



21-Sep-2017

Jake Janicek
Caerus Oil and Gas LLC
120 N. Railroad Ave. Suite D
Parachute, CO 81635

Re: **K35 CDP Pipeline**

Work Order: **1709737**

Dear Jake,

ALS Environmental received 2 samples on 14-Sep-2017 10:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental 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 24.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton".

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Certificate No: MN 998501

Report of Laboratory Analysis

ADDRESS 3352 128th Ave Holland, Michigan 49424 | PHONE (616) 399-6070 | FAX (616) 399-6185

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Client: Caerus Oil and Gas LLC
Project: K35 CDP Pipeline
Work Order: 1709737

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>
1709737-01	20170913-ENPR-5WW	Water		9/13/2017 15:00	9/14/2017 10:00	<input type="checkbox"/>
1709737-02	20170913-ENPR305P	Water		9/13/2017 15:20	9/14/2017 10:00	<input type="checkbox"/>

<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: 21-Sep-17

Client: Caerus Oil and Gas LLC
Project: K35 CDP Pipeline
Sample ID: 20170913-ENPR-5WW
Collection Date: 9/13/2017 03:00 PM

Work Order: 1709737
Lab ID: 1709737-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER						
			RSK-175			Analyst: KB
Ethane	0.34	J	5.0	µg/L	1	9/18/2017 11:36 AM
Ethene	U		5.0	µg/L	1	9/18/2017 11:36 AM
Methane	2.5	J	5.0	µg/L	1	9/18/2017 11:36 AM
Propane	0.48	J	5.0	µg/L	1	9/18/2017 11:36 AM
METALS BY ICP-MS (DISSOLVED)						
			SW6020A		Prep: SW3005A 9/15/17 13:51	Analyst: JF
Arsenic	U		0.0050	mg/L	1	9/15/2017 06:13 PM
Barium	0.043		0.0050	mg/L	1	9/15/2017 06:13 PM
Cadmium	U		0.0020	mg/L	1	9/15/2017 06:13 PM
Calcium	75		0.50	mg/L	1	9/15/2017 06:13 PM
Chromium	U		0.0050	mg/L	1	9/15/2017 06:13 PM
Copper	0.0017	J	0.0050	mg/L	1	9/15/2017 06:13 PM
Iron	U		0.080	mg/L	1	9/15/2017 06:13 PM
Lead	U		0.0050	mg/L	1	9/15/2017 06:13 PM
Magnesium	26		0.20	mg/L	1	9/15/2017 06:13 PM
Manganese	0.0021	J	0.0050	mg/L	1	9/15/2017 06:13 PM
Potassium	0.13	J	0.20	mg/L	1	9/15/2017 06:13 PM
Selenium	U		0.0050	mg/L	1	9/15/2017 06:13 PM
Silver	U		0.0050	mg/L	1	9/15/2017 06:13 PM
Sodium	63		0.20	mg/L	1	9/15/2017 06:13 PM
VOLATILE ORGANIC COMPOUNDS						
			SW8260B			Analyst: BG
Benzene	U		1.0	µg/L	1	9/14/2017 12:26 PM
Ethylbenzene	U		1.0	µg/L	1	9/14/2017 12:26 PM
m,p-Xylene	U		2.0	µg/L	1	9/14/2017 12:26 PM
o-Xylene	U		1.0	µg/L	1	9/14/2017 12:26 PM
Toluene	U		1.0	µg/L	1	9/14/2017 12:26 PM
Xylenes, Total	U		3.0	µg/L	1	9/14/2017 12:26 PM
Surr: 1,2-Dichloroethane-d4	106		75-120	%REC	1	9/14/2017 12:26 PM
Surr: 4-Bromofluorobenzene	96.5		80-110	%REC	1	9/14/2017 12:26 PM
Surr: Dibromofluoromethane	104		85-115	%REC	1	9/14/2017 12:26 PM
Surr: Toluene-d8	91.2		85-110	%REC	1	9/14/2017 12:26 PM
ALKALINITY						
			A2320 B-97			Analyst: ED
Alkalinity, Bicarbonate (as CaCO3)	260		10	mg/L	1	9/18/2017 06:45 PM
Alkalinity, Carbonate (as CaCO3)	16		10	mg/L	1	9/18/2017 06:45 PM
Alkalinity, Total (as CaCO3)	280		10	mg/L	1	9/18/2017 06:45 PM
ANIONS BY ION CHROMATOGRAPHY						
			SW9056A			Analyst: EE
Bromide	U		0.20	mg/L	1	9/19/2017 10:11 PM
Chloride	3.8		1.0	mg/L	1	9/19/2017 10:11 PM

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

ALS Group, USA

Date: 21-Sep-17

Client: Caerus Oil and Gas LLC
Project: K35 CDP Pipeline
Sample ID: 20170913-ENPR-5WW
Collection Date: 9/13/2017 03:00 PM

Work Order: 1709737
Lab ID: 1709737-01
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluoride	0.14		0.10	mg/L	1	9/19/2017 10:11 PM
Sulfate	89		10	mg/L	10	9/19/2017 10:30 PM
AMMONIA AS NITROGEN			A4500-NH3 G-97			Analyst: JJG
Ammonia as Nitrogen	0.11	J	0.15	mg NH3-N/L	1	9/19/2017 10:28 AM
NITROGEN, NITRITE			A4500-NO2 B			Analyst: STP
Nitrogen, Nitrite	U		0.020	mg/L	1	9/14/2017 12:35 PM
NITROGEN, NITRATE			E353.2 R2.0			Analyst: JJG
Nitrogen, Nitrate	0.15		0.020	mg/L	1	9/15/2017 10:10 AM
PH (LABORATORY)			SW9040C			Analyst: ED
pH (laboratory)	8.4		0.10	s.u.	1	9/18/2017 06:45 PM
SULFIDE			E376.1			Analyst: EE
Sulfide	U		1.0	mg/L	1	9/20/2017 09:20 AM
SPECIFIC CONDUCTANCE @ 25°C			A2510 B-97			Analyst: JB
Specific Conductance	750		5.0	µmhos/cm	1	9/18/2017 12:15 PM
TOTAL DISSOLVED SOLIDS			A2540 C-97		Prep: FILTER 9/15/17 08:30	Analyst: KH
Total Dissolved Solids	420		10	mg/L	1	9/18/2017 12:09 PM

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

ALS Group, USA

Date: 21-Sep-17

Client: Caerus Oil and Gas LLC
Project: K35 CDP Pipeline
Sample ID: 20170913-ENPR305P
Collection Date: 9/13/2017 03:20 PM

Work Order: 1709737
Lab ID: 1709737-02
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GASES IN WATER						
			RSK-175			Analyst: KB
Ethane	0.72	J	5.0	µg/L	1	9/18/2017 11:38 AM
Ethene	0.74	J	5.0	µg/L	1	9/18/2017 11:38 AM
Methane	1.9	J	5.0	µg/L	1	9/18/2017 11:38 AM
Propane	0.55	J	5.0	µg/L	1	9/18/2017 11:38 AM
METALS BY ICP-MS (DISSOLVED)						
			SW6020A		Prep: SW3005A 9/15/17 13:51	Analyst: JF
Arsenic	U		0.0050	mg/L	1	9/15/2017 06:14 PM
Barium	0.042		0.0050	mg/L	1	9/15/2017 06:14 PM
Cadmium	U		0.0020	mg/L	1	9/15/2017 06:14 PM
Calcium	73		0.50	mg/L	1	9/15/2017 06:14 PM
Chromium	U		0.0050	mg/L	1	9/15/2017 06:14 PM
Copper	0.00043	J	0.0050	mg/L	1	9/15/2017 06:14 PM
Iron	U		0.080	mg/L	1	9/15/2017 06:14 PM
Lead	U		0.0050	mg/L	1	9/15/2017 06:14 PM
Magnesium	25		0.20	mg/L	1	9/15/2017 06:14 PM
Manganese	0.0021	J	0.0050	mg/L	1	9/15/2017 06:14 PM
Potassium	0.14	J	0.20	mg/L	1	9/15/2017 06:14 PM
Selenium	U		0.0050	mg/L	1	9/15/2017 06:14 PM
Silver	U		0.0050	mg/L	1	9/15/2017 06:14 PM
Sodium	64		0.20	mg/L	1	9/15/2017 06:14 PM
VOLATILE ORGANIC COMPOUNDS						
			SW8260B			Analyst: BG
Benzene	U		1.0	µg/L	1	9/14/2017 12:52 PM
Ethylbenzene	U		1.0	µg/L	1	9/14/2017 12:52 PM
m,p-Xylene	U		2.0	µg/L	1	9/14/2017 12:52 PM
o-Xylene	U		1.0	µg/L	1	9/14/2017 12:52 PM
Toluene	U		1.0	µg/L	1	9/14/2017 12:52 PM
Xylenes, Total	U		3.0	µg/L	1	9/14/2017 12:52 PM
Surr: 1,2-Dichloroethane-d4	102		75-120	%REC	1	9/14/2017 12:52 PM
Surr: 4-Bromofluorobenzene	94.4		80-110	%REC	1	9/14/2017 12:52 PM
Surr: Dibromofluoromethane	99.6		85-115	%REC	1	9/14/2017 12:52 PM
Surr: Toluene-d8	93.6		85-110	%REC	1	9/14/2017 12:52 PM
ALKALINITY						
			A2320 B-97			Analyst: ED
Alkalinity, Bicarbonate (as CaCO3)	260		10	mg/L	1	9/18/2017 06:45 PM
Alkalinity, Carbonate (as CaCO3)	8.6	J	10	mg/L	1	9/18/2017 06:45 PM
Alkalinity, Total (as CaCO3)	270		10	mg/L	1	9/18/2017 06:45 PM
ANIONS BY ION CHROMATOGRAPHY						
			SW9056A			Analyst: EE
Bromide	U		0.20	mg/L	1	9/19/2017 10:49 PM
Chloride	4.1		1.0	mg/L	1	9/19/2017 10:49 PM

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

ALS Group, USA

Date: 21-Sep-17

Client: Caerus Oil and Gas LLC
Project: K35 CDP Pipeline
Sample ID: 20170913-ENPR305P
Collection Date: 9/13/2017 03:20 PM

Work Order: 1709737
Lab ID: 1709737-02
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluoride	0.14		0.10	mg/L	1	9/19/2017 10:49 PM
Sulfate	90		10	mg/L	10	9/19/2017 11:08 PM
AMMONIA AS NITROGEN			A4500-NH3 G-97			Analyst: JJG
Ammonia as Nitrogen	0.099	J	0.15	mg NH3-N/L	1	9/19/2017 10:28 AM
NITROGEN, NITRITE			A4500-NO2 B			Analyst: STP
Nitrogen, Nitrite	U		0.020	mg/L	1	9/14/2017 12:35 PM
NITROGEN, NITRATE			E353.2 R2.0			Analyst: JJG
Nitrogen, Nitrate	0.10		0.020	mg/L	1	9/15/2017 10:10 AM
PH (LABORATORY)			SW9040C			Analyst: ED
pH (laboratory)	8.4		0.10	s.u.	1	9/18/2017 06:45 PM
SULFIDE			E376.1			Analyst: EE
Sulfide	U		1.0	mg/L	1	9/20/2017 09:20 AM
SPECIFIC CONDUCTANCE @ 25°C			A2510 B-97			Analyst: JB
Specific Conductance	740		5.0	µmhos/cm	1	9/18/2017 12:15 PM
TOTAL DISSOLVED SOLIDS			A2540 C-97		Prep: FILTER 9/15/17 08:30	Analyst: KH
Total Dissolved Solids	440		10	mg/L	1	9/18/2017 12:09 PM

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

Client: Caerus Oil and Gas LLC
Work Order: 1709737
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **R220214** Instrument ID **GC10** Method: **RSK-175**

MBLK		Sample ID: RBLK1-170918-R220214				Units: µg/L		Analysis Date: 9/18/2017 11:25 AM		
Client ID:		Run ID: GC10_170918A				SeqNo: 4642744		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	5.0								J
Propane	U	5.0								

LCS		Sample ID: RLCS1-170918-R220214				Units: µg/L		Analysis Date: 9/18/2017 11:12 AM		
Client ID:		Run ID: GC10_170918A				SeqNo: 4642743		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Ethane	30.84	5.0	36.1	0	85.4	75-125	0			
Ethene	29.35	5.0	33.7	0	87.1	75-125	0			
Methane	16.75	5.0	19.2	0	87.2	75-125	0			
Propane	45.04	5.0	52.8	0	85.3	75-125	0			

MS		Sample ID: 1709737-01B MS				Units: µg/L		Analysis Date: 9/18/2017 11:43 AM		
Client ID: 20170913-ENPR-5WW		Run ID: GC10_170918A				SeqNo: 4642751		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Ethane	31.77	5.0	36.1	0.34	87.1	70-130	0			
Ethene	30.13	5.0	33.7	0	89.4	70-130	0			
Methane	18.49	5.0	19.2	2.5	83.3	70-130	0			
Propane	46.18	5.0	52.8	0.48	86.6	70-130	0			

MSD		Sample ID: 1709737-01B MSD				Units: µg/L		Analysis Date: 9/18/2017 11:46 AM		
Client ID: 20170913-ENPR-5WW		Run ID: GC10_170918A				SeqNo: 4642752		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Ethane	31.41	5.0	36.1	0.34	86.1	70-130	31.77	1.14	30	
Ethene	30.31	5.0	33.7	0	89.9	70-130	30.13	0.596	30	
Methane	17.72	5.0	19.2	2.5	79.3	70-130	18.49	4.25	30	
Propane	46.15	5.0	52.8	0.48	86.5	70-130	46.18	0.065	30	

The following samples were analyzed in this batch:

1709737-01B 1709737-02B

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

Client: Caerus Oil and Gas LLC
Work Order: 1709737
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **107429** Instrument ID **ICPMS3** Method: **SW6020A**

MBLK				Sample ID: MBLK-107429-107429			Units: mg/L		Analysis Date: 9/15/2017 05:27 PM		
Client ID:			Run ID: ICPMS3_170915A			SeqNo: 4642223		Prep Date: 9/15/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	U	0.0050									
Barium	U	0.0050									
Cadmium	U	0.0020									
Calcium	U	0.50									
Chromium	U	0.0050									
Copper	U	0.0050									
Iron	U	0.080									
Lead	U	0.0050									
Magnesium	U	0.20									
Manganese	U	0.0050									
Potassium	U	0.20									
Selenium	U	0.0050									
Silver	U	0.0050									
Sodium	U	0.20									

Sample ID: MBLK-107418-107429				Units: mg/L		Analysis Date: 9/15/2017 05:29 PM				
Client ID:		Run ID: ICPMS3_170915A			SeqNo: 4642224		Prep Date: 9/15/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.0050								
Barium	U	0.0050								
Cadmium	U	0.0020								
Calcium	U	0.50								
Chromium	U	0.0050								
Copper	U	0.0050								
Iron	U	0.080								
Lead	U	0.0050								
Magnesium	U	0.20								
Manganese	U	0.0050								
Potassium	U	0.20								
Selenium	U	0.0050								
Silver	U	0.0050								
Sodium	0.04177	0.20								J

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

Client: Caerus Oil and Gas LLC
Work Order: 1709737
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **107429** Instrument ID **ICPMS3** Method: **SW6020A**

LCS				Sample ID: LCS-107429-107429			Units: mg/L		Analysis Date: 9/15/2017 05:30 PM		
Client ID:			Run ID: ICPMS3_170915A			SeqNo: 4642225		Prep Date: 9/15/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	0.09877	0.0050	0.1	0	98.8	80-120	0				
Barium	0.1005	0.0050	0.1	0	101	80-120	0				
Cadmium	0.09544	0.0020	0.1	0	95.4	80-120	0				
Calcium	10.02	0.50	10	0	100	80-120	0				
Chromium	0.09814	0.0050	0.1	0	98.1	80-120	0				
Copper	0.1027	0.0050	0.1	0	103	80-120	0				
Iron	9.964	0.080	10	0	99.6	80-120	0				
Lead	0.09702	0.0050	0.1	0	97	80-120	0				
Magnesium	10.01	0.20	10	0	100	80-120	0				
Manganese	0.09739	0.0050	0.1	0	97.4	80-120	0				
Potassium	10.02	0.20	10	0	100	80-120	0				
Selenium	0.09429	0.0050	0.1	0	94.3	80-120	0				
Silver	0.1022	0.0050	0.1	0	102	80-120	0				
Sodium	10.38	0.20	10	0	104	80-120	0				

LCS				Sample ID: LCS-107418-107429			Units: mg/L		Analysis Date: 9/15/2017 05:32 PM		
Client ID:			Run ID: ICPMS3_170915A			SeqNo: 4642226		Prep Date: 9/15/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	0.09734	0.0050	0.1	0	97.3	80-120	0				
Barium	0.09825	0.0050	0.1	0	98.2	80-120	0				
Cadmium	0.09412	0.0020	0.1	0	94.1	80-120	0				
Calcium	9.833	0.50	10	0	98.3	80-120	0				
Chromium	0.09735	0.0050	0.1	0	97.3	80-120	0				
Copper	0.1034	0.0050	0.1	0	103	80-120	0				
Iron	9.801	0.080	10	0	98	80-120	0				
Lead	0.09779	0.0050	0.1	0	97.8	80-120	0				
Magnesium	9.978	0.20	10	0	99.8	80-120	0				
Manganese	0.09759	0.0050	0.1	0	97.6	80-120	0				
Potassium	10.04	0.20	10	0	100	80-120	0				
Selenium	0.09217	0.0050	0.1	0	92.2	80-120	0				
Silver	0.1017	0.0050	0.1	0	102	80-120	0				
Sodium	10.25	0.20	10	0	102	80-120	0				

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

Client: Caerus Oil and Gas LLC
Work Order: 1709737
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **107429** Instrument ID **ICPMS3** Method: **SW6020A**

MS				Sample ID: 1709705-16BMS			Units: mg/L		Analysis Date: 9/15/2017 05:36 PM		
Client ID:			Run ID: ICPMS3_170915A			SeqNo: 4642229		Prep Date: 9/15/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	0.09989	0.0050	0.1	0	99.9	75-125	0				
Barium	0.1137	0.0050	0.1	0	114	75-125	0				
Cadmium	0.09423	0.0020	0.1	0	94.2	75-125	0				
Calcium	50.99	0.50	10	0	510	75-125	0			S	
Chromium	0.09687	0.0050	0.1	0	96.9	75-125	0				
Copper	0.1009	0.0050	0.1	0	101	75-125	0				
Iron	9.975	0.080	10	0	99.7	75-125	0				
Lead	0.09716	0.0050	0.1	0	97.2	75-125	0				
Magnesium	17.62	0.20	10	0	176	75-125	0			S	
Manganese	0.2645	0.0050	0.1	0	264	75-125	0			S	
Potassium	14.02	0.20	10	0	140	75-125	0			S	
Selenium	0.09426	0.0050	0.1	0	94.3	75-125	0				
Silver	0.09987	0.0050	0.1	0	99.9	75-125	0				
Sodium	19.28	0.20	10	0	193	75-125	0			S	

MSD				Sample ID: 1709705-16BMSD				Units: mg/L		Analysis Date: 9/15/2017 05:38 PM	
Client ID:			Run ID: ICPMS3_170915A			SeqNo: 4642230		Prep Date: 9/15/2017		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Arsenic	0.1011	0.0050	0.1	0	101	75-125	0.09989	1.18	20		
Barium	0.1164	0.0050	0.1	0	116	75-125	0.1137	2.4	20		
Cadmium	0.09656	0.0020	0.1	0	96.6	75-125	0.09423	2.43	20		
Calcium	53.85	0.50	10	0	539	75-125	50.99	5.47	20	S	
Chromium	0.09872	0.0050	0.1	0	98.7	75-125	0.09687	1.89	20		
Copper	0.1011	0.0050	0.1	0	101	75-125	0.1009	0.151	20		
Iron	10.24	0.080	10	0	102	75-125	9.975	2.58	20		
Lead	0.09997	0.0050	0.1	0	100	75-125	0.09716	2.85	20		
Magnesium	17.8	0.20	10	0	178	75-125	17.62	1.04	20	S	
Manganese	0.2676	0.0050	0.1	0	268	75-125	0.2645	1.17	20	S	
Potassium	14.32	0.20	10	0	143	75-125	14.02	2.15	20	S	
Selenium	0.09597	0.0050	0.1	0	96	75-125	0.09426	1.81	20		
Silver	0.1025	0.0050	0.1	0	102	75-125	0.09987	2.59	20		
Sodium	19.78	0.20	10	0	198	75-125	19.28	2.53	20	S	

The following samples were analyzed in this batch: 1709737-01E 1709737-02E

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

Client: Caerus Oil and Gas LLC
Work Order: 1709737
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **R219999a** Instrument ID **VMS5** Method: **SW8260B**

MBLK				Sample ID: VBLKW1-170914-R219999a				Units: µg/L			Analysis Date: 9/14/2017 12:00 PM		
Client ID:			Run ID: VMS5_170914A				SeqNo: 4638865		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											
o-Xylene	U	1.0											
Toluene	U	1.0											
Xylenes, Total	U	3.0											
Surr: 1,2-Dichloroethane-d4	20.08	0	20	0	100	75-120		0					
Surr: 4-Bromofluorobenzene	19.28	0	20	0	96.4	80-110		0					
Surr: Dibromofluoromethane	20.05	0	20	0	100	85-115		0					
Surr: Toluene-d8	18.19	0	20	0	91	85-110		0					

LCS				Sample ID: VLCSW1-170914-R219999a				Units: µg/L		Analysis Date: 9/14/2017 11:09 AM	
Client ID:			Run ID: VMS5_170914A			SeqNo: 4638864		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	21.69	1.0	20	0	108	85-125	0				
Ethylbenzene	19.44	1.0	20	0	97.2	85-125	0				
m,p-Xylene	38.24	2.0	40	0	95.6	75-130	0				
o-Xylene	19.14	1.0	20	0	95.7	80-125	0				
Toluene	19.45	1.0	20	0	97.2	85-125	0				
Xylenes, Total	57.38	3.0	60	0	95.6	80-126	0				
Surr: 1,2-Dichloroethane-d4	20.06	0	20	0	100	75-120	0				
Surr: 4-Bromofluorobenzene	19.56	0	20	0	97.8	80-110	0				
Surr: Dibromofluoromethane	20.18	0	20	0	101	85-115	0				
Surr: Toluene-d8	19.04	0	20	0	95.2	85-110	0				

MS				Sample ID: 1709538-02B MS				Units: µg/L		Analysis Date: 9/14/2017 09:07 PM	
Client ID:		Run ID: VMS5_170914A			SeqNo: 4639849		Prep Date:		DF: 5		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	247.9	5.0	100	149.4	98.4	85-125		0			
Ethylbenzene	105	5.0	100	5.2	99.8	85-125		0			
m,p-Xylene	209.7	10	200	9.3	100	75-130		0			
o-Xylene	101.8	5.0	100	4.3	97.6	80-125		0			
Toluene	101.1	5.0	100	3.65	97.4	85-125		0			
Xylenes, Total	311.6	15	300	13.6	99.3	80-126		0			
Surr: 1,2-Dichloroethane-d4	98.6	0	100	0	98.6	75-120		0			
Surr: 4-Bromofluorobenzene	99	0	100	0	99	80-110		0			
Surr: Dibromofluoromethane	84.05	0	100	0	84	85-115		0		S	
Surr: Toluene-d8	95.3	0	100	0	95.3	85-110		0			

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

Client: Caerus Oil and Gas LLC
 Work Order: 1709737
 Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **R219999a** Instrument ID **VMS5** Method: **SW8260B**

MSD				Sample ID: 1709538-02B MSD			Units: µg/L		Analysis Date: 9/14/2017 09:33 PM		
Client ID:			Run ID: VMS5_170914A			SeqNo: 4639850		Prep Date:		DF: 5	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	258	5.0	100	149.4	109	85-125	247.9	3.99	30		
Ethylbenzene	105.8	5.0	100	5.2	101	85-125	105	0.806	30		
m,p-Xylene	210.4	10	200	9.3	101	75-130	209.7	0.309	30		
o-Xylene	104.8	5.0	100	4.3	101	80-125	101.8	2.9	30		
Toluene	104.6	5.0	100	3.65	101	85-125	101.1	3.4	30		
Xylenes, Total	315.2	15	300	13.6	101	80-126	311.6	1.16	30		
Surr: 1,2-Dichloroethane-d4	99.15	0	100	0	99.2	75-120	98.6	0.556	30		
Surr: 4-Bromofluorobenzene	99.55	0	100	0	99.6	80-110	99	0.554	30		
Surr: Dibromofluoromethane	81.9	0	100	0	81.9	85-115	84.05	2.59	30	S	
Surr: Toluene-d8	95.75	0	100	0	95.8	85-110	95.3	0.471	30		

The following samples were analyzed in this batch:

1709737-01A 1709737-02A

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

Client: Caerus Oil and Gas LLC
Work Order: 1709737
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **107405** Instrument ID **TDS** Method: **A2540 C-97**

MBLK		Sample ID: MBLK-107405-107405				Units: mg/L		Analysis Date: 9/18/2017 12:09 PM		
Client ID:		Run ID: TDS_170915A				SeqNo: 4642788		Prep Date: 9/15/2017		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

MBLK		Sample ID: MBLK-107405-107405				Units: mg/L		Analysis Date: 9/18/2017 12:09 PM		
Client ID:		Run ID: TDS_170915A				SeqNo: 4643863		Prep Date: 9/15/2017		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-107405-107405				Units: mg/L		Analysis Date: 9/18/2017 12:09 PM		
Client ID:		Run ID: TDS_170915A				SeqNo: 4642787		Prep Date: 9/15/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids 478 10 495 0 96.6 80-120 0

LCS		Sample ID: LCS-107405-107405				Units: mg/L		Analysis Date: 9/18/2017 12:09 PM		
Client ID:		Run ID: TDS_170915A				SeqNo: 4643862		Prep Date: 9/15/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids 478 10 495 0 96.6 80-120 0

DUP		Sample ID: 1709537-01E DUP				Units: mg/L		Analysis Date: 9/18/2017 12:09 PM		
Client ID:		Run ID: TDS_170915A				SeqNo: 4642763		Prep Date: 9/15/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids 1597 10 0 0 0 0-0 1616 1.18 5

DUP		Sample ID: 1709668-03E DUP				Units: mg/L		Analysis Date: 9/18/2017 12:09 PM		
Client ID:		Run ID: TDS_170915A				SeqNo: 4642774		Prep Date: 9/15/2017		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids 163 10 0 0 0 0-0 154 5.68 5 R

The following samples were analyzed in this batch:

1709737-01G 1709737-02G

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

Client: Caerus Oil and Gas LLC
Work Order: 1709737
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **107562A** Instrument ID **LACHAT2** Method: **A4500-NH3 G-97**

MBLK		Sample ID: MBLK-107562-107562A				Units: mg NH3-N/L		Analysis Date: 9/19/2017 10:28 AM		
Client ID:		Run ID: LACHAT2_170919G		SeqNo: 4646110		Prep Date: 9/18/2017		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-107562-107562A				Units: mg NH3-N/L		Analysis Date: 9/19/2017 10:28 AM		
Client ID:		Run ID: LACHAT2_170919G		SeqNo: 4646111		Prep Date: 9/18/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Ammonia as Nitrogen 1.024 0.15 1 0 102 80-120 0

MS		Sample ID: 1709527-34A MS				Units: mg NH3-N/L		Analysis Date: 9/19/2017 10:28 AM		
Client ID:		Run ID: LACHAT2_170919G		SeqNo: 4646113		Prep Date: 9/18/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Ammonia as Nitrogen 1.188 0.15 1 0.2405 94.8 75-125 0

MSD		Sample ID: 1709527-34A MSD				Units: mg NH3-N/L		Analysis Date: 9/19/2017 10:28 AM		
Client ID:		Run ID: LACHAT2_170919G		SeqNo: 4646114		Prep Date: 9/18/2017		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Ammonia as Nitrogen 1.144 0.15 1 0.2405 90.4 75-125 1.188 3.77 25

The following samples were analyzed in this batch:

1709737-01D 1709737-02D

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

Client: Caerus Oil and Gas LLC
Work Order: 1709737
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **R220014** Instrument ID **WETCHEM** Method: **A4500-NO2 B**

MBLK		Sample ID: MB-R220014-R220014				Units: mg/L		Analysis Date: 9/14/2017 12:35 PM		
Client ID:		Run ID: WETCHEM_170914F		SeqNo: 4638645		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrite U 0.020

LCS		Sample ID: LCS-R220014-R220014				Units: mg/L		Analysis Date: 9/14/2017 12:35 PM		
Client ID:		Run ID: WETCHEM_170914F		SeqNo: 4638646		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrite 0.2015 0.020 0.2 0 101 80-120 0

MS		Sample ID: 1709709-01A MS				Units: mg/L		Analysis Date: 9/14/2017 12:35 PM		
Client ID:		Run ID: WETCHEM_170914F		SeqNo: 4638650		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrite 0.1998 0.020 0.2 0.0052 97.3 75-125 0

MSD		Sample ID: 1709709-01A MSD				Units: mg/L		Analysis Date: 9/14/2017 12:35 PM		
Client ID:		Run ID: WETCHEM_170914F		SeqNo: 4638651		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrite 0.1942 0.020 0.2 0.0052 94.5 75-125 0.1998 2.84 20

The following samples were analyzed in this batch:

1709737-01F 1709737-02F

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

Client: Caerus Oil and Gas LLC
Work Order: 1709737
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **R220182** Instrument ID **LACHAT2** Method: **E353.2 R2.0**

MBLK		Sample ID: MBLK-R220182				Units: mg/L		Analysis Date: 9/15/2017 10:10 AM		
Client ID:		Run ID: LACHAT2_170915B		SeqNo: 4641837		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-R220182				Units: mg/L		Analysis Date: 9/15/2017 10:10 AM		
Client ID:		Run ID: LACHAT2_170915B		SeqNo: 4641842		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate 5.281 0.020 5 0 106 90-110 0

MS		Sample ID: 1709633-03F MS				Units: mg/L		Analysis Date: 9/15/2017 10:10 AM		
Client ID:		Run ID: LACHAT2_170915B		SeqNo: 4641848		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate 5.056 0.020 5 0.01209 101 90-110 0

MS		Sample ID: 1709739-02A MS				Units: mg/L		Analysis Date: 9/15/2017 10:10 AM		
Client ID:		Run ID: LACHAT2_170915B		SeqNo: 4641893		Prep Date:		DF: 40		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate 241 0.80 5 228.5 250 90-110 0 SO

MSD		Sample ID: 1709633-03F MSD				Units: mg/L		Analysis Date: 9/15/2017 10:10 AM		
Client ID:		Run ID: LACHAT2_170915B		SeqNo: 4641849		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate 5.052 0.020 5 0.01209 101 90-110 5.056 0.0791 20

MSD		Sample ID: 1709739-02A MSD				Units: mg/L		Analysis Date: 9/15/2017 10:10 AM		
Client ID:		Run ID: LACHAT2_170915B		SeqNo: 4641894		Prep Date:		DF: 40		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Nitrogen, Nitrate 241.6 0.80 5 228.5 262 90-110 241 0.265 20 SO

The following samples were analyzed in this batch:

1709737-01D 1709737-02D

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

Client: Caerus Oil and Gas LLC
Work Order: 1709737
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **R220225** Instrument ID **WETCHEM** Method: **A2510 B-97**

MBLK		Sample ID: WBLKW1-170918-R220225				Units: µmhos/cm		Analysis Date: 9/18/2017 12:15 PM		
Client ID:		Run ID: WETCHEM_170918G				SeqNo: 4642922		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: 1709753-01A DUP				Units: µmhos/cm		Analysis Date: 9/18/2017 12:15 PM		
Client ID:		Run ID: WETCHEM_170918G				SeqNo: 4642928		Prep Date:		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Specific Conductance 405000 50 0 0 0 0-0 406000 0.247 5

LCS1		Sample ID: WLCS1W1-170918-R220225				Units: µmhos/cm		Analysis Date: 9/18/2017 12:15 PM		
Client ID:		Run ID: WETCHEM_170918G				SeqNo: 4642923		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Specific Conductance 14.94 5.0 14.9 0 100 85-107 0

LCS2		Sample ID: WLCS2W1-170918-R220225				Units: µmhos/cm		Analysis Date: 9/18/2017 12:15 PM		
Client ID:		Run ID: WETCHEM_170918G				SeqNo: 4642930		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Specific Conductance 569 5.0 592 0 96.1 85-107 0

The following samples were analyzed in this batch:

1709737-01G 1709737-02G

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

Client: Caerus Oil and Gas LLC
Work Order: 1709737
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **R220258a** Instrument ID **Titrator 1** Method: **SW9040C**

LCS		Sample ID: WLCSW2-170918-R220258a				Units: s.u.		Analysis Date: 9/18/2017 06:45 PM		
Client ID:		Run ID: TITRATOR 1_170918C				SeqNo: 4643958		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	4.31	0.10	4.4	0	98	90-110	0			

DUP		Sample ID: 1709743-01D DUP				Units: s.u.		Analysis Date: 9/18/2017 06:45 PM		
Client ID:		Run ID: TITRATOR 1_170918C				SeqNo: 4643960		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH (laboratory)	7.83	0.10	0	0	0		7.82	0.128	20	

The following samples were analyzed in this batch:

1709737-01G 1709737-02G

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

Client: Caerus Oil and Gas LLC
Work Order: 1709737
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **R220259** Instrument ID **Titrator 1** Method: **A2320 B-97**

MBLK		Sample ID: WBLKW2-170918-R220259				Units: mg/L		Analysis Date: 9/18/2017 06:45 PM		
Client ID:		Run ID: TITRATOR 1_170918D				SeqNo: 4643980		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: WLCSW2-170918-R220259				Units: mg/L		Analysis Date: 9/18/2017 06:45 PM		
Client ID:		Run ID: TITRATOR 1_170918D				SeqNo: 4643981		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)	885.3	10	925	0	95.7	85-110	0			
Alkalinity, Total (as CaCO3)	924.9	10	1000	0	92.5	86-104	0			

DUP		Sample ID: 1709743-01D DUP				Units: mg/L		Analysis Date: 9/18/2017 06:45 PM		
Client ID:		Run ID: TITRATOR 1_170918D				SeqNo: 4643984		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)	531.1	10	0	0	0		528.3	0.529	20	
Alkalinity, Carbonate (as CaCO3)	U	10	0	0	0		0	0	20	
Alkalinity, Total (as CaCO3)	531.1	10	0	0	0		528.3	0.529	20	

DUP		Sample ID: 1709828-04C DUP				Units: mg/L		Analysis Date: 9/18/2017 06:45 PM		
Client ID:		Run ID: TITRATOR 1_170918D				SeqNo: 4644035		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)	U	10	0	0	0		0	0	20	
Alkalinity, Total (as CaCO3)	660	10	0	0	0		661.1	0.16	20	

The following samples were analyzed in this batch: | 1709737-01G | 1709737-02G |

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

Client: Caerus Oil and Gas LLC
Work Order: 1709737
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **R220363** Instrument ID **IC4** Method: **SW9056A**

MBLK		Sample ID: CCB/MBLK-R220363				Units: mg/L		Analysis Date: 9/19/2017 04:07 PM		
Client ID:			Run ID: IC4_170919A			SeqNo: 4647198		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-R220363				Units: mg/L			Analysis Date: 9/19/2017 04:26 PM			
Client ID:				Run ID: IC4_170919A				SeqNo: 4647199			Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Bromide	1.929	0.20	2	0	96.4	88-113	0							
Chloride	9.201	1.0	10	0	92	88-110	0							
Fluoride	1.991	0.10	2	0	99.6	86-111	0							
Sulfate	9.516	1.0	10	0	95.2	85-110	0							

MS				Sample ID: 1709737-02G MS				Units: mg/L		Analysis Date: 9/19/2017 11:27 PM	
Client ID: 20170913-ENPR305P			Run ID: IC4_170919A			SeqNo: 4647221		Prep Date:		DF: 25	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Bromide	49.98	5.0	50	0	100	75-125	0				
Chloride	238.2	25	250	0	95.3	75-125	0				
Fluoride	52.82	2.5	50	0	106	75-125	0				
Sulfate	339	25	250	89.69	99.7	75-125	0				

MSD				Sample ID: 1709737-02G MSD				Units: mg/L		Analysis Date: 9/20/2017 12:25 AM	
Client ID: 20170913-ENPR305P			Run ID: IC4_170919A			SeqNo: 4647224		Prep Date:		DF: 25	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Bromide	49.73	5.0	50	0	99.5	75-125	49.98	0.516	20		
Chloride	237.5	25	250	0	95	75-125	238.2	0.287	20		
Fluoride	53.04	2.5	50	0	106	75-125	52.82	0.406	20		
Sulfate	336.5	25	250	89.69	98.7	75-125	339	0.732	20		

The following samples were analyzed in this batch: 1709737-01G 1709737-02G

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

Client: Caerus Oil and Gas LLC
Work Order: 1709737
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **R220443a** Instrument ID **WETCHEM** Method: **E376.1**

MBLK		Sample ID: MB-R220443-R220443a				Units: mg/L		Analysis Date: 9/20/2017 09:20 AM		
Client ID:		Run ID: WETCHEM_170920N		SeqNo: 4648997		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-R220443-R220443a				Units: mg/L		Analysis Date: 9/20/2017 09:20 AM		
Client ID:		Run ID: WETCHEM_170920N		SeqNo: 4648998		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sulfide	9.12	1.0	10.75	0	84.8	60-140	0			

The following samples were analyzed in this batch:

1709737-01C 1709737-02C

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



ALS Laboratory Group

3352 128th Ave. Holland Michigan, 49424

Chain-of-Custody

Form 202-8

WORKORDER #

709737

PROJECT NAME		K35CDP Pipeline		SAMPLER		Brett Middleton		DATE		9/13/17		PAGE		1 of 1	
PROJECT No.				SITE ID				TURNAROUND		Sandy		DISPOSAL		By Lab or Return to Client	
COMPANY NAME		Caerus Piceance, LLC		PURCHASE ORDER				TPH/GRO/DRO							
SEND REPORT TO		Jake Janicek		BILL TO COMPANY		Caerus Piceance, LLC		BTEX							
ADDRESS		120 N. Railroad, suite D		INVOICE ATTN TO		Jake Janicek		Table 810 PAH's							
CITY / STATE / ZIP		Parachute Co 81635		ADDRESS		120 N. Railroad, suite D		EC							
PHONE		970-285-9608		CITY / STATE / ZIP		Parachute CO 81635		PH							
FAX				PHONE		970-285-9608		SAR							
E-MAIL		jjanicek@caerusoilandgas.com		FAX				Benzene							
				E-MAIL		invoices@caerusoilandgas.com		Table 810 Metals							
								Fluorene NIK Suite							
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC								
1	20170913-ENPK-SWW	W	9/13/17	1500	18	HCL			X		X		X		
2	20170913-ENPK3051	W	9/13/17	1520	18	HCL			X		X		X		

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

For metals or anions, please detail analytes below.

Comments: Same day BTEX ONLY Call for NIK suite - Brett SR2 3.2'c	QC PACKAGE (check below)	
	X	LEVEL II (Standard QC)
		LEVEL III (Std QC + forms)
		LEVEL IV (Std QC + forms + raw data)
Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035		

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY		Brett Middleton	9/13/17	1625
RECEIVED BY		Diane F. Shea	9/13/17	1625
RELINQUISHED BY		Diane F. Shea	9/13/17	1830
RECEIVED BY		Diane F. Shea	9/14/17	1000
RELINQUISHED BY				
RECEIVED BY				

Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **14-Sep-17 10:00**

Work Order: **1709737**

Received by: **DS**

Checklist completed by Diane Shaw 14-Sep-17
eSignature Date

Reviewed by: Chad Whelton 15-Sep-17
eSignature 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>3.2/3.2 c</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>9/14/2017 11:33:20 AM</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: