



16-Mar-2018

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

Re: **NPR Quarterly Water**

Work Order: **1803459**

Dear Jake,

ALS Environmental received 10 samples on 08-Mar-2018 10:30 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 41.

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".

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

Certificate No: MN 998501

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

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RIGHT SOLUTIONS RIGHT PARTNER

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Work Order: 1803459

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> |
|--------------------|-------------------------|---------------|-------------------|------------------------|----------------------|--------------------------|
| 1803459-01 | 20180307-NPR12ST | Water | | 3/7/2018 08:45 | 3/8/2018 10:30 | <input type="checkbox"/> |
| 1803459-02 | 20180307-NPR5MW | Water | | 3/7/2018 09:15 | 3/8/2018 10:30 | <input type="checkbox"/> |
| 1803459-03 | 20180307-NPR14ST | Water | | 3/7/2018 10:35 | 3/8/2018 10:30 | <input type="checkbox"/> |
| 1803459-04 | 20180307-NPR09MW | Water | | 3/7/2018 11:00 | 3/8/2018 10:30 | <input type="checkbox"/> |
| 1803459-05 | 20180307-NPR1ST | Water | | 3/7/2018 12:05 | 3/8/2018 10:30 | <input type="checkbox"/> |
| 1803459-06 | 20180307-NPR2SP | Water | | 3/7/2018 12:30 | 3/8/2018 10:30 | <input type="checkbox"/> |
| 1803459-07 | 20180307-NPR2ST | Water | | 3/7/2018 12:45 | 3/8/2018 10:30 | <input type="checkbox"/> |
| 1803459-08 | 20180307-NPR3MW | Water | | 3/7/2018 13:45 | 3/8/2018 10:30 | <input type="checkbox"/> |
| 1803459-09 | 20180307-NPR15ST | Water | | 3/7/2018 14:15 | 3/8/2018 10:30 | <input type="checkbox"/> |
| 1803459-10 | 20180307-NPRDUPA | Water | | 3/7/2018 09:45 | 3/8/2018 10:30 | <input type="checkbox"/> |

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Work Order: 1803459

Case Narrative

Batch 115260, Method NH3_4500BG_W, Sample 1803459-09F MS/MSD: The MS/MSD recovery was below the lower control limit for Ammonia. The corresponding result in the parent sample may be biased low.

Batch 115306, Method ICP_6020_WD, Sample 1803459-06E: The reporting limit for Lead is elevated due to internal standard failure in the undiluted run.

Batch R231392, Method VOC_8260_W, Samples 1803459-04B and -06B: Verification of sample preservation indicated a pH >2 despite collection in HCl preserved containers.

Batch R231825, Method IC_9056_W, Sample 1803459-01D MS/MSD: The MS/MSD recovery was below the lower control limit for Sulfate. The corresponding result in the parent sample may be biased low.

| <u>Qualifier</u> | <u>Description</u> |
|-------------------------|---|
| * | 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. |

| <u>Acronym</u> | <u>Description</u> |
|-----------------------|-------------------------------------|
| 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 |

| <u>Units Reported</u> | <u>Description</u> |
|------------------------------|---------------------------------------|
| µg/L | Micrograms per Liter |
| µmhos/cm | Micromhos per Centimeter |
| mg NH ₃ -N/L | Milligrams Ammonia-Nitrogen per Liter |
| mg/L | Milligrams per Liter |
| s.u. | Standard Units |

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPR12ST
Collection Date: 3/7/2018 08:45 AM

Work Order: 1803459
Lab ID: 1803459-01
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---------------|------|-------------------|-------------|----------------------------|--------------------|
| GASES IN WATER | | | RSK-175 | | | Analyst: KB |
| Ethane | U | | 5.0 | µg/L | 1 | 3/12/2018 11:39 AM |
| Ethene | U | | 5.0 | µg/L | 1 | 3/12/2018 11:39 AM |
| Methane | 3.0 | J | 5.0 | µg/L | 1 | 3/12/2018 11:39 AM |
| Propane | U | | 5.0 | µg/L | 1 | 3/12/2018 11:39 AM |
| METALS BY ICP-MS (DISSOLVED) | | | SW6020A | | Prep: FILTER 3/12/18 11:35 | Analyst: JF |
| Arsenic | 0.0040 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:07 PM |
| Barium | 0.052 | | 0.0050 | mg/L | 1 | 3/12/2018 03:07 PM |
| Cadmium | U | | 0.0020 | mg/L | 1 | 3/12/2018 03:07 PM |
| Calcium | 59 | | 0.50 | mg/L | 1 | 3/12/2018 03:07 PM |
| Chromium | 0.0012 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:07 PM |
| Iron | U | | 0.080 | mg/L | 1 | 3/12/2018 03:07 PM |
| Lead | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:07 PM |
| Magnesium | 45 | | 0.20 | mg/L | 1 | 3/12/2018 03:07 PM |
| Manganese | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:07 PM |
| Potassium | 3.0 | | 0.20 | mg/L | 1 | 3/12/2018 03:07 PM |
| Selenium | 0.0040 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:07 PM |
| Silver | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:07 PM |
| Sodium | 58 | | 0.20 | mg/L | 1 | 3/12/2018 03:07 PM |
| VOLATILE ORGANIC COMPOUNDS | | | SW8260B | | | Analyst: AK |
| Benzene | U | | 1.0 | µg/L | 1 | 3/9/2018 05:05 PM |
| Ethylbenzene | U | | 1.0 | µg/L | 1 | 3/9/2018 05:05 PM |
| m,p-Xylene | U | | 2.0 | µg/L | 1 | 3/9/2018 05:05 PM |
| Methyl tert-butyl ether | U | | 1.0 | µg/L | 1 | 3/9/2018 05:05 PM |
| o-Xylene | U | | 1.0 | µg/L | 1 | 3/9/2018 05:05 PM |
| Toluene | U | | 1.0 | µg/L | 1 | 3/9/2018 05:05 PM |
| Xylenes, Total | U | | 3.0 | µg/L | 1 | 3/9/2018 05:05 PM |
| Surr: 1,2-Dichloroethane-d4 | 102 | | 75-120 | %REC | 1 | 3/9/2018 05:05 PM |
| Surr: 4-Bromofluorobenzene | 96.2 | | 80-110 | %REC | 1 | 3/9/2018 05:05 PM |
| Surr: Dibromofluoromethane | 103 | | 85-115 | %REC | 1 | 3/9/2018 05:05 PM |
| Surr: Toluene-d8 | 98.2 | | 85-110 | %REC | 1 | 3/9/2018 05:05 PM |
| ALKALINITY | | | A2320 B-11 | | | Analyst: ED |
| Alkalinity, Bicarbonate (as CaCO3) | 290 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Carbonate (as CaCO3) | U | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Total (as CaCO3) | 290 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| ANIONS BY ION CHROMATOGRAPHY | | | SW9056A | | | Analyst: EE |
| Bromide | U | | 0.40 | mg/L | 2 | 3/15/2018 11:29 AM |
| Chloride | 7.9 | | 2.0 | mg/L | 2 | 3/15/2018 11:29 AM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPR12ST
Collection Date: 3/7/2018 08:45 AM

Work Order: 1803459
Lab ID: 1803459-01
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------------|--------------------------------|-----------------|---------------------|
| Fluoride | 0.76 | | 0.20 | mg/L | 2 | 3/15/2018 11:29 AM |
| Sulfate | 150 | | 20 | mg/L | 20 | 3/15/2018 11:48 AM |
| AMMONIA AS NITROGEN | | | A4500-NH3 G-11 | Prep: A4500-NH3 B 3/9/18 10:00 | | Analyst: JJG |
| Ammonia as Nitrogen | U | | 0.15 | mg NH3-N/L | 1 | 3/12/2018 07:58 AM |
| NITROGEN, NITRITE | | | A4500-NO2 B-11 | | | Analyst: ED |
| Nitrogen, Nitrite | U | | 0.020 | mg/L | 1 | 3/8/2018 04:15 PM |
| NITROGEN, NITRATE | | | E353.2 R2.0 | | | Analyst: JJG |
| Nitrogen, Nitrate | 1.4 | | 0.020 | mg/L | 1 | 3/9/2018 10:06 AM |
| PH (LABORATORY) | | | SW9040C | | | Analyst: ED |
| pH (laboratory) | 8.2 | | 0.10 | s.u. | 1 | 3/8/2018 04:00 PM |
| SULFIDE | | | E376.1 | | | Analyst: EE |
| Sulfide | U | | 1.0 | mg/L | 1 | 3/9/2018 12:45 PM |
| SPECIFIC CONDUCTANCE @ 25°C | | | A2510 B-11 | | | Analyst: ED |
| Specific Conductance | 810 | | 5.0 | µmhos/cm | 1 | 3/8/2018 04:00 PM |
| TOTAL DISSOLVED SOLIDS | | | A2540 C-11 | Prep: FILTER 3/14/18 08:00 | | Analyst: MT |
| Total Dissolved Solids | 490 | | 10 | mg/L | 1 | 3/14/2018 04:03 PM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPR5MW
Collection Date: 3/7/2018 09:15 AM

Work Order: 1803459
Lab ID: 1803459-02
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|-------------------------------------|--------|------|-------------------|-------|----------------------------|--------------------|
| GASES IN WATER | | | RSK-175 | | | Analyst: KB |
| Ethane | 1.3 | J | 5.0 | µg/L | 1 | 3/12/2018 11:41 AM |
| Ethene | U | | 5.0 | µg/L | 1 | 3/12/2018 11:41 AM |
| Methane | 10 | | 5.0 | µg/L | 1 | 3/12/2018 11:41 AM |
| Propane | 0.77 | J | 5.0 | µg/L | 1 | 3/12/2018 11:41 AM |
| METALS BY ICP-MS (DISSOLVED) | | | SW6020A | | Prep: FILTER 3/12/18 11:35 | Analyst: JF |
| Arsenic | 0.0036 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:11 PM |
| Barium | 0.045 | | 0.0050 | mg/L | 1 | 3/12/2018 03:11 PM |
| Cadmium | U | | 0.0020 | mg/L | 1 | 3/12/2018 03:11 PM |
| Calcium | 57 | | 0.50 | mg/L | 1 | 3/12/2018 03:11 PM |
| Chromium | 0.0015 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:11 PM |
| Iron | 0.078 | J | 0.080 | mg/L | 1 | 3/12/2018 03:11 PM |
| Lead | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:11 PM |
| Magnesium | 42 | | 0.20 | mg/L | 1 | 3/12/2018 03:11 PM |
| Manganese | 0.0016 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:11 PM |
| Potassium | 2.6 | | 0.20 | mg/L | 1 | 3/12/2018 03:11 PM |
| Selenium | 0.0024 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:11 PM |
| Silver | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:11 PM |
| Sodium | 82 | | 0.20 | mg/L | 1 | 3/12/2018 03:11 PM |
| VOLATILE ORGANIC COMPOUNDS | | | SW8260B | | | Analyst: AK |
| Benzene | U | | 1.0 | µg/L | 1 | 3/9/2018 05:20 PM |
| Ethylbenzene | U | | 1.0 | µg/L | 1 | 3/9/2018 05:20 PM |
| m,p-Xylene | U | | 2.0 | µg/L | 1 | 3/9/2018 05:20 PM |
| Methyl tert-butyl ether | U | | 1.0 | µg/L | 1 | 3/9/2018 05:20 PM |
| o-Xylene | U | | 1.0 | µg/L | 1 | 3/9/2018 05:20 PM |
| Toluene | U | | 1.0 | µg/L | 1 | 3/9/2018 05:20 PM |
| Xylenes, Total | U | | 3.0 | µg/L | 1 | 3/9/2018 05:20 PM |
| Surr: 1,2-Dichloroethane-d4 | 101 | | 75-120 | %REC | 1 | 3/9/2018 05:20 PM |
| Surr: 4-Bromofluorobenzene | 94.8 | | 80-110 | %REC | 1 | 3/9/2018 05:20 PM |
| Surr: Dibromofluoromethane | 99.7 | | 85-115 | %REC | 1 | 3/9/2018 05:20 PM |
| Surr: Toluene-d8 | 96.8 | | 85-110 | %REC | 1 | 3/9/2018 05:20 PM |
| ALKALINITY | | | A2320 B-11 | | | Analyst: ED |
| Alkalinity, Bicarbonate (as CaCO3) | 330 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Carbonate (as CaCO3) | U | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Total (as CaCO3) | 330 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| ANIONS BY ION CHROMATOGRAPHY | | | SW9056A | | | Analyst: EE |
| Bromide | U | | 0.40 | mg/L | 2 | 3/15/2018 12:07 PM |
| Chloride | 25 | | 2.0 | mg/L | 2 | 3/15/2018 12:07 PM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPR5MW
Collection Date: 3/7/2018 09:15 AM

Work Order: 1803459
Lab ID: 1803459-02
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------------|--------------------------------|-----------------|---------------------|
| Fluoride | 0.80 | | 0.20 | mg/L | 2 | 3/15/2018 12:07 PM |
| Sulfate | 130 | | 20 | mg/L | 20 | 3/15/2018 12:26 PM |
| AMMONIA AS NITROGEN | | | A4500-NH3 G-11 | Prep: A4500-NH3 B 3/9/18 10:00 | | Analyst: JJG |
| Ammonia as Nitrogen | 0.30 | | 0.15 | mg NH3-N/L | 1 | 3/12/2018 07:58 AM |
| NITROGEN, NITRITE | | | A4500-NO2 B-11 | | | Analyst: ED |
| Nitrogen, Nitrite | U | | 0.020 | mg/L | 1 | 3/8/2018 04:15 PM |
| NITROGEN, NITRATE | | | E353.2 R2.0 | | | Analyst: JJG |
| Nitrogen, Nitrate | 0.81 | | 0.020 | mg/L | 1 | 3/9/2018 10:06 AM |
| PH (LABORATORY) | | | SW9040C | | | Analyst: ED |
| pH (laboratory) | 7.9 | | 0.10 | s.u. | 1 | 3/8/2018 04:00 PM |
| SULFIDE | | | E376.1 | | | Analyst: EE |
| Sulfide | U | | 1.0 | mg/L | 1 | 3/9/2018 12:45 PM |
| SPECIFIC CONDUCTANCE @ 25°C | | | A2510 B-11 | | | Analyst: ED |
| Specific Conductance | 890 | | 5.0 | µmhos/cm | 1 | 3/8/2018 04:00 PM |
| TOTAL DISSOLVED SOLIDS | | | A2540 C-11 | Prep: FILTER 3/14/18 08:00 | | Analyst: MT |
| Total Dissolved Solids | 490 | | 33 | mg/L | 1 | 3/14/2018 04:03 PM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPR14ST
Collection Date: 3/7/2018 10:35 AM

Work Order: 1803459
Lab ID: 1803459-03
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---------------|------|-------------------|-------------|----------------------------|--------------------|
| GASES IN WATER | | | RSK-175 | | | Analyst: KB |
| Ethane | U | | 5.0 | µg/L | 1 | 3/12/2018 11:45 AM |
| Ethene | U | | 5.0 | µg/L | 1 | 3/12/2018 11:45 AM |
| Methane | 4.0 | J | 5.0 | µg/L | 1 | 3/12/2018 11:45 AM |
| Propane | U | | 5.0 | µg/L | 1 | 3/12/2018 11:45 AM |
| METALS BY ICP-MS (DISSOLVED) | | | SW6020A | | Prep: FILTER 3/12/18 11:35 | Analyst: JF |
| Arsenic | 0.0039 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:17 PM |
| Barium | 0.048 | | 0.0050 | mg/L | 1 | 3/12/2018 03:17 PM |
| Cadmium | U | | 0.0020 | mg/L | 1 | 3/12/2018 03:17 PM |
| Calcium | 50 | | 0.50 | mg/L | 1 | 3/12/2018 03:17 PM |
| Chromium | 0.0011 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:17 PM |
| Iron | U | | 0.080 | mg/L | 1 | 3/12/2018 03:17 PM |
| Lead | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:17 PM |
| Magnesium | 29 | | 0.20 | mg/L | 1 | 3/12/2018 03:17 PM |
| Manganese | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:17 PM |
| Potassium | 2.0 | | 0.20 | mg/L | 1 | 3/12/2018 03:17 PM |
| Selenium | 0.0010 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:17 PM |
| Silver | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:17 PM |
| Sodium | 42 | | 0.20 | mg/L | 1 | 3/12/2018 03:17 PM |
| VOLATILE ORGANIC COMPOUNDS | | | SW8260B | | | Analyst: AK |
| Benzene | U | | 1.0 | µg/L | 1 | 3/9/2018 05:35 PM |
| Ethylbenzene | U | | 1.0 | µg/L | 1 | 3/9/2018 05:35 PM |
| m,p-Xylene | U | | 2.0 | µg/L | 1 | 3/9/2018 05:35 PM |
| Methyl tert-butyl ether | U | | 1.0 | µg/L | 1 | 3/9/2018 05:35 PM |
| o-Xylene | U | | 1.0 | µg/L | 1 | 3/9/2018 05:35 PM |
| Toluene | U | | 1.0 | µg/L | 1 | 3/9/2018 05:35 PM |
| Xylenes, Total | U | | 3.0 | µg/L | 1 | 3/9/2018 05:35 PM |
| Surr: 1,2-Dichloroethane-d4 | 102 | | 75-120 | %REC | 1 | 3/9/2018 05:35 PM |
| Surr: 4-Bromofluorobenzene | 95.2 | | 80-110 | %REC | 1 | 3/9/2018 05:35 PM |
| Surr: Dibromofluoromethane | 98.4 | | 85-115 | %REC | 1 | 3/9/2018 05:35 PM |
| Surr: Toluene-d8 | 98.5 | | 85-110 | %REC | 1 | 3/9/2018 05:35 PM |
| ALKALINITY | | | A2320 B-11 | | | Analyst: ED |
| Alkalinity, Bicarbonate (as CaCO3) | 270 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Carbonate (as CaCO3) | U | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Total (as CaCO3) | 270 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| ANIONS BY ION CHROMATOGRAPHY | | | SW9056A | | | Analyst: EE |
| Bromide | U | | 0.20 | mg/L | 1 | 3/15/2018 12:46 PM |
| Chloride | 9.0 | | 1.0 | mg/L | 1 | 3/15/2018 12:46 PM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPR14ST
Collection Date: 3/7/2018 10:35 AM

Work Order: 1803459
Lab ID: 1803459-03
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|------------------------------------|--------|------|-------------------------|------------|-----------------|--|
| Fluoride | 0.65 | | 0.10 | mg/L | 1 | 3/15/2018 12:46 PM |
| Sulfate | 54 | | 5.0 | mg/L | 5 | 3/15/2018 01:05 PM |
| AMMONIA AS NITROGEN | | | | | | |
| Ammonia as Nitrogen | 0.097 | J | A4500-NH3 G-11 0.15 | mg NH3-N/L | 1 | Prep: A4500-NH3 B 3/9/18 10:00 Analyst: JYG 3/12/2018 07:58 AM |
| NITROGEN, NITRITE | | | | | | |
| Nitrogen, Nitrite | U | | A4500-NO2 B-11 0.020 | mg/L | 1 | Analyst: ED 3/8/2018 04:15 PM |
| NITROGEN, NITRATE | | | | | | |
| Nitrogen, Nitrate | 0.66 | | E353.2 R2.0 0.020 | mg/L | 1 | Analyst: JYG 3/9/2018 10:06 AM |
| PH (LABORATORY) | | | | | | |
| pH (laboratory) | 8.1 | | SW9040C 0.10 | s.u. | 1 | Analyst: ED 3/8/2018 04:00 PM |
| SULFIDE | | | | | | |
| Sulfide | U | | E376.1 1.0 | mg/L | 1 | Analyst: EE 3/9/2018 12:45 PM |
| SPECIFIC CONDUCTANCE @ 25°C | | | | | | |
| Specific Conductance | 600 | | A2510 B-11 5.0 | µmhos/cm | 1 | Analyst: ED 3/8/2018 04:00 PM |
| TOTAL DISSOLVED SOLIDS | | | | | | |
| Total Dissolved Solids | 330 | | A2540 C-11 10 | mg/L | 1 | Prep: FILTER 3/14/18 08:00 Analyst: MT 3/14/2018 04:03 PM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPR09MW
Collection Date: 3/7/2018 11:00 AM

Work Order: 1803459
Lab ID: 1803459-04
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|-------------------------------------|--------|------|-------------------|-------|----------------------------|--------------------|
| GASES IN WATER | | | | | | |
| | | | RSK-175 | | | Analyst: KB |
| Ethane | 0.38 | J | 5.0 | µg/L | 1 | 3/12/2018 11:47 AM |
| Ethene | U | | 5.0 | µg/L | 1 | 3/12/2018 11:47 AM |
| Methane | 6.1 | | 5.0 | µg/L | 1 | 3/12/2018 11:47 AM |
| Propane | 0.60 | J | 5.0 | µg/L | 1 | 3/12/2018 11:47 AM |
| METALS BY ICP-MS (DISSOLVED) | | | | | | |
| | | | SW6020A | | Prep: FILTER 3/12/18 11:35 | Analyst: JF |
| Arsenic | 0.0041 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:19 PM |
| Barium | 0.055 | | 0.0050 | mg/L | 1 | 3/12/2018 03:19 PM |
| Cadmium | U | | 0.0020 | mg/L | 1 | 3/12/2018 03:19 PM |
| Calcium | 67 | | 0.50 | mg/L | 1 | 3/12/2018 03:19 PM |
| Chromium | 0.0016 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:19 PM |
| Iron | 0.24 | | 0.080 | mg/L | 1 | 3/12/2018 03:19 PM |
| Lead | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:19 PM |
| Magnesium | 44 | | 0.20 | mg/L | 1 | 3/12/2018 03:19 PM |
| Manganese | 0.0068 | | 0.0050 | mg/L | 1 | 3/12/2018 03:19 PM |
| Potassium | 2.6 | | 0.20 | mg/L | 1 | 3/12/2018 03:19 PM |
| Selenium | 0.0055 | | 0.0050 | mg/L | 1 | 3/12/2018 03:19 PM |
| Silver | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:19 PM |
| Sodium | 61 | | 0.20 | mg/L | 1 | 3/12/2018 03:19 PM |
| VOLATILE ORGANIC COMPOUNDS | | | | | | |
| | | | SW8260B | | | Analyst: AK |
| Benzene | U | | 1.0 | µg/L | 1 | 3/9/2018 05:51 PM |
| Ethylbenzene | U | | 1.0 | µg/L | 1 | 3/9/2018 05:51 PM |
| m,p-Xylene | U | | 2.0 | µg/L | 1 | 3/9/2018 05:51 PM |
| Methyl tert-butyl ether | U | | 1.0 | µg/L | 1 | 3/9/2018 05:51 PM |
| o-Xylene | U | | 1.0 | µg/L | 1 | 3/9/2018 05:51 PM |
| Toluene | U | | 1.0 | µg/L | 1 | 3/9/2018 05:51 PM |
| Xylenes, Total | U | | 3.0 | µg/L | 1 | 3/9/2018 05:51 PM |
| Surr: 1,2-Dichloroethane-d4 | 104 | | 75-120 | %REC | 1 | 3/9/2018 05:51 PM |
| Surr: 4-Bromofluorobenzene | 94.2 | | 80-110 | %REC | 1 | 3/9/2018 05:51 PM |
| Surr: Dibromofluoromethane | 99.9 | | 85-115 | %REC | 1 | 3/9/2018 05:51 PM |
| Surr: Toluene-d8 | 97.6 | | 85-110 | %REC | 1 | 3/9/2018 05:51 PM |
| ALKALINITY | | | | | | |
| | | | A2320 B-11 | | | Analyst: ED |
| Alkalinity, Bicarbonate (as CaCO3) | 310 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Carbonate (as CaCO3) | U | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Total (as CaCO3) | 310 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| ANIONS BY ION CHROMATOGRAPHY | | | | | | |
| | | | SW9056A | | | Analyst: EE |
| Bromide | U | | 0.20 | mg/L | 1 | 3/15/2018 01:24 PM |
| Chloride | 13 | | 1.0 | mg/L | 1 | 3/15/2018 01:24 PM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPR09MW
Collection Date: 3/7/2018 11:00 AM

Work Order: 1803459
Lab ID: 1803459-04
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------------|--------------------------------|-----------------|---------------------|
| Fluoride | 0.76 | | 0.10 | mg/L | 1 | 3/15/2018 01:24 PM |
| Sulfate | 130 | | 10 | mg/L | 10 | 3/15/2018 01:43 PM |
| AMMONIA AS NITROGEN | | | A4500-NH3 G-11 | Prep: A4500-NH3 B 3/9/18 10:00 | | Analyst: JJG |
| Ammonia as Nitrogen | 0.18 | | 0.15 | mg NH3-N/L | 1 | 3/12/2018 07:58 AM |
| NITROGEN, NITRITE | | | A4500-NO2 B-11 | | | Analyst: ED |
| Nitrogen, Nitrite | U | | 0.020 | mg/L | 1 | 3/8/2018 04:15 PM |
| NITROGEN, NITRATE | | | E353.2 R2.0 | | | Analyst: JJG |
| Nitrogen, Nitrate | 2.8 | | 0.020 | mg/L | 1 | 3/9/2018 10:06 AM |
| PH (LABORATORY) | | | SW9040C | | | Analyst: ED |
| pH (laboratory) | 7.9 | | 0.10 | s.u. | 1 | 3/8/2018 04:00 PM |
| SULFIDE | | | E376.1 | | | Analyst: EE |
| Sulfide | 0.48 | J | 1.0 | mg/L | 1 | 3/9/2018 12:45 PM |
| SPECIFIC CONDUCTANCE @ 25°C | | | A2510 B-11 | | | Analyst: ED |
| Specific Conductance | 840 | | 5.0 | µmhos/cm | 1 | 3/8/2018 04:00 PM |
| TOTAL DISSOLVED SOLIDS | | | A2540 C-11 | Prep: FILTER 3/14/18 08:00 | | Analyst: MT |
| Total Dissolved Solids | 470 | | 33 | mg/L | 1 | 3/14/2018 04:03 PM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPR1ST
Collection Date: 3/7/2018 12:05 PM

Work Order: 1803459
Lab ID: 1803459-05
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|----------------|------|-------------------|-------------|----------------------------|--------------------|
| GASES IN WATER | | | RSK-175 | | | Analyst: KB |
| Ethane | U | | 5.0 | µg/L | 1 | 3/12/2018 11:49 AM |
| Ethene | U | | 5.0 | µg/L | 1 | 3/12/2018 11:49 AM |
| Methane | 3.5 | J | 5.0 | µg/L | 1 | 3/12/2018 11:49 AM |
| Propane | U | | 5.0 | µg/L | 1 | 3/12/2018 11:49 AM |
| METALS BY ICP-MS (DISSOLVED) | | | SW6020A | | Prep: FILTER 3/12/18 11:35 | Analyst: JF |
| Arsenic | 0.0016 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:20 PM |
| Barium | 0.082 | | 0.0050 | mg/L | 1 | 3/12/2018 03:20 PM |
| Cadmium | U | | 0.0020 | mg/L | 1 | 3/12/2018 03:20 PM |
| Calcium | 66 | | 0.50 | mg/L | 1 | 3/12/2018 03:20 PM |
| Chromium | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:20 PM |
| Iron | 0.0083 | J | 0.080 | mg/L | 1 | 3/12/2018 03:20 PM |
| Lead | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:20 PM |
| Magnesium | 34 | | 0.20 | mg/L | 1 | 3/12/2018 03:20 PM |
| Manganese | 0.00098 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:20 PM |
| Potassium | 0.79 | | 0.20 | mg/L | 1 | 3/12/2018 03:20 PM |
| Selenium | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:20 PM |
| Silver | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:20 PM |
| Sodium | 56 | | 0.20 | mg/L | 1 | 3/12/2018 03:20 PM |
| VOLATILE ORGANIC COMPOUNDS | | | SW8260B | | | Analyst: AK |
| Benzene | U | | 1.0 | µg/L | 1 | 3/9/2018 06:06 PM |
| Ethylbenzene | U | | 1.0 | µg/L | 1 | 3/9/2018 06:06 PM |
| m,p-Xylene | U | | 2.0 | µg/L | 1 | 3/9/2018 06:06 PM |
| Methyl tert-butyl ether | U | | 1.0 | µg/L | 1 | 3/9/2018 06:06 PM |
| o-Xylene | U | | 1.0 | µg/L | 1 | 3/9/2018 06:06 PM |
| Toluene | U | | 1.0 | µg/L | 1 | 3/9/2018 06:06 PM |
| Xylenes, Total | U | | 3.0 | µg/L | 1 | 3/9/2018 06:06 PM |
| Surr: 1,2-Dichloroethane-d4 | 102 | | 75-120 | %REC | 1 | 3/9/2018 06:06 PM |
| Surr: 4-Bromofluorobenzene | 94.9 | | 80-110 | %REC | 1 | 3/9/2018 06:06 PM |
| Surr: Dibromofluoromethane | 98.1 | | 85-115 | %REC | 1 | 3/9/2018 06:06 PM |
| Surr: Toluene-d8 | 97.6 | | 85-110 | %REC | 1 | 3/9/2018 06:06 PM |
| ALKALINITY | | | A2320 B-11 | | | Analyst: ED |
| Alkalinity, Bicarbonate (as CaCO3) | 290 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Carbonate (as CaCO3) | 20 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Total (as CaCO3) | 310 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| ANIONS BY ION CHROMATOGRAPHY | | | SW9056A | | | Analyst: EE |
| Bromide | U | | 0.20 | mg/L | 1 | 3/15/2018 02:41 PM |
| Chloride | 8.7 | | 1.0 | mg/L | 1 | 3/15/2018 02:41 PM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPR1ST
Collection Date: 3/7/2018 12:05 PM

Work Order: 1803459
Lab ID: 1803459-05
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------------|--------------------------------|-----------------|---------------------|
| Fluoride | 0.22 | | 0.10 | mg/L | 1 | 3/15/2018 02:41 PM |
| Sulfate | 90 | | 10 | mg/L | 10 | 3/15/2018 03:00 PM |
| AMMONIA AS NITROGEN | | | A4500-NH3 G-11 | Prep: A4500-NH3 B 3/9/18 10:00 | | Analyst: JJG |
| Ammonia as Nitrogen | 0.17 | | 0.15 | mg NH3-N/L | 1 | 3/12/2018 07:58 AM |
| NITROGEN, NITRITE | | | A4500-NO2 B-11 | | | Analyst: ED |
| Nitrogen, Nitrite | 0.0016 | J | 0.020 | mg/L | 1 | 3/8/2018 04:15 PM |
| NITROGEN, NITRATE | | | E353.2 R2.0 | | | Analyst: JJG |
| Nitrogen, Nitrate | 0.19 | | 0.020 | mg/L | 1 | 3/9/2018 10:06 AM |
| PH (LABORATORY) | | | SW9040C | | | Analyst: ED |
| pH (laboratory) | 8.4 | | 0.10 | s.u. | 1 | 3/8/2018 04:00 PM |
| SULFIDE | | | E376.1 | | | Analyst: EE |
| Sulfide | 0.48 | J | 1.0 | mg/L | 1 | 3/9/2018 12:45 PM |
| SPECIFIC CONDUCTANCE @ 25°C | | | A2510 B-11 | | | Analyst: ED |
| Specific Conductance | 730 | | 5.0 | µmhos/cm | 1 | 3/8/2018 04:00 PM |
| TOTAL DISSOLVED SOLIDS | | | A2540 C-11 | Prep: FILTER 3/14/18 08:00 | | Analyst: MT |
| Total Dissolved Solids | 420 | | 10 | mg/L | 1 | 3/14/2018 04:03 PM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPR2SP
Collection Date: 3/7/2018 12:30 PM

Work Order: 1803459
Lab ID: 1803459-06
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|--------------|------|-------------------|-------------|----------------------------|--------------------|
| GASES IN WATER | | | RSK-175 | | | Analyst: KB |
| Ethane | U | | 5.0 | µg/L | 1 | 3/12/2018 11:53 AM |
| Ethene | U | | 5.0 | µg/L | 1 | 3/12/2018 11:53 AM |
| Methane | 3.9 | J | 5.0 | µg/L | 1 | 3/12/2018 11:53 AM |
| Propane | 0.48 | J | 5.0 | µg/L | 1 | 3/12/2018 11:53 AM |
| METALS BY ICP-MS (DISSOLVED) | | | SW6020A | | Prep: FILTER 3/12/18 11:35 | Analyst: JF |
| Arsenic | 0.013 | | 0.0050 | mg/L | 1 | 3/12/2018 03:22 PM |
| Barium | 0.56 | | 0.0050 | mg/L | 1 | 3/12/2018 03:22 PM |
| Cadmium | U | | 0.0020 | mg/L | 1 | 3/12/2018 03:22 PM |
| Calcium | 10 | | 0.50 | mg/L | 1 | 3/12/2018 03:22 PM |
| Chromium | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:22 PM |
| Iron | U | | 0.080 | mg/L | 1 | 3/12/2018 03:22 PM |
| Lead | U | | 0.050 | mg/L | 10 | 3/13/2018 01:23 PM |
| Magnesium | 17 | | 0.20 | mg/L | 1 | 3/12/2018 03:22 PM |
| Manganese | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:22 PM |
| Potassium | 2.9 | | 0.20 | mg/L | 1 | 3/12/2018 03:22 PM |
| Selenium | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:22 PM |
| Silver | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:22 PM |
| Sodium | 2,200 | | 20 | mg/L | 100 | 3/13/2018 01:31 PM |
| VOLATILE ORGANIC COMPOUNDS | | | SW8260B | | | Analyst: AK |
| Benzene | U | | 1.0 | µg/L | 1 | 3/9/2018 06:22 PM |
| Ethylbenzene | U | | 1.0 | µg/L | 1 | 3/9/2018 06:22 PM |
| m,p-Xylene | U | | 2.0 | µg/L | 1 | 3/9/2018 06:22 PM |
| Methyl tert-butyl ether | U | | 1.0 | µg/L | 1 | 3/9/2018 06:22 PM |
| o-Xylene | U | | 1.0 | µg/L | 1 | 3/9/2018 06:22 PM |
| Toluene | U | | 1.0 | µg/L | 1 | 3/9/2018 06:22 PM |
| Xylenes, Total | U | | 3.0 | µg/L | 1 | 3/9/2018 06:22 PM |
| Surr: 1,2-Dichloroethane-d4 | 102 | | 75-120 | %REC | 1 | 3/9/2018 06:22 PM |
| Surr: 4-Bromofluorobenzene | 91.9 | | 80-110 | %REC | 1 | 3/9/2018 06:22 PM |
| Surr: Dibromofluoromethane | 98.6 | | 85-115 | %REC | 1 | 3/9/2018 06:22 PM |
| Surr: Toluene-d8 | 97.1 | | 85-110 | %REC | 1 | 3/9/2018 06:22 PM |
| ALKALINITY | | | A2320 B-11 | | | Analyst: ED |
| Alkalinity, Bicarbonate (as CaCO3) | 2,000 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Carbonate (as CaCO3) | 190 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Total (as CaCO3) | 2,200 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| ANIONS BY ION CHROMATOGRAPHY | | | SW9056A | | | Analyst: EE |
| Bromide | 4.8 | | 2.0 | mg/L | 10 | 3/15/2018 08:26 PM |
| Chloride | 2,400 | | 200 | mg/L | 200 | 3/15/2018 08:45 PM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPR2SP
Collection Date: 3/7/2018 12:30 PM

Work Order: 1803459
Lab ID: 1803459-06
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|------------------------------------|--------|------|-------------------------|------------|-----------------|--|
| Fluoride | 9.5 | | 1.0 | mg/L | 10 | 3/15/2018 08:26 PM |
| Sulfate | 23 | | 10 | mg/L | 10 | 3/15/2018 08:26 PM |
| AMMONIA AS NITROGEN | | | | | | |
| Ammonia as Nitrogen | U | | A4500-NH3 G-11 0.15 | mg NH3-N/L | 1 | Prep: A4500-NH3 B 3/9/18 10:00 Analyst: JJJ 3/12/2018 07:58 AM |
| NITROGEN, NITRITE | | | | | | |
| Nitrogen, Nitrite | 0.0023 | J | A4500-NO2 B-11 0.020 | mg/L | 1 | Analyst: ED 3/8/2018 04:15 PM |
| NITROGEN, NITRATE | | | | | | |
| Nitrogen, Nitrate | 2.5 | | E353.2 R2.0 0.020 | mg/L | 1 | Analyst: JJJ 3/9/2018 10:06 AM |
| PH (LABORATORY) | | | | | | |
| pH (laboratory) | 8.6 | | SW9040C 0.10 | s.u. | 1 | Analyst: ED 3/8/2018 04:00 PM |
| SULFIDE | | | | | | |
| Sulfide | U | | E376.1 1.0 | mg/L | 1 | Analyst: EE 3/9/2018 12:45 PM |
| SPECIFIC CONDUCTANCE @ 25°C | | | | | | |
| Specific Conductance | 9,000 | | A2510 B-11 5.0 | µmhos/cm | 1 | Analyst: ED 3/8/2018 04:00 PM |
| TOTAL DISSOLVED SOLIDS | | | | | | |
| Total Dissolved Solids | 5,600 | | A2540 C-11 10 | mg/L | 1 | Prep: FILTER 3/14/18 08:00 Analyst: MT 3/14/2018 04:03 PM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPR2ST
Collection Date: 3/7/2018 12:45 PM

Work Order: 1803459
Lab ID: 1803459-07
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|----------------|------|-------------------|-------------|----------------------------|--------------------|
| GASES IN WATER | | | RSK-175 | | | Analyst: KB |
| Ethane | U | | 5.0 | µg/L | 1 | 3/12/2018 11:56 AM |
| Ethene | U | | 5.0 | µg/L | 1 | 3/12/2018 11:56 AM |
| Methane | 6.5 | | 5.0 | µg/L | 1 | 3/12/2018 11:56 AM |
| Propane | U | | 5.0 | µg/L | 1 | 3/12/2018 11:56 AM |
| METALS BY ICP-MS (DISSOLVED) | | | SW6020A | | Prep: FILTER 3/12/18 11:35 | Analyst: JF |
| Arsenic | 0.0019 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:23 PM |
| Barium | 0.082 | | 0.0050 | mg/L | 1 | 3/12/2018 03:23 PM |
| Cadmium | U | | 0.0020 | mg/L | 1 | 3/12/2018 03:23 PM |
| Calcium | 65 | | 0.50 | mg/L | 1 | 3/12/2018 03:23 PM |
| Chromium | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:23 PM |
| Iron | 0.0076 | J | 0.080 | mg/L | 1 | 3/12/2018 03:23 PM |
| Lead | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:23 PM |
| Magnesium | 34 | | 0.20 | mg/L | 1 | 3/12/2018 03:23 PM |
| Manganese | 0.00062 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:23 PM |
| Potassium | 0.90 | | 0.20 | mg/L | 1 | 3/12/2018 03:23 PM |
| Selenium | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:23 PM |
| Silver | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:23 PM |
| Sodium | 57 | | 0.20 | mg/L | 1 | 3/12/2018 03:23 PM |
| VOLATILE ORGANIC COMPOUNDS | | | SW8260B | | | Analyst: AK |
| Benzene | U | | 1.0 | µg/L | 1 | 3/9/2018 06:37 PM |
| Ethylbenzene | U | | 1.0 | µg/L | 1 | 3/9/2018 06:37 PM |
| m,p-Xylene | U | | 2.0 | µg/L | 1 | 3/9/2018 06:37 PM |
| Methyl tert-butyl ether | U | | 1.0 | µg/L | 1 | 3/9/2018 06:37 PM |
| o-Xylene | U | | 1.0 | µg/L | 1 | 3/9/2018 06:37 PM |
| Toluene | U | | 1.0 | µg/L | 1 | 3/9/2018 06:37 PM |
| Xylenes, Total | U | | 3.0 | µg/L | 1 | 3/9/2018 06:37 PM |
| Surr: 1,2-Dichloroethane-d4 | 103 | | 75-120 | %REC | 1 | 3/9/2018 06:37 PM |
| Surr: 4-Bromofluorobenzene | 94.6 | | 80-110 | %REC | 1 | 3/9/2018 06:37 PM |
| Surr: Dibromofluoromethane | 97.8 | | 85-115 | %REC | 1 | 3/9/2018 06:37 PM |
| Surr: Toluene-d8 | 97.1 | | 85-110 | %REC | 1 | 3/9/2018 06:37 PM |
| ALKALINITY | | | A2320 B-11 | | | Analyst: ED |
| Alkalinity, Bicarbonate (as CaCO3) | 300 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Carbonate (as CaCO3) | 16 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Total (as CaCO3) | 310 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| ANIONS BY ION CHROMATOGRAPHY | | | SW9056A | | | Analyst: EE |
| Bromide | U | | 0.20 | mg/L | 1 | 3/15/2018 03:58 PM |
| Chloride | 8.5 | | 1.0 | mg/L | 1 | 3/15/2018 03:58 PM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPR2ST
Collection Date: 3/7/2018 12:45 PM

Work Order: 1803459
Lab ID: 1803459-07
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|------------------------------------|---------|------|-------------------------|------------|-----------------|--|
| Fluoride | 0.23 | | 0.10 | mg/L | 1 | 3/15/2018 03:58 PM |
| Sulfate | 90 | | 10 | mg/L | 10 | 3/15/2018 04:17 PM |
| AMMONIA AS NITROGEN | | | | | | |
| Ammonia as Nitrogen | U | | A4500-NH3 G-11 0.15 | mg NH3-N/L | 1 | Prep: A4500-NH3 B 3/9/18 10:00 Analyst: JJJ 3/12/2018 07:58 AM |
| NITROGEN, NITRITE | | | | | | |
| Nitrogen, Nitrite | 0.00090 | J | A4500-NO2 B-11 0.020 | mg/L | 1 | Analyst: ED 3/8/2018 04:15 PM |
| NITROGEN, NITRATE | | | | | | |
| Nitrogen, Nitrate | 0.23 | | E353.2 R2.0 0.020 | mg/L | 1 | Analyst: JJJ 3/9/2018 10:06 AM |
| PH (LABORATORY) | | | | | | |
| pH (laboratory) | 8.4 | | SW9040C 0.10 | s.u. | 1 | Analyst: ED 3/8/2018 04:00 PM |
| SULFIDE | | | | | | |
| Sulfide | U | | E376.1 1.0 | mg/L | 1 | Analyst: EE 3/9/2018 12:45 PM |
| SPECIFIC CONDUCTANCE @ 25°C | | | | | | |
| Specific Conductance | 730 | | A2510 B-11 5.0 | µmhos/cm | 1 | Analyst: ED 3/8/2018 04:00 PM |
| TOTAL DISSOLVED SOLIDS | | | | | | |
| Total Dissolved Solids | 430 | | A2540 C-11 10 | mg/L | 1 | Prep: FILTER 3/14/18 08:00 Analyst: MT 3/14/2018 04:03 PM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPR3MW
Collection Date: 3/7/2018 01:45 PM

Work Order: 1803459
Lab ID: 1803459-08
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|-------------------------------------|--------|------|-------------------|-------|----------------------------|--------------------|
| GASES IN WATER | | | | | | |
| | | | RSK-175 | | | Analyst: KB |
| Ethane | 0.37 | J | 5.0 | µg/L | 1 | 3/12/2018 11:58 AM |
| Ethene | U | | 5.0 | µg/L | 1 | 3/12/2018 11:58 AM |
| Methane | 4.3 | J | 5.0 | µg/L | 1 | 3/12/2018 11:58 AM |
| Propane | 0.49 | J | 5.0 | µg/L | 1 | 3/12/2018 11:58 AM |
| METALS BY ICP-MS (DISSOLVED) | | | | | | |
| | | | SW6020A | | Prep: FILTER 3/12/18 11:35 | Analyst: JF |
| Arsenic | 0.0031 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:25 PM |
| Barium | 0.056 | | 0.0050 | mg/L | 1 | 3/12/2018 03:25 PM |
| Cadmium | U | | 0.0020 | mg/L | 1 | 3/12/2018 03:25 PM |
| Calcium | 59 | | 0.50 | mg/L | 1 | 3/12/2018 03:25 PM |
| Chromium | 0.0012 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:25 PM |
| Iron | 0.027 | J | 0.080 | mg/L | 1 | 3/12/2018 03:25 PM |
| Lead | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:25 PM |
| Magnesium | 39 | | 0.20 | mg/L | 1 | 3/12/2018 03:25 PM |
| Manganese | 0.0016 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:25 PM |
| Potassium | 2.2 | | 0.20 | mg/L | 1 | 3/12/2018 03:25 PM |
| Selenium | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:25 PM |
| Silver | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:25 PM |
| Sodium | 75 | | 0.20 | mg/L | 1 | 3/12/2018 03:25 PM |
| VOLATILE ORGANIC COMPOUNDS | | | | | | |
| | | | SW8260B | | | Analyst: AK |
| Benzene | U | | 1.0 | µg/L | 1 | 3/9/2018 06:53 PM |
| Ethylbenzene | U | | 1.0 | µg/L | 1 | 3/9/2018 06:53 PM |
| m,p-Xylene | U | | 2.0 | µg/L | 1 | 3/9/2018 06:53 PM |
| Methyl tert-butyl ether | U | | 1.0 | µg/L | 1 | 3/9/2018 06:53 PM |
| o-Xylene | U | | 1.0 | µg/L | 1 | 3/9/2018 06:53 PM |
| Toluene | U | | 1.0 | µg/L | 1 | 3/9/2018 06:53 PM |
| Xylenes, Total | U | | 3.0 | µg/L | 1 | 3/9/2018 06:53 PM |
| Surr: 1,2-Dichloroethane-d4 | 103 | | 75-120 | %REC | 1 | 3/9/2018 06:53 PM |
| Surr: 4-Bromofluorobenzene | 93.4 | | 80-110 | %REC | 1 | 3/9/2018 06:53 PM |
| Surr: Dibromofluoromethane | 99.8 | | 85-115 | %REC | 1 | 3/9/2018 06:53 PM |
| Surr: Toluene-d8 | 97.3 | | 85-110 | %REC | 1 | 3/9/2018 06:53 PM |
| ALKALINITY | | | | | | |
| | | | A2320 B-11 | | | Analyst: ED |
| Alkalinity, Bicarbonate (as CaCO3) | 320 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Carbonate (as CaCO3) | U | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Total (as CaCO3) | 320 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| ANIONS BY ION CHROMATOGRAPHY | | | | | | |
| | | | SW9056A | | | Analyst: EE |
| Bromide | 0.12 | J | 0.20 | mg/L | 1 | 3/15/2018 04:36 PM |
| Chloride | 28 | | 10 | mg/L | 10 | 3/15/2018 04:55 PM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPR3MW
Collection Date: 3/7/2018 01:45 PM

Work Order: 1803459
Lab ID: 1803459-08
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|------------------------------------|--------|------|-----------------------|--------------------------------|-----------------|---------------------|
| Fluoride | 0.68 | | 0.10 | mg/L | 1 | 3/15/2018 04:36 PM |
| Sulfate | 100 | | 10 | mg/L | 10 | 3/15/2018 04:55 PM |
| AMMONIA AS NITROGEN | | | A4500-NH3 G-11 | Prep: A4500-NH3 B 3/9/18 10:00 | | Analyst: JJG |
| Ammonia as Nitrogen | U | | 0.15 | mg NH3-N/L | 1 | 3/12/2018 07:58 AM |
| NITROGEN, NITRITE | | | A4500-NO2 B-11 | | | Analyst: ED |
| Nitrogen, Nitrite | U | | 0.020 | mg/L | 1 | 3/8/2018 04:15 PM |
| NITROGEN, NITRATE | | | E353.2 R2.0 | | | Analyst: JJG |
| Nitrogen, Nitrate | 0.39 | | 0.020 | mg/L | 1 | 3/9/2018 10:06 AM |
| PH (LABORATORY) | | | SW9040C | | | Analyst: ED |
| pH (laboratory) | 7.9 | | 0.10 | s.u. | 1 | 3/8/2018 04:00 PM |
| SULFIDE | | | E376.1 | | | Analyst: EE |
| Sulfide | 0.48 | J | 1.0 | mg/L | 1 | 3/9/2018 12:45 PM |
| SPECIFIC CONDUCTANCE @ 25°C | | | A2510 B-11 | | | Analyst: ED |
| Specific Conductance | 840 | | 5.0 | µmhos/cm | 1 | 3/8/2018 04:00 PM |
| TOTAL DISSOLVED SOLIDS | | | A2540 C-11 | Prep: FILTER 3/14/18 08:00 | | Analyst: MT |
| Total Dissolved Solids | 400 | | 33 | mg/L | 1 | 3/14/2018 04:03 PM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPR15ST
Collection Date: 3/7/2018 02:15 PM

Work Order: 1803459
Lab ID: 1803459-09
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---------------|------|-------------------|-------------|----------------------------|--------------------|
| GASES IN WATER | | | RSK-175 | | | Analyst: KB |
| Ethane | U | | 5.0 | µg/L | 1 | 3/12/2018 12:00 PM |
| Ethene | U | | 5.0 | µg/L | 1 | 3/12/2018 12:00 PM |
| Methane | 4.1 | J | 5.0 | µg/L | 1 | 3/12/2018 12:00 PM |
| Propane | U | | 5.0 | µg/L | 1 | 3/12/2018 12:00 PM |
| METALS BY ICP-MS (DISSOLVED) | | | SW6020A | | Prep: FILTER 3/12/18 11:35 | Analyst: JF |
| Arsenic | 0.0040 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:27 PM |
| Barium | 0.050 | | 0.0050 | mg/L | 1 | 3/12/2018 03:27 PM |
| Cadmium | U | | 0.0020 | mg/L | 1 | 3/12/2018 03:27 PM |
| Calcium | 50 | | 0.50 | mg/L | 1 | 3/12/2018 03:27 PM |
| Chromium | 0.0010 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:27 PM |
| Iron | U | | 0.080 | mg/L | 1 | 3/12/2018 03:27 PM |
| Lead | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:27 PM |
| Magnesium | 31 | | 0.20 | mg/L | 1 | 3/12/2018 03:27 PM |
| Manganese | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:27 PM |
| Potassium | 2.1 | | 0.20 | mg/L | 1 | 3/12/2018 03:27 PM |
| Selenium | 0.0027 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:27 PM |
| Silver | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:27 PM |
| Sodium | 47 | | 0.20 | mg/L | 1 | 3/12/2018 03:27 PM |
| VOLATILE ORGANIC COMPOUNDS | | | SW8260B | | | Analyst: AK |
| Benzene | U | | 1.0 | µg/L | 1 | 3/9/2018 07:08 PM |
| Ethylbenzene | U | | 1.0 | µg/L | 1 | 3/9/2018 07:08 PM |
| m,p-Xylene | U | | 2.0 | µg/L | 1 | 3/9/2018 07:08 PM |
| Methyl tert-butyl ether | U | | 1.0 | µg/L | 1 | 3/9/2018 07:08 PM |
| o-Xylene | U | | 1.0 | µg/L | 1 | 3/9/2018 07:08 PM |
| Toluene | U | | 1.0 | µg/L | 1 | 3/9/2018 07:08 PM |
| Xylenes, Total | U | | 3.0 | µg/L | 1 | 3/9/2018 07:08 PM |
| Surr: 1,2-Dichloroethane-d4 | 104 | | 75-120 | %REC | 1 | 3/9/2018 07:08 PM |
| Surr: 4-Bromofluorobenzene | 94.7 | | 80-110 | %REC | 1 | 3/9/2018 07:08 PM |
| Surr: Dibromofluoromethane | 99.2 | | 85-115 | %REC | 1 | 3/9/2018 07:08 PM |
| Surr: Toluene-d8 | 97.6 | | 85-110 | %REC | 1 | 3/9/2018 07:08 PM |
| ALKALINITY | | | A2320 B-11 | | | Analyst: ED |
| Alkalinity, Bicarbonate (as CaCO3) | 230 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Carbonate (as CaCO3) | 28 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Total (as CaCO3) | 260 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| ANIONS BY ION CHROMATOGRAPHY | | | SW9056A | | | Analyst: EE |
| Bromide | U | | 0.20 | mg/L | 1 | 3/15/2018 05:14 PM |
| Chloride | 9.9 | | 1.0 | mg/L | 1 | 3/15/2018 05:14 PM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPR15ST
Collection Date: 3/7/2018 02:15 PM

Work Order: 1803459
Lab ID: 1803459-09
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|------------------------------------|---------|------|-----------------------|--------------------------------|-----------------|---------------------|
| Fluoride | 0.71 | | 0.10 | mg/L | 1 | 3/15/2018 05:14 PM |
| Sulfate | 71 | | 10 | mg/L | 10 | 3/15/2018 05:34 PM |
| AMMONIA AS NITROGEN | | | A4500-NH3 G-11 | Prep: A4500-NH3 B 3/9/18 10:00 | | Analyst: JJG |
| Ammonia as Nitrogen | 0.25 | | 0.15 | mg NH3-N/L | 1 | 3/12/2018 07:58 AM |
| NITROGEN, NITRITE | | | A4500-NO2 B-11 | | | Analyst: ED |
| Nitrogen, Nitrite | 0.00090 | J | 0.020 | mg/L | 1 | 3/8/2018 04:15 PM |
| NITROGEN, NITRATE | | | E353.2 R2.0 | | | Analyst: JJG |
| Nitrogen, Nitrate | 0.77 | | 0.020 | mg/L | 1 | 3/9/2018 10:06 AM |
| PH (LABORATORY) | | | SW9040C | | | Analyst: ED |
| pH (laboratory) | 8.6 | | 0.10 | s.u. | 1 | 3/8/2018 04:00 PM |
| SULFIDE | | | E376.1 | | | Analyst: EE |
| Sulfide | U | | 1.0 | mg/L | 1 | 3/9/2018 12:45 PM |
| SPECIFIC CONDUCTANCE @ 25°C | | | A2510 B-11 | | | Analyst: ED |
| Specific Conductance | 630 | | 5.0 | µmhos/cm | 1 | 3/8/2018 04:00 PM |
| TOTAL DISSOLVED SOLIDS | | | A2540 C-11 | Prep: FILTER 3/14/18 08:00 | | Analyst: MT |
| Total Dissolved Solids | 350 | | 10 | mg/L | 1 | 3/14/2018 04:03 PM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPRDUPA
Collection Date: 3/7/2018 09:45 AM

Work Order: 1803459
Lab ID: 1803459-10
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|---|---------------|------|-------------------|-------------|----------------------------|--------------------|
| GASES IN WATER | | | RSK-175 | | | Analyst: KB |
| Ethane | U | | 5.0 | µg/L | 1 | 3/12/2018 12:02 PM |
| Ethene | U | | 5.0 | µg/L | 1 | 3/12/2018 12:02 PM |
| Methane | 3.6 | J | 5.0 | µg/L | 1 | 3/12/2018 12:02 PM |
| Propane | U | | 5.0 | µg/L | 1 | 3/12/2018 12:02 PM |
| METALS BY ICP-MS (DISSOLVED) | | | SW6020A | | Prep: FILTER 3/12/18 11:35 | Analyst: JF |
| Arsenic | 0.0041 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:28 PM |
| Barium | 0.050 | | 0.0050 | mg/L | 1 | 3/12/2018 03:28 PM |
| Cadmium | U | | 0.0020 | mg/L | 1 | 3/12/2018 03:28 PM |
| Calcium | 50 | | 0.50 | mg/L | 1 | 3/12/2018 03:28 PM |
| Chromium | 0.0010 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:28 PM |
| Iron | U | | 0.080 | mg/L | 1 | 3/12/2018 03:28 PM |
| Lead | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:28 PM |
| Magnesium | 31 | | 0.20 | mg/L | 1 | 3/12/2018 03:28 PM |
| Manganese | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:28 PM |
| Potassium | 2.1 | | 0.20 | mg/L | 1 | 3/12/2018 03:28 PM |
| Selenium | 0.0024 | J | 0.0050 | mg/L | 1 | 3/12/2018 03:28 PM |
| Silver | U | | 0.0050 | mg/L | 1 | 3/12/2018 03:28 PM |
| Sodium | 47 | | 0.20 | mg/L | 1 | 3/12/2018 03:28 PM |
| VOLATILE ORGANIC COMPOUNDS | | | SW8260B | | | Analyst: AK |
| Benzene | U | | 1.0 | µg/L | 1 | 3/9/2018 07:24 PM |
| Ethylbenzene | U | | 1.0 | µg/L | 1 | 3/9/2018 07:24 PM |
| m,p-Xylene | U | | 2.0 | µg/L | 1 | 3/9/2018 07:24 PM |
| Methyl tert-butyl ether | U | | 1.0 | µg/L | 1 | 3/9/2018 07:24 PM |
| o-Xylene | U | | 1.0 | µg/L | 1 | 3/9/2018 07:24 PM |
| Toluene | U | | 1.0 | µg/L | 1 | 3/9/2018 07:24 PM |
| Xylenes, Total | U | | 3.0 | µg/L | 1 | 3/9/2018 07:24 PM |
| Surr: 1,2-Dichloroethane-d4 | 103 | | 75-120 | %REC | 1 | 3/9/2018 07:24 PM |
| Surr: 4-Bromofluorobenzene | 95.0 | | 80-110 | %REC | 1 | 3/9/2018 07:24 PM |
| Surr: Dibromofluoromethane | 100 | | 85-115 | %REC | 1 | 3/9/2018 07:24 PM |
| Surr: Toluene-d8 | 96.6 | | 85-110 | %REC | 1 | 3/9/2018 07:24 PM |
| ALKALINITY | | | A2320 B-11 | | | Analyst: ED |
| Alkalinity, Bicarbonate (as CaCO3) | 230 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Carbonate (as CaCO3) | 31 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| Alkalinity, Total (as CaCO3) | 260 | | 10 | mg/L | 1 | 3/8/2018 04:00 PM |
| ANIONS BY ION CHROMATOGRAPHY | | | SW9056A | | | Analyst: EE |
| Bromide | U | | 0.20 | mg/L | 1 | 3/15/2018 05:53 PM |
| Chloride | 9.9 | | 1.0 | mg/L | 1 | 3/15/2018 05:53 PM |

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

ALS Group, USA

Date: 16-Mar-18

Client: Caerus Oil and Gas LLC
Project: NPR Quarterly Water
Sample ID: 20180307-NPRDUPA
Collection Date: 3/7/2018 09:45 AM

Work Order: 1803459
Lab ID: 1803459-10
Matrix: WATER

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | Date Analyzed |
|------------------------------------|---------|------|-----------------------|--------------------------------|-----------------|---------------------|
| Fluoride | 0.69 | | 0.10 | mg/L | 1 | 3/15/2018 05:53 PM |
| Sulfate | 70 | | 10 | mg/L | 10 | 3/15/2018 06:50 PM |
| AMMONIA AS NITROGEN | | | A4500-NH3 G-11 | Prep: A4500-NH3 B 3/9/18 10:00 | | Analyst: JJG |
| Ammonia as Nitrogen | 0.47 | | 0.15 | mg NH3-N/L | 1 | 3/12/2018 07:58 AM |
| NITROGEN, NITRITE | | | A4500-NO2 B-11 | | | Analyst: ED |
| Nitrogen, Nitrite | 0.00090 | J | 0.020 | mg/L | 1 | 3/8/2018 04:15 PM |
| NITROGEN, NITRATE | | | E353.2 R2.0 | | | Analyst: JJG |
| Nitrogen, Nitrate | 0.77 | | 0.020 | mg/L | 1 | 3/9/2018 10:06 AM |
| PH (LABORATORY) | | | SW9040C | | | Analyst: ED |
| pH (laboratory) | 8.6 | | 0.10 | s.u. | 1 | 3/8/2018 04:00 PM |
| SULFIDE | | | E376.1 | | | Analyst: EE |
| Sulfide | U | | 1.0 | mg/L | 1 | 3/9/2018 12:45 PM |
| SPECIFIC CONDUCTANCE @ 25°C | | | A2510 B-11 | | | Analyst: ED |
| Specific Conductance | 630 | | 5.0 | µmhos/cm | 1 | 3/8/2018 04:00 PM |
| TOTAL DISSOLVED SOLIDS | | | A2540 C-11 | Prep: FILTER 3/14/18 08:00 | | Analyst: MT |
| Total Dissolved Solids | 330 | | 10 | mg/L | 1 | 3/14/2018 04:03 PM |

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

Client: Caerus Oil and Gas LLC
Work Order: 1803459
Project: NPR Quarterly Water

QC BATCH REPORT

Batch ID: **R231518** Instrument ID **GC10** Method: **RSK-175**

| | | | | | | | | | | |
|-------------|--------|--|---------|---------------|------|-----------------------|---------------|--|-----------|--------------|
| MBLK | | Sample ID: RBLK1-180312-R231518 | | | | Units: µg/L | | Analysis Date: 3/12/2018 11:30 AM | | |
| Client ID: | | Run ID: GC10_180312A | | | | SeqNo: 4929550 | | 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 | 1.9 | 5.0 | | | | | | | | J |
| Propane | U | 5.0 | | | | | | | | |

| | | | | | | | | | | |
|------------|--------|--|---------|---------------|------|-----------------------|---------------|--|-----------|--------------|
| LCS | | Sample ID: RLCS1-180312-R231518 | | | | Units: µg/L | | Analysis Date: 3/12/2018 11:28 AM | | |
| Client ID: | | Run ID: GC10_180312A | | | | SeqNo: 4929549 | | Prep Date: | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

| | | | | | | | | | | |
|---------|-------|-----|------|---|------|--------|---|--|--|--|
| Ethane | 35.55 | 5.0 | 36.1 | 0 | 98.5 | 75-125 | 0 | | | |
| Ethene | 32.65 | 5.0 | 33.7 | 0 | 96.9 | 75-125 | 0 | | | |
| Methane | 22.46 | 5.0 | 19.2 | 0 | 117 | 75-125 | 0 | | | |
| Propane | 50.51 | 5.0 | 52.8 | 0 | 95.7 | 75-125 | 0 | | | |

| | | | | | | | | | | |
|------------|--------|----------------------------------|---------|---------------|------|-----------------------|---------------|--|-----------|--------------|
| MS | | Sample ID: 1803348-01C MS | | | | Units: µg/L | | Analysis Date: 3/12/2018 01:47 PM | | |
| Client ID: | | Run ID: GC10_180312A | | | | SeqNo: 4929569 | | Prep Date: | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

| | | | | | | | | | | |
|---------|-------|-----|------|------|------|--------|---|--|--|--|
| Ethane | 36.82 | 5.0 | 36.1 | 0 | 102 | 70-130 | 0 | | | |
| Ethene | 35.66 | 5.0 | 33.7 | 0 | 106 | 70-130 | 0 | | | |
| Methane | 21.17 | 5.0 | 19.2 | 4.93 | 84.6 | 70-130 | 0 | | | |
| Propane | 54.93 | 5.0 | 52.8 | 0 | 104 | 70-130 | 0 | | | |

| | | | | | | | | | | |
|------------|--------|-----------------------------------|---------|---------------|------|-----------------------|---------------|--|-----------|--------------|
| MSD | | Sample ID: 1803348-01C MSD | | | | Units: µg/L | | Analysis Date: 3/12/2018 01:49 PM | | |
| Client ID: | | Run ID: GC10_180312A | | | | SeqNo: 4929570 | | Prep Date: | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

| | | | | | | | | | | |
|---------|-------|-----|------|------|------|--------|-------|------|----|--|
| Ethane | 36.11 | 5.0 | 36.1 | 0 | 100 | 70-130 | 36.82 | 1.95 | 30 | |
| Ethene | 34.88 | 5.0 | 33.7 | 0 | 104 | 70-130 | 35.66 | 2.21 | 30 | |
| Methane | 21.68 | 5.0 | 19.2 | 4.93 | 87.2 | 70-130 | 21.17 | 2.38 | 30 | |
| Propane | 53.66 | 5.0 | 52.8 | 0 | 102 | 70-130 | 54.93 | 2.34 | 30 | |

The following samples were analyzed in this batch:

| | | |
|-------------|-------------|-------------|
| 1803459-01A | 1803459-02A | 1803459-03A |
| 1803459-04A | 1803459-05A | 1803459-06A |
| 1803459-07A | 1803459-08A | 1803459-09A |
| 1803459-10A | | |

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

Client: Caerus Oil and Gas LLC
Work Order: 1803459
Project: NPR Quarterly Water

QC BATCH REPORT

Batch ID: **115306** Instrument ID **ICPMS3** Method: **SW6020A** (Dissolve)

| MBLK | | Sample ID: MBLK-115306-115306 | | | | Units: mg/L | | Analysis Date: 3/12/2018 03:04 PM | | |
|------------|----------|--------------------------------------|---------|---------------|------|-----------------------|---------------|--|-----------|--------------|
| Client ID: | | Run ID: ICPMS3_180312A | | | | SeqNo: 4930108 | | Prep Date: 3/12/2018 | | 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 | | | | | | | | |
| Iron | U | 0.080 | | | | | | | | |
| Lead | U | 0.0050 | | | | | | | | |
| Magnesium | U | 0.20 | | | | | | | | |
| Manganese | 0.002696 | 0.0050 | | | | | | | | J |
| Potassium | U | 0.20 | | | | | | | | |
| Selenium | U | 0.0050 | | | | | | | | |
| Silver | U | 0.0050 | | | | | | | | |
| Sodium | 0.04479 | 0.20 | | | | | | | | J |

| LCS | | Sample ID: LCS-115306-115306 | | | | Units: mg/L | | Analysis Date: 3/12/2018 03:05 PM | | |
|------------|---------|-------------------------------------|---------|---------------|------|-----------------------|---------------|--|-----------|--------------|
| Client ID: | | Run ID: ICPMS3_180312A | | | | SeqNo: 4930109 | | Prep Date: 3/12/2018 | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Arsenic | 0.09568 | 0.0050 | 0.1 | 0 | 95.7 | 80-120 | 0 | | | |
| Barium | 0.09588 | 0.0050 | 0.1 | 0 | 95.9 | 80-120 | 0 | | | |
| Cadmium | 0.09611 | 0.0020 | 0.1 | 0 | 96.1 | 80-120 | 0 | | | |
| Calcium | 9.799 | 0.50 | 10 | 0 | 98 | 80-120 | 0 | | | |
| Chromium | 0.09617 | 0.0050 | 0.1 | 0 | 96.2 | 80-120 | 0 | | | |
| Iron | 9.682 | 0.080 | 10 | 0 | 96.8 | 80-120 | 0 | | | |
| Lead | 0.09495 | 0.0050 | 0.1 | 0 | 94.9 | 80-120 | 0 | | | |
| Magnesium | 9.978 | 0.20 | 10 | 0 | 99.8 | 80-120 | 0 | | | |
| Manganese | 0.09712 | 0.0050 | 0.1 | 0 | 97.1 | 80-120 | 0 | | | |
| Potassium | 9.783 | 0.20 | 10 | 0 | 97.8 | 80-120 | 0 | | | |
| Selenium | 0.09706 | 0.0050 | 0.1 | 0 | 97.1 | 80-120 | 0 | | | |
| Silver | 0.09639 | 0.0050 | 0.1 | 0 | 96.4 | 80-120 | 0 | | | |
| Sodium | 9.895 | 0.20 | 10 | 0 | 98.9 | 80-120 | 0 | | | |

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

Client: Caerus Oil and Gas LLC
Work Order: 1803459
Project: NPR Quarterly Water

QC BATCH REPORT

Batch ID: **115306** Instrument ID **ICPMS3** Method: **SW6020A** (Dissolve)

| MS | | | | Sample ID: 1803459-01EMS | | | Units: mg/L | | Analysis Date: 3/12/2018 03:08 PM | |
|-----------------------------|---------|--------|---------|--------------------------|------|---------------|----------------|------|-----------------------------------|------|
| Client ID: 20180307-NPR12ST | | | | Run ID: ICPMS3_180312A | | | SeqNo: 4930111 | | Prep Date: 3/12/2018 | |
| | | | | | | | DF: 1 | | | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Arsenic | 0.1066 | 0.0050 | 0.1 | 0.003996 | 103 | 75-125 | 0 | | | |
| Barium | 0.1549 | 0.0050 | 0.1 | 0.05191 | 103 | 75-125 | 0 | | | |
| Cadmium | 0.09575 | 0.0020 | 0.1 | 0.000023 | 95.7 | 75-125 | 0 | | | |
| Calcium | 71.03 | 0.50 | 10 | 59.16 | 119 | 75-125 | 0 | | | O |
| Chromium | 0.09806 | 0.0050 | 0.1 | 0.001218 | 96.8 | 75-125 | 0 | | | |
| Iron | 9.756 | 0.080 | 10 | 0.003684 | 97.5 | 75-125 | 0 | | | |
| Lead | 0.09804 | 0.0050 | 0.1 | -0.000016 | 98.1 | 75-125 | 0 | | | |
| Magnesium | 54.04 | 0.20 | 10 | 44.73 | 93.1 | 75-125 | 0 | | | O |
| Manganese | 0.1001 | 0.0050 | 0.1 | 0.000174 | 99.9 | 75-125 | 0 | | | |
| Potassium | 12.93 | 0.20 | 10 | 3.026 | 99 | 75-125 | 0 | | | |
| Selenium | 0.1104 | 0.0050 | 0.1 | 0.00405 | 106 | 75-125 | 0 | | | |
| Silver | 0.09313 | 0.0050 | 0.1 | 0.000007 | 93.1 | 75-125 | 0 | | | |
| Sodium | 67.6 | 0.20 | 10 | 58.13 | 94.7 | 75-125 | 0 | | | O |

| MSD | | | | Sample ID: 1803459-01EMS | | | Units: mg/L | | Analysis Date: 3/12/2018 03:10 PM | |
|-----------------------------|---------|--------|---------|--------------------------|------|---------------|----------------|--------|-----------------------------------|------|
| Client ID: 20180307-NPR12ST | | | | Run ID: ICPMS3_180312A | | | SeqNo: 4930112 | | Prep Date: 3/12/2018 | |
| | | | | | | | DF: 1 | | | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Arsenic | 0.1067 | 0.0050 | 0.1 | 0.003996 | 103 | 75-125 | 0.1066 | 0.0815 | 20 | |
| Barium | 0.1511 | 0.0050 | 0.1 | 0.05191 | 99.2 | 75-125 | 0.1549 | 2.5 | 20 | |
| Cadmium | 0.09655 | 0.0020 | 0.1 | 0.000023 | 96.5 | 75-125 | 0.09575 | 0.831 | 20 | |
| Calcium | 69.81 | 0.50 | 10 | 59.16 | 106 | 75-125 | 71.03 | 1.74 | 20 | O |
| Chromium | 0.09819 | 0.0050 | 0.1 | 0.001218 | 97 | 75-125 | 0.09806 | 0.128 | 20 | |
| Iron | 9.801 | 0.080 | 10 | 0.003684 | 98 | 75-125 | 9.756 | 0.457 | 20 | |
| Lead | 0.1004 | 0.0050 | 0.1 | -0.000016 | 100 | 75-125 | 0.09804 | 2.39 | 20 | |
| Magnesium | 53.01 | 0.20 | 10 | 44.73 | 82.8 | 75-125 | 54.04 | 1.92 | 20 | O |
| Manganese | 0.1005 | 0.0050 | 0.1 | 0.000174 | 100 | 75-125 | 0.1001 | 0.462 | 20 | |
| Potassium | 12.99 | 0.20 | 10 | 3.026 | 99.7 | 75-125 | 12.93 | 0.493 | 20 | |
| Selenium | 0.1091 | 0.0050 | 0.1 | 0.00405 | 105 | 75-125 | 0.1104 | 1.14 | 20 | |
| Silver | 0.09141 | 0.0050 | 0.1 | 0.000007 | 91.4 | 75-125 | 0.09313 | 1.87 | 20 | |
| Sodium | 67.18 | 0.20 | 10 | 58.13 | 90.5 | 75-125 | 67.6 | 0.616 | 20 | O |

The following samples were analyzed in this batch:

| | | |
|-------------|-------------|-------------|
| 1803459-01E | 1803459-02E | 1803459-03E |
| 1803459-04E | 1803459-05E | 1803459-06E |
| 1803459-07E | 1803459-08E | 1803459-09E |
| 1803459-10E | | |

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

Client: Caerus Oil and Gas LLC
Work Order: 1803459
Project: NPR Quarterly Water

QC BATCH REPORT

Batch ID: **R231392** Instrument ID **VMS10** Method: **SW8260B**

| MBLK | | | | Sample ID: VBLKW1-180309-R231392 | | | | Units: µg/L | | Analysis Date: 3/9/2018 01:58 PM | |
|-----------------------------|--------|-----|-----------------------|----------------------------------|------|----------------|---------------|-------------|-----------|----------------------------------|--|
| Client ID: | | | Run ID: VMS10_180309A | | | SeqNo: 4928778 | | 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 | | | | | | | | | |
| Surr: 1,2-Dichloroethane-d4 | 20.01 | 0 | 20 | 0 | 100 | 75-120 | | 0 | | | |
| Surr: 4-Bromofluorobenzene | 18.89 | 0 | 20 | 0 | 94.4 | 80-110 | | 0 | | | |
| Surr: Dibromofluoromethane | 19.95 | 0 | 20 | 0 | 99.8 | 85-115 | | 0 | | | |
| Surr: Toluene-d8 | 19.2 | 0 | 20 | 0 | 96 | 85-110 | | 0 | | | |

| LCS | | | | Sample ID: VLCSW1-180309-R231392 | | | | Units: µg/L | | Analysis Date: 3/9/2018 01:11 PM | |
|-----------------------------|--------|-----|-----------------------|----------------------------------|------|----------------|---------------|-------------|-----------|----------------------------------|--|
| Client ID: | | | Run ID: VMS10_180309A | | | SeqNo: 4928777 | | Prep Date: | | DF: 1 | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual | |
| Benzene | 20.41 | 1.0 | 20 | 0 | 102 | 85-125 | 0 | | | | |
| Ethylbenzene | 20.02 | 1.0 | 20 | 0 | 100 | 76-123 | 0 | | | | |
| m,p-Xylene | 40.71 | 2.0 | 40 | 0 | 102 | 75-130 | 0 | | | | |
| Methyl tert-butyl ether | 21.17 | 1.0 | 20 | 0 | 106 | 68-129 | 0 | | | | |
| o-Xylene | 20.12 | 1.0 | 20 | 0 | 101 | 80-125 | 0 | | | | |
| Toluene | 20.11 | 1.0 | 20 | 0 | 101 | 85-125 | 0 | | | | |
| Xylenes, Total | 60.83 | 3.0 | 60 | 0 | 101 | 80-126 | 0 | | | | |
| Surr: 1,2-Dichloroethane-d4 | 20 | 0 | 20 | 0 | 100 | 75-120 | 0 | | | | |
| Surr: 4-Bromofluorobenzene | 20.28 | 0 | 20 | 0 | 101 | 80-110 | 0 | | | | |
| Surr: Dibromofluoromethane | 21.12 | 0 | 20 | 0 | 106 | 85-115 | 0 | | | | |
| Surr: Toluene-d8 | 19.9 | 0 | 20 | 0 | 99.5 | 85-110 | 0 | | | | |

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

Client: Caerus Oil and Gas LLC
 Work Order: 1803459
 Project: NPR Quarterly Water

QC BATCH REPORT

Batch ID: **R231392** Instrument ID **VMS10** Method: **SW8260B**

| MS | | | | Sample ID: 1803205-50A MS | | | Units: µg/L | | Analysis Date: 3/9/2018 07:39 PM | |
|-----------------------------|--------|------------------------------|---------|----------------------------------|-----------------------|---------------|--------------------|------|---|------|
| Client ID: | | Run ID: VMS10_180309A | | | SeqNo: 4928801 | | Prep Date: | | DF: 25 | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Benzene | 573 | 25 | 500 | 0 | 115 | 85-125 | 0 | | | |
| Ethylbenzene | 540 | 25 | 500 | 0 | 108 | 76-123 | 0 | | | |
| m,p-Xylene | 1103 | 50 | 1000 | 0 | 110 | 75-130 | 0 | | | |
| Methyl tert-butyl ether | 520.2 | 25 | 500 | 0 | 104 | 68-129 | 0 | | | |
| o-Xylene | 541.5 | 25 | 500 | 0 | 108 | 80-125 | 0 | | | |
| Toluene | 598.5 | 25 | 500 | 56 | 108 | 85-125 | 0 | | | |
| Xylenes, Total | 1644 | 75 | 1500 | 0 | 110 | 80-126 | 0 | | | |
| Surr: 1,2-Dichloroethane-d4 | 516.2 | 0 | 500 | 0 | 103 | 75-120 | 0 | | | |
| Surr: 4-Bromofluorobenzene | 496.5 | 0 | 500 | 0 | 99.3 | 80-110 | 0 | | | |
| Surr: Dibromofluoromethane | 536.8 | 0 | 500 | 0 | 107 | 85-115 | 0 | | | |
| Surr: Toluene-d8 | 502.5 | 0 | 500 | 0 | 100 | 85-110 | 0 | | | |

| MSD | | | | Sample ID: 1803205-50A MSD | | | Units: µg/L | | Analysis Date: 3/9/2018 07:55 PM | |
|-----------------------------|--------|------------------------------|---------|-----------------------------------|-----------------------|---------------|--------------------|-------|---|------|
| Client ID: | | Run ID: VMS10_180309A | | | SeqNo: 4928802 | | Prep Date: | | DF: 25 | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Benzene | 570.8 | 25 | 500 | 0 | 114 | 85-125 | 573 | 0.393 | 30 | |
| Ethylbenzene | 547 | 25 | 500 | 0 | 109 | 76-123 | 540 | 1.29 | 30 | |
| m,p-Xylene | 1114 | 50 | 1000 | 0 | 111 | 75-130 | 1103 | 1.04 | 30 | |
| Methyl tert-butyl ether | 528.5 | 25 | 500 | 0 | 106 | 68-129 | 520.2 | 1.57 | 30 | |
| o-Xylene | 553.8 | 25 | 500 | 0 | 111 | 80-125 | 541.5 | 2.24 | 30 | |
| Toluene | 603.2 | 25 | 500 | 56 | 109 | 85-125 | 598.5 | 0.791 | 30 | |
| Xylenes, Total | 1668 | 75 | 1500 | 0 | 111 | 80-126 | 1644 | 1.43 | 30 | |
| Surr: 1,2-Dichloroethane-d4 | 509 | 0 | 500 | 0 | 102 | 75-120 | 516.2 | 1.41 | 30 | |
| Surr: 4-Bromofluorobenzene | 505 | 0 | 500 | 0 | 101 | 80-110 | 496.5 | 1.7 | 30 | |
| Surr: Dibromofluoromethane | 523.2 | 0 | 500 | 0 | 105 | 85-115 | 536.8 | 2.55 | 30 | |
| Surr: Toluene-d8 | 492.5 | 0 | 500 | 0 | 98.5 | 85-110 | 502.5 | 2.01 | 30 | |

The following samples were analyzed in this batch:

| | | |
|-------------|-------------|-------------|
| 1803459-01B | 1803459-02B | 1803459-03B |
| 1803459-04B | 1803459-05B | 1803459-06B |
| 1803459-07B | 1803459-08B | 1803459-09B |
| 1803459-10B | | |

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

Client: Caerus Oil and Gas LLC
Work Order: 1803459
Project: NPR Quarterly Water

QC BATCH REPORT

Batch ID: **115260** Instrument ID **LACHAT2** Method: **A4500-NH3 G-11**

| | | | | | | | | | | |
|-------------|--------|--------------------------------------|---------|---------------|------|--------------------------|---------------|--|-----------|--------------|
| MBLK | | Sample ID: MBLK-115260-115260 | | | | Units: mg NH3-N/L | | Analysis Date: 3/12/2018 07:58 AM | | |
| Client ID: | | Run ID: LACHAT2_180312A | | | | SeqNo: 4929190 | | Prep Date: 3/9/2018 | | 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-115260-115260 | | | | Units: mg NH3-N/L | | Analysis Date: 3/12/2018 07:58 AM | | |
| Client ID: | | Run ID: LACHAT2_180312A | | | | SeqNo: 4929191 | | Prep Date: 3/9/2018 | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Ammonia as Nitrogen 0.9505 0.15 1 0 95 80-120 0

| | | | | | | | | | | |
|------------------------------------|--------|----------------------------------|---------|---------------|------|--------------------------|---------------|--|-----------|--------------|
| MS | | Sample ID: 1803459-09F MS | | | | Units: mg NH3-N/L | | Analysis Date: 3/12/2018 07:58 AM | | |
| Client ID: 20180307-NPR15ST | | Run ID: LACHAT2_180312A | | | | SeqNo: 4929212 | | Prep Date: 3/9/2018 | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Ammonia as Nitrogen 0.938 0.15 1 0.2506 68.7 75-125 0 S

| | | | | | | | | | | |
|------------|--------|----------------------------------|---------|---------------|------|--------------------------|---------------|--|-----------|--------------|
| MS | | Sample ID: 1803423-01A MS | | | | Units: mg NH3-N/L | | Analysis Date: 3/12/2018 07:58 AM | | |
| Client ID: | | Run ID: LACHAT2_180312A | | | | SeqNo: 4929221 | | Prep Date: 3/9/2018 | | DF: 2 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Ammonia as Nitrogen 2.708 0.30 1 1.94 76.8 75-125 0

| | | | | | | | | | | |
|------------------------------------|--------|-----------------------------------|---------|---------------|------|--------------------------|---------------|--|-----------|--------------|
| MSD | | Sample ID: 1803459-09F MSD | | | | Units: mg NH3-N/L | | Analysis Date: 3/12/2018 07:58 AM | | |
| Client ID: 20180307-NPR15ST | | Run ID: LACHAT2_180312A | | | | SeqNo: 4929213 | | Prep Date: 3/9/2018 | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Ammonia as Nitrogen 0.9832 0.15 1 0.2506 73.3 75-125 0.938 4.71 25 S

| | | | | | | | | | | |
|------------|--------|-----------------------------------|---------|---------------|------|--------------------------|---------------|--|-----------|--------------|
| MSD | | Sample ID: 1803423-01A MSD | | | | Units: mg NH3-N/L | | Analysis Date: 3/12/2018 07:58 AM | | |
| Client ID: | | Run ID: LACHAT2_180312A | | | | SeqNo: 4929222 | | Prep Date: 3/9/2018 | | DF: 2 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Ammonia as Nitrogen 3.026 0.30 1 1.94 109 75-125 2.708 11.1 25

The following samples were analyzed in this batch:

| | | |
|-------------|-------------|-------------|
| 1803459-01F | 1803459-02F | 1803459-03F |
| 1803459-04F | 1803459-05F | 1803459-06F |
| 1803459-07F | 1803459-08F | 1803459-09F |
| 1803459-10F | | |

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

Client: Caerus Oil and Gas LLC
Work Order: 1803459
Project: NPR Quarterly Water

QC BATCH REPORT

Batch ID: **115360** Instrument ID **TDS** Method: **A2540 C-11**

| | | | | | | | | | | |
|-------------|--------|--------------------------------------|---------|---------------|------|-----------------------|---------------|--|-----------|--------------|
| MBLK | | Sample ID: MBLK-115360-115360 | | | | Units: mg/L | | Analysis Date: 3/14/2018 04:03 PM | | |
| Client ID: | | Run ID: TDS_180314B | | | | SeqNo: 4933425 | | Prep Date: 3/14/2018 | | 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-115360-115360 | | | | Units: mg/L | | Analysis Date: 3/14/2018 04:03 PM | | |
| Client ID: | | Run ID: TDS_180314B | | | | SeqNo: 4933424 | | Prep Date: 3/14/2018 | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Total Dissolved Solids 491 10 495 0 99.2 80-120 0

| | | | | | | | | | | |
|------------------------------------|--------|-----------------------------------|---------|---------------|------|-----------------------|---------------|--|-----------|--------------|
| DUP | | Sample ID: 1803459-01H DUP | | | | Units: mg/L | | Analysis Date: 3/14/2018 04:03 PM | | |
| Client ID: 20180307-NPR12ST | | Run ID: TDS_180314B | | | | SeqNo: 4933406 | | Prep Date: 3/14/2018 | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Total Dissolved Solids 502 10 0 0 0 0-0 489 2.62 10

| | | | | | | | | | | |
|------------------------------------|--------|-----------------------------------|---------|---------------|------|-----------------------|---------------|--|-----------|--------------|
| DUP | | Sample ID: 1803459-09H DUP | | | | Units: mg/L | | Analysis Date: 3/14/2018 04:03 PM | | |
| Client ID: 20180307-NPR15ST | | Run ID: TDS_180314B | | | | SeqNo: 4933415 | | Prep Date: 3/14/2018 | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Total Dissolved Solids 327 10 0 0 0 0-0 351 7.08 10

The following samples were analyzed in this batch:

| | | |
|-------------|-------------|-------------|
| 1803459-01H | 1803459-02H | 1803459-03H |
| 1803459-04H | 1803459-05H | 1803459-06H |
| 1803459-07H | 1803459-08H | 1803459-09H |
| 1803459-10H | | |

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

Client: Caerus Oil and Gas LLC
Work Order: 1803459
Project: NPR Quarterly Water

QC BATCH REPORT

Batch ID: **R231341** Instrument ID **WETCHEM** Method: **A4500-NO2 B-11**

| | | | | | | | | | | |
|-------------|--------|---|---------|---------------|------|-----------------------|---------------|---|-----------|--------------|
| MBLK | | Sample ID: WBLKW1-180308-R231341 | | | | Units: mg/L | | Analysis Date: 3/8/2018 04:15 PM | | |
| Client ID: | | Run ID: WETCHEM_180308L | | | | SeqNo: 4926014 | | 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: WLCSW1-180308-R231341 | | | | Units: mg/L | | Analysis Date: 3/8/2018 04:15 PM | | |
| Client ID: | | Run ID: WETCHEM_180308L | | | | SeqNo: 4926015 | | Prep Date: | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Nitrogen, Nitrite 0.209 0.020 0.2 0 104 80-120 0

| | | | | | | | | | | |
|------------|--------|----------------------------------|---------|---------------|------|-----------------------|---------------|---|-----------|--------------|
| MS | | Sample ID: 1803471-03A MS | | | | Units: mg/L | | Analysis Date: 3/8/2018 04:15 PM | | |
| Client ID: | | Run ID: WETCHEM_180308L | | | | SeqNo: 4926031 | | Prep Date: | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Nitrogen, Nitrite 0.2118 0.020 0.2 0.004 104 75-125 0

| | | | | | | | | | | |
|------------|--------|-----------------------------------|---------|---------------|------|-----------------------|---------------|---|-----------|--------------|
| MSD | | Sample ID: 1803471-03A MSD | | | | Units: mg/L | | Analysis Date: 3/8/2018 04:15 PM | | |
| Client ID: | | Run ID: WETCHEM_180308L | | | | SeqNo: 4926032 | | Prep Date: | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Nitrogen, Nitrite 0.208 0.020 0.2 0.004 102 75-125 0.2118 1.81 20

The following samples were analyzed in this batch:

| | | |
|-------------|-------------|-------------|
| 1803459-01D | 1803459-02D | 1803459-03D |
| 1803459-04D | 1803459-05D | 1803459-06D |
| 1803459-07D | 1803459-08D | 1803459-09D |
| 1803459-10D | | |

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

Client: Caerus Oil and Gas LLC
Work Order: 1803459
Project: NPR Quarterly Water

QC BATCH REPORT

Batch ID: **R231391a** Instrument ID **Titrator 1** Method: **SW9040C**

| | | | | | | | | | | |
|-----------------|--------|--|---------|-----------------------|------|--------------------|---------------|---|-----------|------|
| LCS | | Sample ID: WLCSW1-180308-R231391a | | | | Units: s.u. | | Analysis Date: 3/8/2018 04:00 PM | | |
| Client ID: | | Run ID: TITRATOR 1_180308A | | SeqNo: 4927188 | | Prep Date: | | DF: 1 | | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| pH (laboratory) | 4.58 | 0.10 | 4.4 | 0 | 104 | 90-110 | 0 | | | |

| | | | | | | | | | | |
|------------------------------------|--------|-----------------------------------|---------|-----------------------|------|--------------------|---------------|---|-----------|------|
| DUP | | Sample ID: 1803459-09H DUP | | | | Units: s.u. | | Analysis Date: 3/8/2018 04:00 PM | | |
| Client ID: 20180307-NPR15ST | | Run ID: TITRATOR 1_180308A | | SeqNo: 4927198 | | Prep Date: | | DF: 1 | | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| pH (laboratory) | 8.65 | 0.10 | 0 | 0 | 0 | | 8.63 | 0.231 | 20 | |

The following samples were analyzed in this batch:

| | | |
|-------------|-------------|-------------|
| 1803459-01H | 1803459-02H | 1803459-03H |
| 1803459-04H | 1803459-05H | 1803459-06H |
| 1803459-07H | 1803459-08H | 1803459-09H |
| 1803459-10H | | |

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

Client: Caerus Oil and Gas LLC
Work Order: 1803459
Project: NPR Quarterly Water

QC BATCH REPORT

Batch ID: **R231395a** Instrument ID **Titrator 1** Method: **A2510 B-11**

| | | | | | | | | | | |
|-------------|--------|--|---------|---------------|------|------------------------|---------------|---|-----------|--------------|
| MBLK | | Sample ID: WBLKW1-180308-R231395a | | | | Units: µmhos/cm | | Analysis Date: 3/8/2018 04:00 PM | | |
| Client ID: | | Run ID: TITRATOR 1_180308B | | | | SeqNo: 4927216 | | 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: 1803459-09H DUP | | | | Units: µmhos/cm | | Analysis Date: 3/8/2018 04:00 PM | | |
| Client ID: 20180307-NPR15ST | | Run ID: TITRATOR 1_180308B | | | | SeqNo: 4927228 | | Prep Date: | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Specific Conductance 627.1 5.0 0 0 0 0-0 630 0.476 5

| | | | | | | | | | | |
|-------------|--------|---|---------|---------------|------|------------------------|---------------|---|-----------|--------------|
| LCS1 | | Sample ID: WLCS1W1-180308-R231395a | | | | Units: µmhos/cm | | Analysis Date: 3/8/2018 04:00 PM | | |
| Client ID: | | Run ID: TITRATOR 1_180308B | | | | SeqNo: 4927217 | | Prep Date: | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Specific Conductance 15.7 5.0 14.9 0 105 85-107 0

| | | | | | | | | | | |
|-------------|--------|---|---------|---------------|------|------------------------|---------------|---|-----------|--------------|
| LCS2 | | Sample ID: WLCS2W1-180308-R231395a | | | | Units: µmhos/cm | | Analysis Date: 3/8/2018 04:00 PM | | |
| Client ID: | | Run ID: TITRATOR 1_180308B | | | | SeqNo: 4927218 | | Prep Date: | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Specific Conductance 587.2 5.0 592 0 99.2 85-107 0

The following samples were analyzed in this batch:

| | | |
|-------------|-------------|-------------|
| 1803459-01H | 1803459-02H | 1803459-03H |
| 1803459-04H | 1803459-05H | 1803459-06H |
| 1803459-07H | 1803459-08H | 1803459-09H |
| 1803459-10H | | |

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

Client: Caerus Oil and Gas LLC
 Work Order: 1803459
 Project: NPR Quarterly Water

QC BATCH REPORT

Batch ID: **R231398a** Instrument ID **Titrator 1** Method: **A2320 B-11**

| | | | | | | | | | | |
|------------------------------------|--------|--|---------|---------------|------|-----------------------|---------------|---|-----------|--------------|
| MBLK | | Sample ID: WBLKW1-180308-R231398a | | | | Units: mg/L | | Analysis Date: 3/8/2018 04:00 PM | | |
| Client ID: | | Run ID: TITRATOR 1_180308C | | | | SeqNo: 4927257 | | 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: WLCSW1-180308-R231398a | | | | Units: mg/L | | Analysis Date: 3/8/2018 04:00 PM | | |
| Client ID: | | Run ID: TITRATOR 1_180308C | | | | SeqNo: 4927258 | | 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) | 892.6 | 10 | 925 | 0 | 96.5 | 85-110 | 0 | | | |
| Alkalinity, Total (as CaCO3) | 959.7 | 10 | 1000 | 0 | 96 | 86-104 | 0 | | | |

| | | | | | | | | | | |
|------------------------------------|--------|-----------------------------------|---------|---------------|------|-----------------------|---------------|---|-----------|--------------|
| DUP | | Sample ID: 1803459-09G DUP | | | | Units: mg/L | | Analysis Date: 3/8/2018 04:00 PM | | |
| Client ID: 20180307-NPR15ST | | Run ID: TITRATOR 1_180308C | | | | SeqNo: 4927268 | | 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) | 230.2 | 10 | 0 | 0 | 0 | | 233.7 | 1.51 | 20 | |
| Alkalinity, Carbonate (as CaCO3) | 32.74 | 10 | 0 | 0 | 0 | | 27.66 | 16.8 | 20 | |
| Alkalinity, Total (as CaCO3) | 262.9 | 10 | 0 | 0 | 0 | | 261.3 | 0.599 | 20 | |

| | | | | | | | | | | |
|------------------------------------|--------|-----------------------------------|---------|---------------|------|-----------------------|---------------|---|-----------|--------------|
| DUP | | Sample ID: 1803470-01A DUP | | | | Units: mg/L | | Analysis Date: 3/8/2018 04:00 PM | | |
| Client ID: | | Run ID: TITRATOR 1_180308C | | | | SeqNo: 4927271 | | 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) | 61.04 | 10 | 0 | 0 | 0 | | 57.73 | 5.57 | 20 | |
| Alkalinity, Carbonate (as CaCO3) | U | 10 | 0 | 0 | 0 | | 0 | 0 | 20 | |
| Alkalinity, Total (as CaCO3) | 61.04 | 10 | 0 | 0 | 0 | | 57.73 | 5.57 | 20 | |

The following samples were analyzed in this batch:

| | | |
|-------------|-------------|-------------|
| 1803459-01G | 1803459-02G | 1803459-03G |
| 1803459-04G | 1803459-05G | 1803459-06G |
| 1803459-07G | 1803459-08G | 1803459-09G |
| 1803459-10G | | |

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

Client: Caerus Oil and Gas LLC
Work Order: 1803459
Project: NPR Quarterly Water

QC BATCH REPORT

Batch ID: **R231405** Instrument ID **LACHAT2** Method: **E353.2 R2.0**

| | | | | | | | | | | |
|-------------------|----------|--------------------------------|---------|---------------|------|-----------------------|---------------|---|-----------|--------------|
| MBLK | | Sample ID: MBLK-R231405 | | | | Units: mg/L | | Analysis Date: 3/9/2018 10:06 AM | | |
| Client ID: | | Run ID: LACHAT2_180309A | | | | SeqNo: 4927368 | | Prep Date: | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Nitrogen, Nitrate | 0.004343 | 0.020 | | | | | | | | J |

| | | | | | | | | | | |
|-------------------|--------|--------------------------------|---------|---------------|------|-----------------------|---------------|---|-----------|--------------|
| LCS | | Sample ID: LCS-R231405 | | | | Units: mg/L | | Analysis Date: 3/9/2018 10:06 AM | | |
| Client ID: | | Run ID: LACHAT2_180309A | | | | SeqNo: 4927411 | | Prep Date: | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Nitrogen, Nitrate | 5.388 | 0.020 | 5 | 0 | 108 | 90-110 | 0 | | | |

| | | | | | | | | | | |
|-------------------|--------|----------------------------------|---------|---------------|------|-----------------------|---------------|---|-----------|--------------|
| MS | | Sample ID: 1803073-08B MS | | | | Units: mg/L | | Analysis Date: 3/9/2018 10:06 AM | | |
| Client ID: | | Run ID: LACHAT2_180309A | | | | SeqNo: 4927372 | | Prep Date: | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Nitrogen, Nitrate | 7.517 | 0.020 | 5 | 2.878 | 92.8 | 90-110 | 0 | | | |

| | | | | | | | | | | |
|-------------------|--------|----------------------------------|---------|---------------|------|-----------------------|---------------|---|-----------|--------------|
| MS | | Sample ID: 1803288-08B MS | | | | Units: mg/L | | Analysis Date: 3/9/2018 10:06 AM | | |
| Client ID: | | Run ID: LACHAT2_180309A | | | | SeqNo: 4927385 | | Prep Date: | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Nitrogen, Nitrate | 5.18 | 0.020 | 5 | 0.2462 | 98.7 | 90-110 | 0 | | | |

| | | | | | | | | | | |
|-------------------|--------|-----------------------------------|---------|---------------|------|-----------------------|---------------|---|-----------|--------------|
| MSD | | Sample ID: 1803073-08B MSD | | | | Units: mg/L | | Analysis Date: 3/9/2018 10:06 AM | | |
| Client ID: | | Run ID: LACHAT2_180309A | | | | SeqNo: 4927373 | | Prep Date: | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Nitrogen, Nitrate | 7.561 | 0.020 | 5 | 2.878 | 93.7 | 90-110 | 7.517 | 0.584 | 20 | |

| | | | | | | | | | | |
|-------------------|--------|-----------------------------------|---------|---------------|------|-----------------------|---------------|---|-----------|--------------|
| MSD | | Sample ID: 1803288-08B MSD | | | | Units: mg/L | | Analysis Date: 3/9/2018 10:06 AM | | |
| Client ID: | | Run ID: LACHAT2_180309A | | | | SeqNo: 4927386 | | Prep Date: | | DF: 1 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Nitrogen, Nitrate | 5.175 | 0.020 | 5 | 0.2462 | 98.6 | 90-110 | 5.18 | 0.0966 | 20 | |

The following samples were analyzed in this batch:

| | | |
|-------------|-------------|-------------|
| 1803459-01F | 1803459-02F | 1803459-03F |
| 1803459-04F | 1803459-05F | |

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

Client: Caerus Oil and Gas LLC
Work Order: 1803459
Project: NPR Quarterly Water

QC BATCH REPORT

Batch ID: **R231409** Instrument ID **LACHAT2** Method: **E353.2 R2.0**

| | | | | | | | | | | |
|-------------|--------|--------------------------------|---------|-----------------------|------|--------------------|---------------|---|-----------|------|
| MBLK | | Sample ID: MBLK-R231409 | | | | Units: mg/L | | Analysis Date: 3/9/2018 10:06 AM | | |
| Client ID: | | Run ID: LACHAT2_180309B | | SeqNo: 4927500 | | 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-R231409 | | | | Units: mg/L | | Analysis Date: 3/9/2018 10:06 AM | | |
| Client ID: | | Run ID: LACHAT2_180309B | | SeqNo: 4927501 | | Prep Date: | | DF: 1 | | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Nitrogen, Nitrate 5.384 0.020 5 0 108 90-110 0

| | | | | | | | | | | |
|------------|--------|----------------------------------|---------|-----------------------|------|--------------------|---------------|---|-----------|------|
| MS | | Sample ID: 1803471-01B MS | | | | Units: mg/L | | Analysis Date: 3/9/2018 10:06 AM | | |
| Client ID: | | Run ID: LACHAT2_180309B | | SeqNo: 4927510 | | Prep Date: | | DF: 1 | | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Nitrogen, Nitrate 5.042 0.020 5 -0.00774 101 90-110 0

| | | | | | | | | | | |
|------------|--------|----------------------------------|---------|-----------------------|------|--------------------|---------------|---|-----------|------|
| MS | | Sample ID: 1803535-05B MS | | | | Units: mg/L | | Analysis Date: 3/9/2018 10:06 AM | | |
| Client ID: | | Run ID: LACHAT2_180309B | | SeqNo: 4927533 | | Prep Date: | | DF: 1 | | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Nitrogen, Nitrate 5.142 0.020 5 0.003382 103 90-110 0

| | | | | | | | | | | |
|------------|--------|-----------------------------------|---------|-----------------------|------|--------------------|---------------|---|-----------|------|
| MSD | | Sample ID: 1803471-01B MSD | | | | Units: mg/L | | Analysis Date: 3/9/2018 10:06 AM | | |
| Client ID: | | Run ID: LACHAT2_180309B | | SeqNo: 4927511 | | Prep Date: | | DF: 1 | | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Nitrogen, Nitrate 5.073 0.020 5 -0.00774 102 90-110 5.042 0.613 20

| | | | | | | | | | | |
|------------|--------|-----------------------------------|---------|-----------------------|------|--------------------|---------------|---|-----------|------|
| MSD | | Sample ID: 1803535-05B MSD | | | | Units: mg/L | | Analysis Date: 3/9/2018 10:06 AM | | |
| Client ID: | | Run ID: LACHAT2_180309B | | SeqNo: 4927534 | | Prep Date: | | DF: 1 | | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |

Nitrogen, Nitrate 5.118 0.020 5 0.003382 102 90-110 5.142 0.468 20

The following samples were analyzed in this batch:

| | | |
|-------------|-------------|-------------|
| 1803459-06F | 1803459-07F | 1803459-08F |
| 1803459-09F | 1803459-10F | |

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

Client: Caerus Oil and Gas LLC
Work Order: 1803459
Project: NPR Quarterly Water

QC BATCH REPORT

Batch ID: **R231436b** Instrument ID **WETCHEM** Method: **E376.1**

| | | | | | | | | | | |
|-------------|--------|---------------------------------------|---------|-----------------------|------|--------------------|---------------|---|-----------|------|
| MBLK | | Sample ID: MB-R231436-R231436b | | | | Units: mg/L | | Analysis Date: 3/9/2018 12:45 PM | | |
| Client ID: | | Run ID: WETCHEM_180309L | | SeqNo: 4927719 | | 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-R231436-R231436b | | | | Units: mg/L | | Analysis Date: 3/9/2018 12:45 PM | | |
| Client ID: | | Run ID: WETCHEM_180309L | | SeqNo: 4927720 | | Prep Date: | | DF: 1 | | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual |
| Sulfide | 6.96 | 1.0 | 10.75 | 0 | 64.7 | 60-140 | 0 | | | |

The following samples were analyzed in this batch:

| | | |
|-------------|-------------|-------------|
| 1803459-01C | 1803459-02C | 1803459-03C |
| 1803459-04C | 1803459-05C | 1803459-06C |
| 1803459-07C | 1803459-08C | 1803459-09C |
| 1803459-10C | | |

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

Client: Caerus Oil and Gas LLC
Work Order: 1803459
Project: NPR Quarterly Water

QC BATCH REPORT

Batch ID: **R231825** Instrument ID **IC4** Method: **SW9056A**

| | | | | | | | | | | |
|------------|--------|-----------------------------|---------------------|---------------|------|----------------|---------------|-----------------------------------|-----------|-------|
| MBLK | | Sample ID: CCB/MBLK-R231825 | | | | Units: mg/L | | Analysis Date: 3/15/2018 07:41 AM | | |
| Client ID: | | | Run ID: IC4_180315A | | | SeqNo: 4936657 | | 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 | U | 1.0 | | | | | | | | |
| Fluoride | U | 0.10 | | | | | | | | |
| Sulfate | U | 1.0 | | | | | | | | |

| LCS | | | | Sample ID: LCS-R231825 | | | | Units: mg/L | | | Analysis Date: 3/15/2018 08:00 AM | | | |
|------------|--------|------|---------|------------------------|------|---------------|---------------|----------------|-----------|------|-----------------------------------|--|-------|--|
| Client ID: | | | | Run ID: IC4_180315A | | | | SeqNo: 4936658 | | | Prep Date: | | DF: 1 | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual | | | | |
| Bromide | 2.005 | 0.20 | 2 | 0 | 100 | 88-113 | 0 | | | | | | | |
| Chloride | 9.144 | 1.0 | 10 | 0 | 91.4 | 88-110 | 0 | | | | | | | |
| Fluoride | 1.983 | 0.10 | 2 | 0 | 99.2 | 86-111 | 0 | | | | | | | |
| Sulfate | 9.964 | 1.0 | 10 | 0 | 99.6 | 85-110 | 0 | | | | | | | |

| MS | | | | Sample ID: 1803459-01D MS | | | Units: mg/L | | Analysis Date: 3/15/2018 07:09 PM | | |
|-----------------------------|--------|-----|---------------------|---------------------------|------|----------------|---------------|------------|-----------------------------------|--------|--|
| Client ID: 20180307-NPR12ST | | | Run ID: IC4_180315A | | | SeqNo: 4936693 | | Prep Date: | | DF: 50 | |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual | |
| Bromide | 101.7 | 10 | 100 | 0 | 102 | 75-125 | 0 | | | | |
| Chloride | 451.7 | 50 | 500 | 11.81 | 88 | 75-125 | 0 | | | | |
| Fluoride | 101 | 5.0 | 100 | 0 | 101 | 75-125 | 0 | | | | |
| Sulfate | 497.8 | 50 | 500 | 146.3 | 70.3 | 75-125 | 0 | | | S | |

| MSD | | | | Sample ID: 1803459-01D MSD | | | Units: mg/L | | Analysis Date: 3/15/2018 07:29 PM | | |
|-----------------------------|--------|-----|---------|----------------------------|------|---------------|----------------|---------|-----------------------------------|------|--------|
| Client ID: 20180307-NPR12ST | | | | Run ID: IC4_180315A | | | SeqNo: 4936694 | | Prep Date: | | DF: 50 |
| Analyte | Result | PQL | SPK Val | SPK Ref Value | %REC | Control Limit | RPD Ref Value | %RPD | RPD Limit | Qual | |
| Bromide | 103.2 | 10 | 100 | 0 | 103 | 75-125 | 101.7 | 1.53 | 20 | | |
| Chloride | 452 | 50 | 500 | 11.81 | 88 | 75-125 | 451.7 | 0.0653 | 20 | | |
| Fluoride | 100.5 | 5.0 | 100 | 0 | 101 | 75-125 | 101 | 0.481 | 20 | | |
| Sulfate | 497.8 | 50 | 500 | 146.3 | 70.3 | 75-125 | 497.8 | 0.00301 | 20 | S | |

The following samples were analyzed in this batch:

| | | |
|-------------|-------------|-------------|
| 1803459-01D | 1803459-02D | 1803459-03D |
| 1803459-04D | 1803459-05D | 1803459-06D |
| 1803459-07D | 1803459-08D | 1803459-09D |
| 1803459-10D | | |

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



Environmental

Chain of Custody Form

Page 1 of 1

COC ID: 123456

☐ Cincinnati, OH
+1 513 733 5336

☐ Everett, WA
+1 425 356 2600

☐ Fort Collins, CO
+1 970 490 1511

☒ Holland, MI
+1 616 399 6070

☐ Houston, TX
+1 281 530 5656

☐ Middletown, PA
+1 717 944 5541

☐ Salt Lake City, UT
+1 801 266 7700

☐ Spring City, PA
+1 610 948 4903

☐ York, PA
+1 717 505 5280

| Customer Information | | Project Information | | | | | Parameter/Method Request for Analysis | | | | | | | | | | | | |
|---|------------------------------|-----------------------------|---------------------|---|-------|-----------|---|--------------------------------|---|---|---|---|---|---|---|---|------|--|--|
| Purchase Order | | Project Name | NPR quarterly water | | | | A | ALK/ALKB/ALKCA | | | | | | | | | | | |
| Work Order | | Project Number | | | | | B | Br,Cl,F,SO4,NO2,NO3 | | | | | | | | | | | |
| Company Name | Caerus Oil and Gas | Bill To Company | Caerus Oil + Gas | | | | C | Dissolved Metals (See Remarks) | | | | | | | | | | | |
| Send Report To | Jake Janicek | Invoice Attn. | | | | | D | Ammonia (H2SO4) | | | | | | | | | | | |
| Address | | Address | | | | | E | RSK175 (HCL) | | | | | | | | | | | |
| City/State/Zip | Parachute, CO | City/State/Zip | | | | | F | Sulfide (NaOH+ZnAc) | | | | | | | | | | | |
| Phone | | Phone | | | | | G | BTEXM (8260)(HCL) | | | | | | | | | | | |
| Fax | | Fax | | | | | H | pH/SPCOND/TDS | | | | | | | | | | | |
| e-Mail Address | jjanicek@caerusoilandgas.com | e-Mail Address | | | | | I | | | | | | | | | | | | |
| | | | | | | | J | | | | | | | | | | | | |
| No. | Sample Description | Date | Time | Matrix | Pres. | # Bottles | A | B | C | D | E | F | G | H | I | J | Hold | | |
| 1 | 20180307-NPR12ST | 3/7/18 | 0845 | Water | | 12 | X | X | X | X | X | X | X | X | | | | | |
| 2 | 20180307-NPR5MW | | 0915 | | | | X | X | X | X | X | X | X | X | | | | | |
| 3 | 20180307-NPR14ST | | 1035 | | | | X | X | X | X | X | X | X | X | | | | | |
| 4 | 20180307-NPR09MW | | 1100 | | | | X | X | X | X | X | X | X | X | | | | | |
| 5 | 20180307-NPR1ST | | 1205 | | | | X | X | X | X | X | X | X | X | | | | | |
| 6 | 20180307-NPR2SP | | 1230 | | | | X | X | X | X | X | X | X | X | | | | | |
| 7 | 20180307-NPR2ST | | 1245 | | | | X | X | X | X | X | X | X | X | | | | | |
| 8 | 20180307-NPR3MW | | 1345 | | | | X | X | X | X | X | X | X | X | | | | | |
| 9 | 20180307-NPR15ST | | 1415 | | | | X | X | X | X | X | X | X | X | | | | | |
| 10 | 20180307-NPRDUPA | | 0945 | | | | X | X | X | X | X | X | X | X | | | | | |
| Sampler(s): Please Print & Sign Blair K. Rollins | | Shipment Method: Lab Hub | | Required Turnaround Time: <input checked="" type="checkbox"/> STD <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour | | | Results Due Date: | | | | | | | | | | | | |
| Relinquished by: <i>[Signature]</i> | | Date: 3/7/18 | Time: 12:15 | Received by: <i>[Signature]</i> | | | Notes: Metals-As,Ba,Cd,Cr,Cu,Pb,Ag,Ca,Fe,K,Mg,Mn,Na,Se | | | | | | | | | | | | |
| Relinquished by: <i>[Signature]</i> | | Date: 3/7/18 | Time: 1830 | Received by (Laboratory): 25001 3/8/18 1030 | | | QC Package: (Check Box Below) | | | | | | | | | | | | |
| Logged by (Laboratory): DFS | | Date: 3/8/18 | Time: 1330 | Checked by (Laboratory): <i>[Signature]</i> | | | Cooler Temp.: 502 3.0°C 2.0°C | | | | | | | | | | | | |
| Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035 | | | | | | | | | | | | | | | | | | | |
| Other: | | | | | | | | | | | | | | | | | | | |

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.

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Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **08-Mar-18 10:30**

Work Order: **1803459**

Received by: **DS**

Checklist completed by Diane Shaw
eSignature

08-Mar-18
Date

Reviewed by: Chad Whelton
eSignature

08-Mar-18
Date

Matrices: **Water**

Carrier name: **FedEx**

| | | | |
|---|---|--|---|
| Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> |
| Custody seals intact on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| Custody seals intact on sample bottles? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input checked="" type="checkbox"/> |
| Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Container/Temp Blank temperature in compliance? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Sample(s) received on ice? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Temperature(s)/Thermometer(s): | <u>3.0/3.0, 2.6/2.6 c</u> | | <u>SR2</u> |
| Cooler(s)/Kit(s): | <u></u> | | |
| Date/Time sample(s) sent to storage: | <u>3/8/2018 1:34:58 PM</u> | | |
| Water - VOA vials have zero headspace? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | No VOA vials submitted <input type="checkbox"/> |
| Water - pH acceptable upon receipt? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> |
| pH adjusted? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | N/A <input type="checkbox"/> |
| pH adjusted by: | <u>-</u> | | |

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: