22/2018 01:21 AM
Methyl tert-butyl ether	U		1.0	µg/L	1	5/22/2018 01:21 AM
o-Xylene	U		1.0	µg/L	1	5/22/2018 01:21 AM
Toluene	U		1.0	µg/L	1	5/22/2018 01:21 AM
Xylenes, Total	U		3.0	µg/L	1	5/22/2018 01:21 AM
Surr: 1,2-Dichloroethane-d4	104		75-120	%REC	1	5/22/2018 01:21 AM
Surr: 4-Bromofluorobenzene	97.5		80-110	%REC	1	5/22/2018 01:21 AM
Surr: Dibromofluoromethane	101		85-115	%REC	1	5/22/2018 01:21 AM
Surr: Toluene-d8	95.6		85-110	%REC	1	5/22/2018 01:21 AM
ALKALINITY			A2320 B-11			Analyst: ED
Alkalinity, Bicarbonate (as CaCO3)	340		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Carbonate (as CaCO3)	U		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Total (as CaCO3)	340		10	mg/L	1	5/17/2018 03:20 PM
ANIONS BY ION CHROMATOGRAPHY			SW9056A			Analyst: EE
Bromide	U		0.20	mg/L	1	5/17/2018 07:28 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPR16MW
Collection Date: 5/15/2018 01:00 PM

Work Order: 18051040
Lab ID: 18051040-11
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloride	14		1.0	mg/L	1	5/17/2018 07:28 PM
Fluoride	0.60		0.10	mg/L	1	5/17/2018 07:28 PM
Sulfate	96		10	mg/L	10	5/17/2018 07:47 PM
AMMONIA AS NITROGEN			A4500-NH3 G-11			Analyst: JJG
Ammonia as Nitrogen	0.17		0.15	mg NH3-N/L	1	5/21/2018 10:57 AM
NITROGEN, NITRITE			A4500-NO2 B-11			Analyst: STP
Nitrogen, Nitrite	0.0010	J	0.020	mg/L	1	5/16/2018 12:30 PM
NITROGEN, NITRATE			E353.2 R2.0			Analyst: JJG
Nitrogen, Nitrate	1.4		0.020	mg/L	1	5/17/2018 09:57 AM
PH (LABORATORY)			SW9040C			Analyst: ED
pH (laboratory)	7.8		0.10	s.u.	1	5/17/2018 03:20 PM
SULFIDE			E376.1			Analyst: EE
Sulfide	U		1.0	mg/L	1	5/21/2018 08:45 AM
SPECIFIC CONDUCTANCE @ 25°C			A2510 B-11			Analyst: ED
Specific Conductance	770		5.0	µmhos/cm	1	5/17/2018 03:20 PM
TOTAL DISSOLVED SOLIDS			A2540 C-11		Prep: FILTER 5/19/18 12:00	Analyst: MT
Total Dissolved Solids	460		20	mg/L	1	5/21/2018 11:43 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPR15ST
Collection Date: 5/15/2018 01:20 PM

Work Order: 18051040
Lab ID: 18051040-12
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER			RSK-175			Analyst: MEB
Ethane	U		5.0	µg/L	1	5/23/2018 02:53 PM
Ethene	U		5.0	µg/L	1	5/23/2018 02:53 PM
Methane	U		5.0	µg/L	1	5/23/2018 02:53 PM
Propane	U		5.0	µg/L	1	5/23/2018 02:53 PM
METALS BY ICP-MS (DISSOLVED)			SW6020A		Prep: FILTER 5/17/18 11:40	Analyst: JF
Arsenic	0.0040	J	0.0050	mg/L	1	5/17/2018 03:54 PM
Barium	0.058		0.0050	mg/L	1	5/17/2018 03:54 PM
Cadmium	U		0.0020	mg/L	1	5/17/2018 03:54 PM
Calcium	53		0.50	mg/L	1	5/17/2018 03:54 PM
Chromium	0.00068	J	0.0050	mg/L	1	5/17/2018 03:54 PM
Copper	0.00054	J	0.0050	mg/L	1	5/17/2018 03:54 PM
Iron	U		0.080	mg/L	1	5/17/2018 03:54 PM
Lead	U		0.0050	mg/L	1	5/17/2018 03:54 PM
Magnesium	31		0.20	mg/L	1	5/17/2018 03:54 PM
Manganese	U		0.0050	mg/L	1	5/17/2018 03:54 PM
Potassium	2.2		0.20	mg/L	1	5/17/2018 03:54 PM
Selenium	0.0026	J	0.0050	mg/L	1	5/17/2018 03:54 PM
Silver	U		0.0050	mg/L	1	5/17/2018 03:54 PM
Sodium	45		0.20	mg/L	1	5/17/2018 03:54 PM
VOLATILE ORGANIC COMPOUNDS			SW8260C			Analyst: WH
Benzene	U		1.0	µg/L	1	5/22/2018 01:36 AM
Ethylbenzene	U		1.0	µg/L	1	5/22/2018 01:36 AM
m,p-Xylene	U		2.0	µg/L	1	5/22/2018 01:36 AM
Methyl tert-butyl ether	U		1.0	µg/L	1	5/22/2018 01:36 AM
o-Xylene	U		1.0	µg/L	1	5/22/2018 01:36 AM
Toluene	U		1.0	µg/L	1	5/22/2018 01:36 AM
Xylenes, Total	U		3.0	µg/L	1	5/22/2018 01:36 AM
Surr: 1,2-Dichloroethane-d4	103		75-120	%REC	1	5/22/2018 01:36 AM
Surr: 4-Bromofluorobenzene	97.2		80-110	%REC	1	5/22/2018 01:36 AM
Surr: Dibromofluoromethane	102		85-115	%REC	1	5/22/2018 01:36 AM
Surr: Toluene-d8	96.0		85-110	%REC	1	5/22/2018 01:36 AM
ALKALINITY			A2320 B-11			Analyst: ED
Alkalinity, Bicarbonate (as CaCO3)	260		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Carbonate (as CaCO3)	20		10	mg/L	1	5/17/2018 03:20 PM
Alkalinity, Total (as CaCO3)	280		10	mg/L	1	5/17/2018 03:20 PM
ANIONS BY ION CHROMATOGRAPHY			SW9056A			Analyst: EE
Bromide	U		0.20	mg/L	1	5/17/2018 08:06 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 25-May-18

Client: Caerus Oil and Gas LLC
Project: NPR Water
Sample ID: 20180515-NPR15ST
Collection Date: 5/15/2018 01:20 PM

Work Order: 18051040
Lab ID: 18051040-12
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Chloride	10		1.0	mg/L	1	5/17/2018 08:06 PM
Fluoride	0.61		0.10	mg/L	1	5/17/2018 08:06 PM
Sulfate	73		5.0	mg/L	5	5/17/2018 08:25 PM
AMMONIA AS NITROGEN			A4500-NH3 G-11			Analyst: JJG
Ammonia as Nitrogen	U		0.15	mg NH3-N/L	1	5/21/2018 10:57 AM
NITROGEN, NITRITE			A4500-NO2 B-11			Analyst: STP
Nitrogen, Nitrite	0.0010	J	0.020	mg/L	1	5/16/2018 12:30 PM
NITROGEN, NITRATE			E353.2 R2.0			Analyst: JJG
Nitrogen, Nitrate	0.70		0.020	mg/L	1	5/17/2018 09:57 AM
PH (LABORATORY)			SW9040C			Analyst: ED
pH (laboratory)	8.5		0.10	s.u.	1	5/17/2018 03:20 PM
SULFIDE			E376.1			Analyst: EE
Sulfide	U		1.0	mg/L	1	5/21/2018 08:45 AM
SPECIFIC CONDUCTANCE @ 25°C			A2510 B-11			Analyst: ED
Specific Conductance	620		5.0	µmhos/cm	1	5/17/2018 03:20 PM
TOTAL DISSOLVED SOLIDS			A2540 C-11		Prep: FILTER 5/19/18 12:00	Analyst: MT
Total Dissolved Solids	360		10	mg/L	1	5/21/2018 11:43 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: Caerus Oil and Gas LLC
Work Order: 18051040
Project: NPR Water

QC BATCH REPORT

Batch ID: **R236482** Instrument ID **GC10** Method: **RSK-175**

MBLK		Sample ID: RBLK1-180523-R236482				Units: µg/L		Analysis Date: 5/23/2018 01:50 PM		
Client ID:		Run ID: GC10_180523A		SeqNo: 5048922		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Ethane	U	5.0								
Ethene	U	5.0								
Methane	U	5.0								
Propane	U	5.0								

LCS		Sample ID: RLCS1-180523-R236482				Units: µg/L		Analysis Date: 5/23/2018 01:41 PM		
Client ID:		Run ID: GC10_180523A		SeqNo: 5048919		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Ethane	33.48	5.0	36.1	0	92.7	75-125	0			
Ethene	32.67	5.0	33.7	0	96.9	75-125	0			
Methane	16.85	5.0	19.2	0	87.8	75-125	0			
Propane	49.03	5.0	52.8	0	92.9	75-125	0			

MS		Sample ID: 18051137-01A MS				Units: µg/L		Analysis Date: 5/23/2018 03:19 PM		
Client ID:		Run ID: GC10_180523A		SeqNo: 5048949		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Ethane	31.1	5.0	36.1	0	86.1	70-130	0			
Ethene	29.61	5.0	33.7	0	87.9	70-130	0			
Methane	16.99	5.0	19.2	0	88.5	70-130	0			
Propane	45.96	5.0	52.8	0	87	70-130	0			

MSD		Sample ID: 18051137-01A MSD				Units: µg/L		Analysis Date: 5/23/2018 03:21 PM		
Client ID:		Run ID: GC10_180523A		SeqNo: 5048950		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Ethane	31.75	5.0	36.1	0	88	70-130	31.1	2.07	30	
Ethene	30.17	5.0	33.7	0	89.5	70-130	29.61	1.87	30	
Methane	17.02	5.0	19.2	0	88.6	70-130	16.99	0.176	30	
Propane	45.83	5.0	52.8	0	86.8	70-130	45.96	0.283	30	

The following samples were analyzed in this batch:

18051040-01A	18051040-02A	18051040-03A
18051040-04A	18051040-05A	18051040-06A
18051040-07A	18051040-08A	18051040-09A
18051040-10A	18051040-11A	18051040-12A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
 Work Order: 18051040
 Project: NPR Water

QC BATCH REPORT

Batch ID: 118482 Instrument ID ICPMS3 Method: SW6020A (Dissolve)

MBLK		Sample ID: MBLK-118482-118482				Units: mg/L		Analysis Date: 5/17/2018 03:01 PM		
Client ID:		Run ID: ICPMS3_180517A			SeqNo: 5039559		Prep Date: 5/17/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.0050								
Barium	U	0.0050								
Cadmium	U	0.0020								
Calcium	U	0.50								
Chromium	U	0.0050								
Copper	U	0.0050								
Iron	U	0.080								
Lead	U	0.0050								
Magnesium	U	0.20								
Manganese	0.000618	0.0050								J
Potassium	U	0.20								
Selenium	U	0.0050								
Silver	U	0.0050								
Sodium	U	0.20								

LCS		Sample ID: LCS-118482-118482				Units: mg/L		Analysis Date: 5/17/2018 03:02 PM		
Client ID:		Run ID: ICPMS3_180517A			SeqNo: 5039560		Prep Date: 5/17/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1029	0.0050	0.1	0	103	80-120	0			
Barium	0.104	0.0050	0.1	0	104	80-120	0			
Cadmium	0.1076	0.0020	0.1	0	108	80-120	0			
Calcium	10.48	0.50	10	0	105	80-120	0			
Chromium	0.1044	0.0050	0.1	0	104	80-120	0			
Copper	0.1036	0.0050	0.1	0	104	80-120	0			
Iron	10.42	0.080	10	0	104	80-120	0			
Lead	0.1017	0.0050	0.1	0	102	80-120	0			
Magnesium	10.58	0.20	10	0	106	80-120	0			
Manganese	0.1021	0.0050	0.1	0	102	80-120	0			
Potassium	10.19	0.20	10	0	102	80-120	0			
Selenium	0.1002	0.0050	0.1	0	100	80-120	0			
Silver	0.1024	0.0050	0.1	0	102	80-120	0			

LCS		Sample ID: LCS-118482-118482				Units: mg/L		Analysis Date: 5/18/2018 12:45 PM		
Client ID:		Run ID: ICPMS3_180518A			SeqNo: 5040622		Prep Date: 5/17/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	9.666	0.20	10	0	96.7	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
 Work Order: 18051040
 Project: NPR Water

QC BATCH REPORT

Batch ID: 118482 Instrument ID ICPMS3 Method: SW6020A (Dissolve)

MS		Sample ID: 18051040-01EMS				Units: mg/L		Analysis Date: 5/17/2018 03:06 PM		
Client ID: 20180515-NPRDUPA		Run ID: ICPMS3_180517A			SeqNo: 5039562		Prep Date: 5/17/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1102	0.0050	0.1	0.00433	106	75-125	0			
Barium	0.1662	0.0050	0.1	0.06203	104	75-125	0			
Cadmium	0.1061	0.0020	0.1	0.000027	106	75-125	0			
Calcium	64.27	0.50	10	56.31	79.6	75-125	0			O
Chromium	0.1032	0.0050	0.1	0.000734	102	75-125	0			
Copper	0.0997	0.0050	0.1	0.000508	99.2	75-125	0			
Iron	10.29	0.080	10	0.006681	103	75-125	0			
Lead	0.103	0.0050	0.1	-0.000336	103	75-125	0			
Magnesium	42.46	0.20	10	33.53	89.3	75-125	0			
Manganese	0.103	0.0050	0.1	0.000293	103	75-125	0			
Potassium	12.42	0.20	10	2.267	101	75-125	0			
Selenium	0.1087	0.0050	0.1	0.002607	106	75-125	0			
Silver	0.1	0.0050	0.1	0	100	75-125	0			
Sodium	58.54	0.20	10	49.53	90.2	75-125	0			O

MS		Sample ID: 18051040-01EMS				Units: mg/L		Analysis Date: 5/18/2018 12:48 PM		
Client ID: 20180515-NPRDUPA		Run ID: ICPMS3_180518A			SeqNo: 5040624		Prep Date: 5/17/2018		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	143.9	2.0	100	47.97	95.9	75-125	0			

MSD		Sample ID: 18051040-01EMSD				Units: mg/L		Analysis Date: 5/17/2018 03:08 PM		
Client ID: 20180515-NPRDUPA		Run ID: ICPMS3_180517A			SeqNo: 5039563		Prep Date: 5/17/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	0.1119	0.0050	0.1	0.00433	108	75-125	0.1102	1.49	20	
Barium	0.1676	0.0050	0.1	0.06203	106	75-125	0.1662	0.845	20	
Cadmium	0.106	0.0020	0.1	0.000027	106	75-125	0.1061	0.0434	20	
Calcium	65.6	0.50	10	56.31	92.8	75-125	64.27	2.04	20	O
Chromium	0.1062	0.0050	0.1	0.000734	105	75-125	0.1032	2.87	20	
Copper	0.1013	0.0050	0.1	0.000508	101	75-125	0.0997	1.59	20	
Iron	10.49	0.080	10	0.006681	105	75-125	10.29	1.86	20	
Lead	0.1044	0.0050	0.1	-0.000336	105	75-125	0.103	1.31	20	
Magnesium	43.28	0.20	10	33.53	97.4	75-125	42.46	1.9	20	
Manganese	0.1025	0.0050	0.1	0.000293	102	75-125	0.103	0.547	20	
Potassium	12.66	0.20	10	2.267	104	75-125	12.42	1.95	20	
Selenium	0.1096	0.0050	0.1	0.002607	107	75-125	0.1087	0.847	20	
Silver	0.101	0.0050	0.1	0	101	75-125	0.1	0.997	20	
Sodium	59.66	0.20	10	49.53	101	75-125	58.54	1.89	20	O

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC

QC BATCH REPORT

Work Order: 18051040

Project: NPR Water

Batch ID: 118482

Instrument ID ICPMS3

Method: SW6020A

(Dissolve)

MSD		Sample ID: 18051040-01EMSD			Units: mg/L		Analysis Date: 5/18/2018 12:50 PM			
Client ID: 20180515-NPRDUPA		Run ID: ICPMS3_180518A			SeqNo: 5040625		Prep Date: 5/17/2018		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium	141	2.0	100	47.97	93	75-125	143.9	2.04	20	

The following samples were analyzed in this batch:

18051040-01E	18051040-02E	18051040-03E
18051040-04E	18051040-05E	18051040-06E
18051040-07E	18051040-08E	18051040-09E
18051040-10E	18051040-11E	18051040-12E

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
 Work Order: 18051040
 Project: NPR Water

QC BATCH REPORT

Batch ID: **R236346a** Instrument ID **VMS10** Method: **SW8260C**

MBLK		Sample ID: VBLKW3-180521-R236346a				Units: µg/L		Analysis Date: 5/21/2018 09:55 PM		
Client ID:		Run ID: VMS10_180521B		SeqNo: 5045521		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	1.0								
Ethylbenzene	U	1.0								
m,p-Xylene	U	2.0								
Methyl tert-butyl ether	U	1.0								
o-Xylene	U	1.0								
Toluene	U	1.0								
Xylenes, Total	U	3.0								
<i>Surr: 1,2-Dichloroethane-d4</i>	19.43	0	20	0	97.2	75-120		0		
<i>Surr: 4-Bromofluorobenzene</i>	19.83	0	20	0	99.2	80-110		0		
<i>Surr: Dibromofluoromethane</i>	19.93	0	20	0	99.6	85-115		0		
<i>Surr: Toluene-d8</i>	19.52	0	20	0	97.6	85-110		0		

LCS		Sample ID: VLCSW2-180521-R236346a				Units: µg/L		Analysis Date: 5/21/2018 09:08 PM		
Client ID:		Run ID: VMS10_180521B		SeqNo: 5045511		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	19.06	1.0	20	0	95.3	85-125		0		
Ethylbenzene	19.14	1.0	20	0	95.7	76-123		0		
m,p-Xylene	38.28	2.0	40	0	95.7	75-130		0		
Methyl tert-butyl ether	17.12	1.0	20	0	85.6	68-129		0		
o-Xylene	19.58	1.0	20	0	97.9	76-127		0		
Toluene	18.71	1.0	20	0	93.6	76-125		0		
Xylenes, Total	57.86	3.0	60	0	96.4	76-127		0		
<i>Surr: 1,2-Dichloroethane-d4</i>	19.86	0	20	0	99.3	75-120		0		
<i>Surr: 4-Bromofluorobenzene</i>	20	0	20	0	100	80-110		0		
<i>Surr: Dibromofluoromethane</i>	20.6	0	20	0	103	85-115		0		
<i>Surr: Toluene-d8</i>	20.52	0	20	0	103	85-110		0		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
 Work Order: 18051040
 Project: NPR Water

QC BATCH REPORT

Batch ID: R236346a Instrument ID VMS10 Method: SW8260C

MS		Sample ID: 18051040-04B MS				Units: µg/L		Analysis Date: 5/22/2018 03:59 AM		
Client ID: 20180515-NPR9MW		Run ID: VMS10_180521B				SeqNo: 5045536		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	21.45	1.0	20	0	107	85-125	0			
Ethylbenzene	20.41	1.0	20	0	102	76-123	0			
m,p-Xylene	41.13	2.0	40	0	103	75-130	0			
Methyl tert-butyl ether	18.64	1.0	20	0	93.2	68-129	0			
o-Xylene	20.3	1.0	20	0	102	76-127	0			
Toluene	19.78	1.0	20	0	98.9	76-125	0			
Xylenes, Total	61.43	3.0	60	0	102	76-127	0			
Surr: 1,2-Dichloroethane-d4	20.31	0	20	0	102	75-120	0			
Surr: 4-Bromofluorobenzene	20.37	0	20	0	102	80-110	0			
Surr: Dibromofluoromethane	21.12	0	20	0	106	85-115	0			
Surr: Toluene-d8	19.23	0	20	0	96.2	85-110	0			

DUP		Sample ID: 18051040-05BDUP				Units: µg/L		Analysis Date: 5/22/2018 03:43 AM		
Client ID: 20180515-NPR11MW		Run ID: VMS10_180521B				SeqNo: 5045535		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	1.0	0	0	0		0	0	30	
Ethylbenzene	U	1.0	0	0	0		0	0	30	
m,p-Xylene	U	2.0	0	0	0		0	0	30	
Methyl tert-butyl ether	U	1.0	0	0	0		0	0	30	
o-Xylene	U	1.0	0	0	0		0	0	30	
Toluene	U	1.0	0	0	0		0	0	30	
Xylenes, Total	U	3.0	0	0	0		0	0	30	
Surr: 1,2-Dichloroethane-d4	20.81	0	20	0	104	75-120	20.29	2.53	30	
Surr: 4-Bromofluorobenzene	19.47	0	20	0	97.4	80-110	20.21	3.73	30	
Surr: Dibromofluoromethane	20.6	0	20	0	103	85-115	20.36	1.17	30	
Surr: Toluene-d8	18.82	0	20	0	94.1	85-110	19.63	4.21	30	

The following samples were analyzed in this batch:

18051040-01B	18051040-02B	18051040-03B
18051040-04B	18051040-05B	18051040-06B
18051040-07B	18051040-08B	18051040-09B
18051040-10B	18051040-11B	18051040-12B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
 Work Order: 18051040
 Project: NPR Water

QC BATCH REPORT

Batch ID: 118560 Instrument ID TDS Method: A2540 C-11

MBLK	Sample ID: MBLK-118560-118560		Units: mg/L		Analysis Date: 5/21/2018 11:43 AM					
Client ID:	Run ID: TDS_180521A		SeqNo: 5043473		Prep Date: 5/19/2018 DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids U 10

LCS	Sample ID: LCS-118560-118560		Units: mg/L		Analysis Date: 5/21/2018 11:43 AM					
Client ID:	Run ID: TDS_180521A		SeqNo: 5043474		Prep Date: 5/19/2018 DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids 472 10 495 0 95.4 80-120 0

DUP	Sample ID: 18051032-01D DUP		Units: mg/L		Analysis Date: 5/21/2018 11:43 AM					
Client ID:	Run ID: TDS_180521A		SeqNo: 5043477		Prep Date: 5/19/2018 DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids 488 10 0 0 0 0-0 499 2.23 10

DUP	Sample ID: 18051040-01H DUP		Units: mg/L		Analysis Date: 5/21/2018 11:43 AM					
Client ID: 20180515-NPRDUPA	Run ID: TDS_180521A		SeqNo: 5043479		Prep Date: 5/19/2018 DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids 373 10 0 0 0 0-0 364 2.44 10

The following samples were analyzed in this batch:

18051040-01H	18051040-02H	18051040-03H
18051040-04H	18051040-05H	18051040-06H
18051040-07H	18051040-08H	18051040-09H
18051040-10H	18051040-11H	18051040-12H

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
 Work Order: 18051040
 Project: NPR Water

QC BATCH REPORT

Batch ID: **118576B** Instrument ID **LACHAT2** Method: **A4500-NH3 G-11**

MBLK	Sample ID: MBLK-118576-118576B		Units: mg NH3-N/L		Analysis Date: 5/21/2018 10:57 AM					
Client ID:	Run ID: LACHAT2_180521B		SeqNo: 5043918		Prep Date: 5/18/2018 DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Ammonia as Nitrogen U 0.15

LCS	Sample ID: LCS-118576-118576B		Units: mg NH3-N/L		Analysis Date: 5/21/2018 10:57 AM					
Client ID:	Run ID: LACHAT2_180521B		SeqNo: 5043919		Prep Date: 5/18/2018 DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Ammonia as Nitrogen 0.9567 0.15 1 0 95.7 80-120 0

MS	Sample ID: 18051040-09F MS		Units: mg NH3-N/L		Analysis Date: 5/21/2018 10:57 AM					
Client ID: 20180515-NPR14MW	Run ID: LACHAT2_180521B		SeqNo: 5043904		Prep Date: 5/18/2018 DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Ammonia as Nitrogen 0.9081 0.15 1 0.05986 84.8 75-125 0

MSD	Sample ID: 18051040-09F MSD		Units: mg NH3-N/L		Analysis Date: 5/21/2018 10:57 AM					
Client ID: 20180515-NPR14MW	Run ID: LACHAT2_180521B		SeqNo: 5043905		Prep Date: 5/18/2018 DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Ammonia as Nitrogen 0.7889 0.15 1 0.05986 72.9 75-125 0.9081 14 25 S

The following samples were analyzed in this batch:

18051040-01F	18051040-02F	18051040-03F
18051040-04F	18051040-05F	18051040-06F
18051040-07F	18051040-08F	18051040-09F
18051040-10F	18051040-11F	18051040-12F

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
 Work Order: 18051040
 Project: NPR Water

QC BATCH REPORT

Batch ID: **R235994** Instrument ID **WETCHEM** Method: **A4500-NO2 B-11**

MBLK	Sample ID: MB-R235994-R235994		Units: mg/L		Analysis Date: 5/16/2018 12:30 PM					
Client ID:	Run ID: WETCHEM_180516F		SeqNo: 5036255		Prep Date:					
					DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrite U 0.020

LCS	Sample ID: LCS-R235994-R235994		Units: mg/L		Analysis Date: 5/16/2018 12:30 PM					
Client ID:	Run ID: WETCHEM_180516F		SeqNo: 5036256		Prep Date:					
					DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrite 0.2069 0.020 0.2 0 103 80-120 0

MS	Sample ID: 18051041-01A MS		Units: mg/L		Analysis Date: 5/16/2018 12:30 PM					
Client ID:	Run ID: WETCHEM_180516F		SeqNo: 5036271		Prep Date:					
					DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrite 0.1944 0.020 0.2 -0.0015 98 75-125 0

MSD	Sample ID: 18051041-01A MSD		Units: mg/L		Analysis Date: 5/16/2018 12:30 PM					
Client ID:	Run ID: WETCHEM_180516F		SeqNo: 5036272		Prep Date:					
					DF: 1					
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrite 0.1951 0.020 0.2 -0.0015 98.3 75-125 0.1944 0.359 20

The following samples were analyzed in this batch:

18051040-01D	18051040-02D	18051040-03D
18051040-04D	18051040-05D	18051040-06D
18051040-07D	18051040-08D	18051040-09D
18051040-10D	18051040-11D	18051040-12D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
 Work Order: 18051040
 Project: NPR Water

QC BATCH REPORT

Batch ID: **R236101** Instrument ID **LACHAT2** Method: **E353.2 R2.0**

MBLK	Sample ID: MBLK-R236101		Units: mg/L		Analysis Date: 5/17/2018 09:57 AM					
Client ID:	Run ID: LACHAT2_180517A	SeqNo: 5038995	Prep Date:	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate U 0.020

LCS	Sample ID: LCS-R236101		Units: mg/L		Analysis Date: 5/17/2018 09:57 AM					
Client ID:	Run ID: LACHAT2_180517A	SeqNo: 5038996	Prep Date:	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate 5.176 0.020 5 0 104 90-110 0

MS	Sample ID: 1805067-12A MS		Units: mg/L		Analysis Date: 5/17/2018 09:57 AM					
Client ID:	Run ID: LACHAT2_180517A	SeqNo: 5038998	Prep Date:	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate 5.324 0.020 5 0.5945 94.6 90-110 0

MS	Sample ID: 18051040-09F MS		Units: mg/L		Analysis Date: 5/17/2018 09:57 AM					
Client ID: 20180515-NPR14MW	Run ID: LACHAT2_180517A	SeqNo: 5039013	Prep Date:	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate 9.933 0.020 5 5.921 80.2 90-110 0 S

MSD	Sample ID: 1805067-12A MSD		Units: mg/L		Analysis Date: 5/17/2018 09:57 AM					
Client ID:	Run ID: LACHAT2_180517A	SeqNo: 5038999	Prep Date:	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate 5.314 0.020 5 0.5945 94.4 90-110 5.324 0.188 20

MSD	Sample ID: 18051040-09F MSD		Units: mg/L		Analysis Date: 5/17/2018 09:57 AM					
Client ID: 20180515-NPR14MW	Run ID: LACHAT2_180517A	SeqNo: 5039014	Prep Date:	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate 9.933 0.020 5 5.921 80.2 90-110 9.933 0 20 S

The following samples were analyzed in this batch:

18051040-01F	18051040-02F	18051040-03F
18051040-04F	18051040-05F	18051040-06F
18051040-07F	18051040-08F	18051040-09F
18051040-10F	18051040-11F	18051040-12F

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
 Work Order: 18051040
 Project: NPR Water

QC BATCH REPORT

Batch ID: **R236133** Instrument ID **IC4** Method: **SW9056A**

MBLK		Sample ID: CCB/MBLK-R236133				Units: mg/L		Analysis Date: 5/17/2018 10:59 AM		
Client ID:		Run ID: IC4_180517A		SeqNo: 5039761		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	U	0.20								
Chloride	0.3318	1.0								J
Fluoride	U	0.10								
Sulfate	U	1.0								

LCS		Sample ID: LCS-R236133				Units: mg/L		Analysis Date: 5/17/2018 11:18 AM		
Client ID:		Run ID: IC4_180517A		SeqNo: 5039762		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	2.006	0.20	2	0	100	88-113	0			
Chloride	9.565	1.0	10	0	95.6	88-110	0			
Fluoride	1.902	0.10	2	0	95.1	86-111	0			
Sulfate	9.853	1.0	10	0	98.5	85-110	0			

MS		Sample ID: 18051191-01A MS				Units: mg/L		Analysis Date: 5/17/2018 09:23 PM		
Client ID:		Run ID: IC4_180517A		SeqNo: 5039797		Prep Date:		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	20.59	2.0	20	0	103	75-125	0			
Chloride	137.5	10	100	36.53	101	75-125	0			
Fluoride	19.54	1.0	20	0	97.7	75-125	0			
Sulfate	105.4	10	100	5.326	100	75-125	0			

MSD		Sample ID: 18051191-01A MSD				Units: mg/L		Analysis Date: 5/17/2018 09:42 PM		
Client ID:		Run ID: IC4_180517A		SeqNo: 5039798		Prep Date:		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Bromide	20.69	2.0	20	0	103	75-125	20.59	0.494	20	
Chloride	138.2	10	100	36.53	102	75-125	137.5	0.486	20	
Fluoride	19.8	1.0	20	0	99	75-125	19.54	1.34	20	
Sulfate	105.6	10	100	5.326	100	75-125	105.4	0.187	20	

The following samples were analyzed in this batch:

18051040-01D	18051040-02D	18051040-03D
18051040-04D	18051040-05D	18051040-06D
18051040-07D	18051040-08D	18051040-09D
18051040-10D	18051040-11D	18051040-12D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
Work Order: 18051040
Project: NPR Water

QC BATCH REPORT

Batch ID: **R236153** Instrument ID **Titrator 1** Method: **SW9040C**

LCS		Sample ID: WLCSW1-180517-R236153				Units: s.u.		Analysis Date: 5/17/2018 03:20 PM		
Client ID:		Run ID: TITRATOR 1_180517A		SeqNo: 5040238		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	4.34	0.10	4.4	0	98.6	90-110	0			

DUP		Sample ID: 18051040-03H DUP				Units: s.u.		Analysis Date: 5/17/2018 03:20 PM		
Client ID: 20180515-NPR14ST		Run ID: TITRATOR 1_180517A		SeqNo: 5040243		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	8.03	0.10	0	0	0		8.03	0	20	

DUP		Sample ID: 18051040-11H DUP				Units: s.u.		Analysis Date: 5/17/2018 03:20 PM		
Client ID: 20180515-NPR16MW		Run ID: TITRATOR 1_180517A		SeqNo: 5040252		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	7.87	0.10	0	0	0		7.85	0.254	20	

The following samples were analyzed in this batch:

18051040-01H	18051040-02H	18051040-03H
18051040-04H	18051040-05H	18051040-06H
18051040-07H	18051040-08H	18051040-09H
18051040-10H	18051040-11H	18051040-12H

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
 Work Order: 18051040
 Project: NPR Water

QC BATCH REPORT

Batch ID: **R236155** Instrument ID **Titrator 1** Method: **A2510 B-11**

MBLK	Sample ID: WBLKW1-180517-R236155				Units: µmhos/cm			Analysis Date: 5/17/2018 03:20 PM		
Client ID:	Run ID: TITRATOR 1_180517B			SeqNo: 5040266		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Specific Conductance U 5.0

DUP	Sample ID: 18051040-03H DUP				Units: µmhos/cm			Analysis Date: 5/17/2018 03:20 PM		
Client ID: 20180515-NPR14ST	Run ID: TITRATOR 1_180517B			SeqNo: 5040273		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Specific Conductance 625.1 5.0 0 0 0 0-0 623.1 0.32 5

DUP	Sample ID: 18051040-11H DUP				Units: µmhos/cm			Analysis Date: 5/17/2018 03:20 PM		
Client ID: 20180515-NPR16MW	Run ID: TITRATOR 1_180517B			SeqNo: 5040282		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Specific Conductance 771.7 5.0 0 0 0 0-0 769.7 0.258 5

LCS1	Sample ID: WLCS1W1-180517-R236155				Units: µmhos/cm			Analysis Date: 5/17/2018 03:20 PM		
Client ID:	Run ID: TITRATOR 1_180517B			SeqNo: 5040267		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Specific Conductance 14.55 5.0 14.9 0 97.7 85-107 0

LCS2	Sample ID: WLCS2W1-180517-R236155				Units: µmhos/cm			Analysis Date: 5/17/2018 03:20 PM		
Client ID:	Run ID: TITRATOR 1_180517B			SeqNo: 5040268		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Specific Conductance 553.3 5.0 592 0 93.5 85-107 0

The following samples were analyzed in this batch:

18051040-01H	18051040-02H	18051040-03H
18051040-04H	18051040-05H	18051040-06H
18051040-07H	18051040-08H	18051040-09H
18051040-10H	18051040-11H	18051040-12H

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
 Work Order: 18051040
 Project: NPR Water

QC BATCH REPORT

Batch ID: **R236156** Instrument ID **Titrator 1** Method: **A2320 B-11**

MBLK		Sample ID: WBLKW1-180517-R236156				Units: mg/L		Analysis Date: 5/17/2018 03:20 PM		
Client ID:		Run ID: TITRATOR 1_180517C				SeqNo: 5040285		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (as CaCO3)	U	10								
Alkalinity, Carbonate (as CaCO3)	U	10								
Alkalinity, Total (as CaCO3)	U	10								

LCS		Sample ID: WLCSW1-180517-R236156				Units: mg/L		Analysis Date: 5/17/2018 03:20 PM		
Client ID:		Run ID: TITRATOR 1_180517C				SeqNo: 5040286		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Carbonate (as CaCO3)	941	10	925	0	102	85-110	0			
Alkalinity, Total (as CaCO3)	1000	10	1000	0	100	86-104	0			

DUP		Sample ID: 18051040-03G DUP				Units: mg/L		Analysis Date: 5/17/2018 03:20 PM		
Client ID: 20180515-NPR14ST		Run ID: TITRATOR 1_180517C				SeqNo: 5040291		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (as CaCO3)	285.6	10	0	0	0		287.8	0.76	20	
Alkalinity, Carbonate (as CaCO3)	U	10	0	0	0		0	0	20	
Alkalinity, Total (as CaCO3)	285.6	10	0	0	0		287.8	0.76	20	

DUP		Sample ID: 18051040-11G DUP				Units: mg/L		Analysis Date: 5/17/2018 03:20 PM		
Client ID: 20180515-NPR16MW		Run ID: TITRATOR 1_180517C				SeqNo: 5040300		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Alkalinity, Bicarbonate (as CaCO3)	340.3	10	0	0	0		341.4	0.317	20	
Alkalinity, Carbonate (as CaCO3)	U	10	0	0	0		0	0	20	
Alkalinity, Total (as CaCO3)	340.3	10	0	0	0		341.4	0.317	20	

The following samples were analyzed in this batch:

18051040-01G	18051040-02G	18051040-03G
18051040-04G	18051040-05G	18051040-06G
18051040-07G	18051040-08G	18051040-09G
18051040-10G	18051040-11G	18051040-12G

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
Work Order: 18051040
Project: NPR Water

QC BATCH REPORT

Batch ID: **R236278a** Instrument ID **WETCHEM** Method: **E376.1**

MBLK		Sample ID: MB-R236278-R236278a				Units: mg/L		Analysis Date: 5/21/2018 08:45 AM		
Client ID:		Run ID: WETCHEM_180521G		SeqNo: 5043562		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	U	1.0								

LCS		Sample ID: LCS-R236278-R236278a				Units: mg/L		Analysis Date: 5/21/2018 08:45 AM		
Client ID:		Run ID: WETCHEM_180521G		SeqNo: 5043563		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	6.72	1.0	10.75	0	62.5	60-140	0			

The following samples were analyzed in this batch:

18051040-01C	18051040-02C	18051040-03C
18051040-04C	18051040-05C	18051040-06C
18051040-07C	18051040-08C	18051040-09C
18051040-10C	18051040-11C	18051040-12C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



WORKORDER # 18051040

PROJECT NAME	NPR water	SAMPLER	Blair K Rollins	DATE	5/15/18	PAGE	1 of 1
PROJECT No.		SITE ID	NPR water	TURNAROUND	STD	DISPOSAL	By Lab or Return to Client
COMPANY NAME	Caerus Piceance, LLC	EDD FORMAT					
SEND REPORT TO	Jake Janicek	PURCHASE ORDER					
ADDRESS	143 Diamond Ave	BILL TO COMPANY	Caerus Piceance, LLC				
CITY/STATE/ZIP	Parachute Co 81635	INVOICE ATTN TO	Jake Janicek				
PHONE	970-285-9608	ADDRESS	143 Diamond Ave				
FAX		CITY/STATE/ZIP	Parachute CO 81635				
E-MAIL	jjanicek@caerusoilandgas.com	PHONE	970-285-9608				
		FAX					
		E-MAIL	jjanicek@caerusoilandgas.com				

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	TPH/GRO/DRO	BTEX	Table 910 PAH's	EC	PH	SAR	Benzene	Table 910 Metals	Alk/Alkyl/AlkCA	Br, Cl, F, SO ₄ , NO ₂ , NO ₃	Dissolved metals (REMARKS)	Ammonia	As, Cd, Cr, Cu, Pb, Ag, Ca, Fe, K, Mg, Mn, Na, Se	Sulfide	BTEXM	PH/SPEC/IDS	
1	20180515-NPR DUA		5/15/18	0800	12											X	X	X	X	X	X	X	X	
2	20180515-NPR BMW			0900												X	X	X	X	X	X	X	X	
3	20180515-NPR 14ST			0915												X	X	X	X	X	X	X	X	
4	20180515-NPR 9MW			0935												X	X	X	X	X	X	X	X	
5	20180515-NPR 11MW			0955												X	X	X	X	X	X	X	X	
6	20180515-NPR 10MW			1020												X	X	X	X	X	X	X	X	
7	20180515-NPR 4WW			1050												X	X	X	X	X	X	X	X	
8	20180515-NPR 12ST			1100												X	X	X	X	X	X	X	X	
9	20180515-NPR 14MW			1220												X	X	X	X	X	X	X	X	
10	20180515-NPR 15MW			1240												X	X	X	X	X	X	X	X	

*Time Zone (Circle): EST CST MST PST Matrix: O=oil S=sol NS=non-soil solid W=water L=liquid E=extract F=filter

For metals or anions, please detail analytes below.

Comments:	Dissolved metals: As, Ba, Cd, Cr, Cu, Pb, Ag, Ca, Fe, K, Mg, Mn, Na, Se	QC PACKAGE (check below)
	SRR 4.0°C	<input checked="" type="checkbox"/> LEVEL II (Standard QC)
	3.6°C	<input type="checkbox"/> LEVEL III (Std QC + forms)
		<input type="checkbox"/> LEVEL IV (Std QC + forms + raw data)

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY	Blair K Rollins	Blair K Rollins	5/15/18	1430
RECEIVED BY	[Signature]	[Signature]	5-15-18	1430
RELINQUISHED BY	[Signature]	[Signature]	5-15-18	1820
RECEIVED BY	[Signature]	Diane F. Shaw	5/16/18	1000
RELINQUISHED BY				
RECEIVED BY				



WORKORDER # 18051040

PROJECT NAME	NPR Water	SAMPLER	Blair K Rollins	DATE	5/15/18	PAGE	1 of 1
PROJECT No.		SITE ID	NPR Water	TURNAROUND	STD	DISPOSAL	By Lab or Return to Client
COMPANY NAME	Caerus Piceance, LLC	EDD FORMAT					
SEND REPORT TO	Jake Janicek	PURCHASE ORDER					
ADDRESS	143 Diamond Ave	BILL TO COMPANY	Caerus Piceance, LLC				
CITY/STATE/ZIP	Parachute Co 81635	INVOICE ATTN TO	Jake Janicek				
PHONE	970-285-9808	ADDRESS	143 Diamond Ave				
FAX		CITY/STATE/ZIP	Parachute CO 81635				
E-MAIL	jjanicek@caerusoilandgas.com	PHONE	970-285-9808				
		FAX					
		E-MAIL	jjanicek@caerusoilandgas.com				

TPH/GRO/DRO
BTEX
Table 910 PAH's
EC
PH
SAR
Benzene
Table 910 Metals
ALK/ALKBI/ALKCA
Br, Cl, F, SO₄, NO₂, NO₃
Dissolved Metals (REMARKS)
Aspartic
RSK175
Sulfide
BTEXM
PH/SPCOND/TDS

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	TPH/GRO/DRO	BTEX	Table 910 PAH's	EC	PH	SAR	Benzene	Table 910 Metals	ALK/ALKBI/ALKCA	Br, Cl, F, SO ₄ , NO ₂ , NO ₃	Dissolved Metals (REMARKS)	Aspartic	RSK175	Sulfide	BTEXM	PH/SPCOND/TDS
11	20180515-NPR16MW		5/15/18	1300	12											X	X	X	X	X	X	X	X
12	20180515-NPR15ST		↓	1320	12											X	X	X	X	X	X	X	X

*Time Zone (Circle): EST CST MST PST Matrix O=oil S=soil NS=non-soil solid W=water L=liquid E=extract F=filter

For metals or anions, please detail analytes below.

Comments: Dissolved Metals: As, Ba, Cd, Cr, Cu, Pb, Ag, Ca, Fe, K, Mg, Mn, Na, Se
SR2 4.0°C
3.6°C

QC PACKAGE (check below)
<input checked="" type="checkbox"/> LEVEL II (Standard QC)
<input type="checkbox"/> LEVEL III (Std QC + forms)
<input type="checkbox"/> LEVEL IV (Std QC + forms + raw data)

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

SIGNATURE	PRINTED NAME	DATE	TIME
<i>[Signature]</i>	Blair K Rollins	5/15/18	1430
<i>[Signature]</i>		5-15-18	1430
<i>[Signature]</i>		5-15-18	1820
<i>[Signature]</i>	Diane E. Shan	5/16/18	1000

Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **16-May-18 10:00**

Work Order: **18051040**

Received by: **DS**

Checklist completed by Diane Shaw 16-May-18
eSignature Date

Reviewed by: Chad Whilton 17-May-18
eSignature Date

Matrices: Water

Carrier name: FedEx

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping container/cooler? Yes No Not Present
- Custody seals intact on sample bottles? Yes No Not Present
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time? Yes No
- Container/Temp Blank temperature in compliance? Yes No
- Sample(s) received on ice? Yes No

Temperature(s)/Thermometer(s): 4.0/4.0, 3.6/3.6 c SR2

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage: 5/16/2018 11:53:36 AM

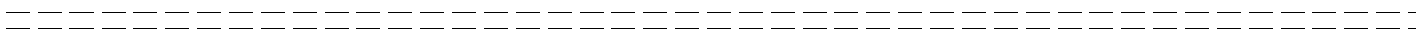
Water - VOA vials have zero headspace? Yes No No VOA vials submitted

Water - pH acceptable upon receipt? Yes No N/A

pH adjusted? Yes No N/A

pH adjusted by:

Login Notes:



Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction: