REM:# 10527
Doc#: 2227831
Date: 10/12/2017

22-Sep-2017

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

Re: **K35 CDP Pipeline** Work Order: **1709736**

Dear Jake,

ALS Environmental received 3 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 26.

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

Sincerely,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Certificate No: MN 998501

Report of Laboratory Analysis

ALS Group, USA

Date: 22-Sep-17

Client: Caerus Oil and Gas LLC
Project: K35 CDP Pipeline
Work Order: **1709736**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
1709736-01	20170913-K35 CDP (E) 7'	Soil		9/13/2017 13:35	9/14/2017 10:00	☐
1709736-02	20170913-K35 CDP (E) 15'	Soil		9/13/2017 14:10	9/14/2017 10:00	☐
1709736-03	20170913-K35 CDP POR 7'	Soil		9/13/2017 13:40	9/14/2017 10:00	☐

Client: Caerus Oil and Gas LLC
Project: K35 CDP Pipeline
Work Order: 1709736

Case Narrative

Batch 107360, Method PNLVI_8270_S, Sample 1709736-02A MS/MSD: The MS and MSD recovery was above the upper control limit for Naphthalene. The corresponding result in the parent sample may be biased high.

Batch 107360, Method PNLVI_8270_S, Sample 1709736-02A MS/MSD: The MS and MSD recoveries were below the lower control limits for multiple compounds per the QC report. The corresponding results in the parent sample may be biased low.

Batch 107361, Method DRLVI_8015_S, Samples 1709736-01A and -03A: DRO surrogate recoveries high due to matrix interference.

Batch 107361, Method DRLVI_8015_S, Sample 1709736-01A MS/MSD: The MS and MSD recovery was outside of the control limit for DRO; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required.

Batch 107393, Method ICP_6010_S, Sample 1709736-01A MS/MSD: The MS and MSD recovery was outside of the control limit for Barium; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required.

Batch 107393, Method ICP_6010_S, Sample 1709736-01A MS: The MS recoveries were above the upper control limits for Chromium and Zinc. However, the MSD recoveries and the RPDs between the MS and MSD were within control limits. No qualification is required.

Batch 107399, Method GRO_8015_S, Samples 1709736-01A, -02A and -03A: GRO surrogate recoveries high due to matrix interference.

Batch 107399, Method GRO_8015_S, Sample 1709736-01A MS/MSD: The MS and MSD recovery was outside of the control limit for GRO; however, the result in the parent sample is greater than 4x the spike amount. No qualification is required.

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

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

Units Reported	Description
% of sample	Percent of Sample
mg/Kg	Milligrams per Kilogram
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	
s.u.	Standard Units

ALS Group, USA

Date: *22-Sep-17*

Client: Caerus Oil and Gas LLC
Project: K35 CDP Pipeline
Work Order: 1709736
Sample ID: 20170913-K35 CDP (E) 7'
Lab ID: 1709736-01
Collection Date: 9/13/2017 01:35 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015C**	Prep: SW3546 9/14/17 13:10		Analyst: **KB**
DRO (C10-C28)	**3,400**		**28**	**mg/Kg-dry**	5	9/14/2017 05:45 PM
Surr: 4-Terphenyl-d14	*205*	S	*34-130*	*%REC*	5	9/14/2017 05:45 PM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**	Prep: SW5035 9/14/17 12:42		Analyst: **KB**
GRO (C6-C10)	**8,900**		**140**	**mg/Kg**	20	9/14/2017 06:49 PM
Surr: Toluene-d8	*149*	S	*71-123*	*%REC*	20	9/14/2017 06:49 PM
MERCURY BY CVAA			**SW7471B**	Prep: SW7471 9/15/17 11:56		Analyst: **RSH**
Mercury	**0.36**		**0.037**	**mg/Kg-dry**	2	9/15/2017 03:16 PM
METALS ANALYSIS BY ICP			**SW846 6010C**	Prep: SW3050B 9/14/17 13:37		Analyst: **RH**
Arsenic	**8.0**		**0.46**	**mg/Kg-dry**	1	9/14/2017 11:43 PM
Barium	**220**		**0.46**	**mg/Kg-dry**	1	9/14/2017 11:43 PM
Cadmium	ND		0.92	mg/Kg-dry	1	9/14/2017 11:43 PM
Chromium	**34**		**0.46**	**mg/Kg-dry**	1	9/14/2017 11:43 PM
Copper	**8.7**		**0.92**	**mg/Kg-dry**	1	9/14/2017 11:43 PM
Lead	**12**		**0.46**	**mg/Kg-dry**	1	9/14/2017 11:43 PM
Nickel	**16**		**0.46**	**mg/Kg-dry**	1	9/14/2017 11:43 PM
Selenium	**2.0**		**0.92**	**mg/Kg-dry**	1	9/14/2017 11:43 PM
Silver	ND		0.46	mg/Kg-dry	1	9/14/2017 11:43 PM
Zinc	**35**		**0.92**	**mg/Kg-dry**	1	9/14/2017 11:43 PM
SOLUBLE CATIONS FOR SAR			**SW846 6010C**	Prep: USDA Method 20B 9/18/17 15:00		Analyst: **RH**
Calcium	**50**		**5.0**	**mg/L**	10	9/21/2017 12:43 PM
Magnesium	**4.2**		**2.0**	**mg/L**	10	9/21/2017 12:43 PM
Sodium	**1,100**		**2.0**	**mg/L**	10	9/21/2017 12:43 PM
SODIUM ADSORPTION RATIO			**USDA H60 MET**	Prep: USDA Method 20B 9/18/17 15:00		Analyst: **RH**
Sodium Adsorption Ratio	**40**		**0.010**	**none**	1	9/21/2017
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**	Prep: SW3546 9/14/17 13:10		Analyst: **RM**
Acenaphthene	ND		0.047	mg/Kg-dry	1	9/14/2017 03:54 PM
Anthracene	ND		0.047	mg/Kg-dry	1	9/14/2017 03:54 PM
Benzo(a)anthracene	ND		0.047	mg/Kg-dry	1	9/14/2017 03:54 PM
Benzo(a)pyrene	ND		0.047	mg/Kg-dry	1	9/14/2017 03:54 PM
Benzo(b)fluoranthene	ND		0.047	mg/Kg-dry	1	9/14/2017 03:54 PM
Benzo(k)fluoranthene	ND		0.047	mg/Kg-dry	1	9/14/2017 03:54 PM
Chrysene	ND		0.047	mg/Kg-dry	1	9/14/2017 03:54 PM
Dibenzo(a,h)anthracene	ND		0.047	mg/Kg-dry	1	9/14/2017 03:54 PM
Fluoranthene	ND		0.047	mg/Kg-dry	1	9/14/2017 03:54 PM

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

Client: Caerus Oil and Gas LLC
Project: K35 CDP Pipeline **Work Order:** 1709736
Sample ID: 20170913-K35 CDP (E) 7' **Lab ID:** 1709736-01
Collection Date: 9/13/2017 01:35 PM **Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	**0.40**		**0.047**	**mg/Kg-dry**	1	9/14/2017 03:54 PM
Indeno(1,2,3-cd)pyrene	ND		0.047	mg/Kg-dry	1	9/14/2017 03:54 PM
Naphthalene	**5.4**		**0.047**	**mg/Kg-dry**	1	9/14/2017 03:54 PM
Pyrene	ND		0.047	mg/Kg-dry	1	9/14/2017 03:54 PM
Surr: 2-Fluorobiphenyl	*46.0*		*20-140*	*%REC*	1	9/14/2017 03:54 PM
Surr: 4-Terphenyl-d14	*56.2*		*22-172*	*%REC*	1	9/14/2017 03:54 PM
Surr: Nitrobenzene-d5	*61.5*		*8-140*	*%REC*	1	9/14/2017 03:54 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**	Prep: SW5035 9/14/17 11:37		Analyst: **EMR**
Benzene	**9.9**		**0.30**	**mg/Kg**	10	9/14/2017 12:45 PM
Ethylbenzene	**20**		**0.30**	**mg/Kg**	10	9/14/2017 12:45 PM
m,p-Xylene	**280**		**6.0**	**mg/Kg**	100	9/14/2017 01:50 PM
o-Xylene	**40**		**0.30**	**mg/Kg**	10	9/14/2017 12:45 PM
Toluene	**140**		**3.0**	**mg/Kg**	100	9/14/2017 01:50 PM
Xylenes, Total	**320**		**9.0**	**mg/Kg**	100	9/14/2017 01:50 PM
Surr: 1,2-Dichloroethane-d4	*102*		*70-130*	*%REC*	10	9/14/2017 12:45 PM
Surr: 1,2-Dichloroethane-d4	*93.2*		*70-130*	*%REC*	100	9/14/2017 01:50 PM
Surr: 4-Bromofluorobenzene	*100*		*70-130*	*%REC*	100	9/14/2017 01:50 PM
Surr: 4-Bromofluorobenzene	*105*		*70-130*	*%REC*	10	9/14/2017 12:45 PM
Surr: Dibromofluoromethane	*103*		*70-130*	*%REC*	10	9/14/2017 12:45 PM
Surr: Dibromofluoromethane	*94.4*		*70-130*	*%REC*	100	9/14/2017 01:50 PM
Surr: Toluene-d8	*106*		*70-130*	*%REC*	100	9/14/2017 01:50 PM
Surr: Toluene-d8	*131*	S	*70-130*	*%REC*	10	9/14/2017 12:45 PM
ELECTRICAL CONDUCTIVITY (SAR)			**USDA H60 MET**	Prep: USDA Method 20B 9/18/17 15:00		Analyst: **JB**
Electrical Conductivity @ Saturation	**6.1**		**0.25**	**mmhos/cm @2**	50	9/19/2017 10:50 AM
CHROMIUM, TRIVALENT			**CALCULATION**			Analyst: **JJG**
Chromium, Trivalent	**34**		**1.2**	**mg/Kg-dry**	1	9/21/2017 08:22 AM
CHROMIUM, HEXAVALENT			**SW7196A**	Prep: SW3060A 9/18/17 19:30		Analyst: **RP**
Chromium, Hexavalent	ND		1.2	mg/Kg-dry	1	9/19/2017 03:30 PM
MOISTURE			**SW3550C**			Analyst: **NW**
Moisture	**15**		**0.050**	**% of sample**	1	9/15/2017 03:00 PM
PH			**SW9045D**	Prep: EXTRACT 9/15/17 12:16		Analyst: **STP**
pH	**8.64**		**0.100**	**s.u.**	1	9/15/2017 03:15 PM

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

ALS Group, USA

Date: *22-Sep-17*

Client: Caerus Oil and Gas LLC
Project: K35 CDP Pipeline
Work Order: 1709736
Sample ID: 20170913-K35 CDP (E) 15'
Lab ID: 1709736-02
Collection Date: 9/13/2017 02:10 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015C**	Prep: SW3546 9/14/17 13:10		Analyst: **KB**
DRO (C10-C28)	**1,200**		**5.9**	**mg/Kg-dry**	1	9/14/2017 04:18 PM
Surr: 4-Terphenyl-d14	*98.1*		*34-130*	*%REC*	1	9/14/2017 04:18 PM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**	Prep: SW5035 9/14/17 12:42		Analyst: **KB**
GRO (C6-C10)	**8,200**		**140**	**mg/Kg**	20	9/14/2017 07:19 PM
Surr: Toluene-d8	*145*	S	*71-123*	*%REC*	20	9/14/2017 07:19 PM
MERCURY BY CVAA			**SW7471B**	Prep: SW7471 9/15/17 11:56		Analyst: **RSH**
Mercury	**0.15**		**0.021**	**mg/Kg-dry**	1	9/15/2017 02:50 PM
METALS ANALYSIS BY ICP			**SW846 6010C**	Prep: SW3050B 9/14/17 13:37		Analyst: **RH**
Arsenic	**9.7**		**0.41**	**mg/Kg-dry**	1	9/15/2017 12:03 AM
Barium	**210**		**0.41**	**mg/Kg-dry**	1	9/15/2017 12:03 AM
Cadmium	ND		0.83	mg/Kg-dry	1	9/15/2017 12:03 AM
Chromium	**36**		**0.41**	**mg/Kg-dry**	1	9/15/2017 12:03 AM
Copper	**9.0**		**0.83**	**mg/Kg-dry**	1	9/15/2017 12:03 AM
Lead	**12**		**0.41**	**mg/Kg-dry**	1	9/15/2017 12:03 AM
Nickel	**16**		**0.41**	**mg/Kg-dry**	1	9/15/2017 12:03 AM
Selenium	**1.8**		**0.83**	**mg/Kg-dry**	1	9/15/2017 12:03 AM
Silver	ND		0.41	mg/Kg-dry	1	9/15/2017 12:03 AM
Zinc	**73**		**0.83**	**mg/Kg-dry**	1	9/15/2017 12:03 AM
SOLUBLE CATIONS FOR SAR			**SW846 6010C**	Prep: USDA Method 20B 9/18/17 15:00		Analyst: **RH**
Calcium	**67**		**5.0**	**mg/L**	10	9/21/2017 12:50 PM
Magnesium	**7.7**		**2.0**	**mg/L**	10	9/21/2017 12:50 PM
Sodium	**1,500**		**2.0**	**mg/L**	10	9/21/2017 12:50 PM
SODIUM ADSORPTION RATIO			**USDA H60 MET**	Prep: USDA Method 20B 9/18/17 15:00		Analyst: **RH**
Sodium Adsorption Ratio	**47**		**0.010**	**none**	1	9/21/2017
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**	Prep: SW3546 9/14/17 13:10		Analyst: **RM**
Acenaphthene	ND		0.049	mg/Kg-dry	1	9/14/2017 03:40 PM
Anthracene	ND		0.049	mg/Kg-dry	1	9/14/2017 03:40 PM
Benzo(a)anthracene	ND		0.049	mg/Kg-dry	1	9/14/2017 03:40 PM
Benzo(a)pyrene	ND		0.049	mg/Kg-dry	1	9/14/2017 03:40 PM
Benzo(b)fluoranthene	ND		0.049	mg/Kg-dry	1	9/14/2017 03:40 PM
Benzo(k)fluoranthene	ND		0.049	mg/Kg-dry	1	9/14/2017 03:40 PM
Chrysene	ND		0.049	mg/Kg-dry	1	9/14/2017 03:40 PM
Dibenzo(a,h)anthracene	ND		0.049	mg/Kg-dry	1	9/14/2017 03:40 PM
Fluoranthene	ND		0.049	mg/Kg-dry	1	9/14/2017 03:40 PM

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

Client: Caerus Oil and Gas LLC
Project: K35 CDP Pipeline **Work Order:** 1709736
Sample ID: 20170913-K35 CDP (E) 15' **Lab ID:** 1709736-02
Collection Date: 9/13/2017 02:10 PM **Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	**0.18**		**0.049**	**mg/Kg-dry**	1	9/14/2017 03:40 PM
Indeno(1,2,3-cd)pyrene	ND		0.049	mg/Kg-dry	1	9/14/2017 03:40 PM
Naphthalene	**2.9**		**0.049**	**mg/Kg-dry**	1	9/14/2017 03:40 PM
Pyrene	ND		0.049	mg/Kg-dry	1	9/14/2017 03:40 PM
Surr: 2-Fluorobiphenyl	*30.5*		*20-140*	*%REC*	1	9/14/2017 03:40 PM
Surr: 4-Terphenyl-d14	*32.1*		*22-172*	*%REC*	1	9/14/2017 03:40 PM
Surr: Nitrobenzene-d5	*115*		*8-140*	*%REC*	1	9/14/2017 03:40 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**	Prep: SW5035 9/14/17 11:37		Analyst: **EMR**
Benzene	**15**		**0.30**	**mg/Kg**	10	9/14/2017 01:01 PM
Ethylbenzene	**20**		**0.30**	**mg/Kg**	10	9/14/2017 01:01 PM
m,p-Xylene	**280**		**6.0**	**mg/Kg**	100	9/14/2017 02:07 PM
o-Xylene	**39**		**0.30**	**mg/Kg**	10	9/14/2017 01:01 PM
Toluene	**180**		**3.0**	**mg/Kg**	100	9/14/2017 02:07 PM
Xylenes, Total	**330**		**9.0**	**mg/Kg**	100	9/14/2017 02:07 PM
Surr: 1,2-Dichloroethane-d4	*98.2*		*70-130*	*%REC*	10	9/14/2017 01:01 PM
Surr: 1,2-Dichloroethane-d4	*90.8*		*70-130*	*%REC*	100	9/14/2017 02:07 PM
Surr: 4-Bromofluorobenzene	*98.8*		*70-130*	*%REC*	100	9/14/2017 02:07 PM
Surr: 4-Bromofluorobenzene	*116*		*70-130*	*%REC*	10	9/14/2017 01:01 PM
Surr: Dibromofluoromethane	*99.6*		*70-130*	*%REC*	10	9/14/2017 01:01 PM
Surr: Dibromofluoromethane	*92.8*		*70-130*	*%REC*	100	9/14/2017 02:07 PM
Surr: Toluene-d8	*105*		*70-130*	*%REC*	100	9/14/2017 02:07 PM
Surr: Toluene-d8	*143*	S	*70-130*	*%REC*	10	9/14/2017 01:01 PM
ELECTRICAL CONDUCTIVITY (SAR)			**USDA H60 MET**	Prep: USDA Method 20B 9/18/17 15:00		Analyst: **JB**
Electrical Conductivity @ Saturation	**9.4**		**0.25**	**mmhos/cm @2**	50	9/19/2017 10:50 AM
CHROMIUM, TRIVALENT			**CALCULATION**			Analyst: **JJG**
Chromium, Trivalent	**36**		**1.2**	**mg/Kg-dry**	1	9/21/2017 08:22 AM
CHROMIUM, HEXAVALENT			**SW7196A**	Prep: SW3060A 9/18/17 19:30		Analyst: **RP**
Chromium, Hexavalent	ND		1.2	mg/Kg-dry	1	9/19/2017 03:30 PM
MOISTURE			**SW3550C**			Analyst: **NW**
Moisture	**18**		**0.050**	**% of sample**	1	9/15/2017 03:00 PM
PH			**SW9045D**	Prep: EXTRACT 9/15/17 12:16		Analyst: **STP**
pH	**8.52**		**0.100**	**s.u.**	1	9/15/2017 03:15 PM

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

ALS Group, USA

Date: *22-Sep-17*

Client: Caerus Oil and Gas LLC
Project: K35 CDP Pipeline
Work Order: 1709736
Sample ID: 20170913-K35 CDP POR 7'
Lab ID: 1709736-03
Collection Date: 9/13/2017 01:40 PM
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID			**SW8015C**	Prep: SW3546 9/14/17 13:10		Analyst: **KB**
DRO (C10-C28)	**9,300**		**33**	**mg/Kg-dry**	5	9/14/2017 07:12 PM
Surr: 4-Terphenyl-d14	*1,500*	S	*34-130*	*%REC*	5	9/14/2017 07:12 PM
GASOLINE RANGE ORGANICS BY GC-FID			**SW8015D**	Prep: SW5035 9/14/17 12:42		Analyst: **KB**
GRO (C6-C10)	**69,000**		**170**	**mg/Kg**	20	9/14/2017 07:49 PM
Surr: Toluene-d8	*466*	S	*71-123*	*%REC*	20	9/14/2017 07:49 PM
MERCURY BY CVAA			**SW7471B**	Prep: SW7471 9/15/17 11:56		Analyst: **RSH**
Mercury	**3.4**		**1.9**	**mg/Kg-dry**	100	9/15/2017 03:18 PM
METALS ANALYSIS BY ICP			**SW846 6010C**	Prep: SW3050B 9/14/17 13:37		Analyst: **RH**
Arsenic	**11**		**0.51**	**mg/Kg-dry**	1	9/15/2017 12:09 AM
Barium	**880**		**0.51**	**mg/Kg-dry**	1	9/15/2017 12:09 AM
Cadmium	ND		1.0	mg/Kg-dry	1	9/15/2017 12:09 AM
Chromium	**38**		**0.51**	**mg/Kg-dry**	1	9/15/2017 12:09 AM
Copper	**9.8**		**1.0**	**mg/Kg-dry**	1	9/15/2017 12:09 AM
Lead	**12**		**0.51**	**mg/Kg-dry**	1	9/15/2017 12:09 AM
Nickel	**18**		**0.51**	**mg/Kg-dry**	1	9/15/2017 12:09 AM
Selenium	**2.3**		**1.0**	**mg/Kg-dry**	1	9/15/2017 12:09 AM
Silver	ND		0.51	mg/Kg-dry	1	9/15/2017 12:09 AM
Zinc	**53**		**1.0**	**mg/Kg-dry**	1	9/15/2017 12:09 AM
SOLUBLE CATIONS FOR SAR			**SW846 6010C**	Prep: USDA Method 20B 9/18/17 15:00		Analyst: **RH**
Calcium	**62**		**5.0**	**mg/L**	10	9/21/2017 01:03 PM
Magnesium	**2.8**		**2.0**	**mg/L**	10	9/21/2017 01:03 PM
Sodium	**1,400**		**2.0**	**mg/L**	10	9/21/2017 01:03 PM
SODIUM ADSORPTION RATIO			**USDA H60 MET**	Prep: USDA Method 20B 9/18/17 15:00		Analyst: **RH**
Sodium Adsorption Ratio	**48**		**0.010**	**none**	1	9/21/2017
SEMI-VOLATILE ORGANIC COMPOUNDS			**SW846 8270D**	Prep: SW3546 9/14/17 13:10		Analyst: **RM**
Acenaphthene	ND		2.8	mg/Kg-dry	50	9/14/2017 06:44 PM
Anthracene	ND		2.8	mg/Kg-dry	50	9/14/2017 06:44 PM
Benzo(a)anthracene	ND		2.8	mg/Kg-dry	50	9/14/2017 06:44 PM
Benzo(a)pyrene	ND		2.8	mg/Kg-dry	50	9/14/2017 06:44 PM
Benzo(b)fluoranthene	ND		2.8	mg/Kg-dry	50	9/14/2017 06:44 PM
Benzo(k)fluoranthene	ND		2.8	mg/Kg-dry	50	9/14/2017 06:44 PM
Chrysene	ND		2.8	mg/Kg-dry	50	9/14/2017 06:44 PM
Dibenzo(a,h)anthracene	ND		2.8	mg/Kg-dry	50	9/14/2017 06:44 PM
Fluoranthene	ND		2.8	mg/Kg-dry	50	9/14/2017 06:44 PM

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

Client: Caerus Oil and Gas LLC
Project: K35 CDP Pipeline **Work Order:** 1709736
Sample ID: 20170913-K35 CDP POR 7' **Lab ID:** 1709736-03
Collection Date: 9/13/2017 01:40 PM **Matrix:** SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	ND		2.8	mg/Kg-dry	50	9/14/2017 06:44 PM
Indeno(1,2,3-cd)pyrene	ND		2.8	mg/Kg-dry	50	9/14/2017 06:44 PM
Naphthalene	**62**		**2.8**	**mg/Kg-dry**	50	9/14/2017 06:44 PM
Pyrene	ND		2.8	mg/Kg-dry	50	9/14/2017 06:44 PM
Surr: 2-Fluorobiphenyl	*70.7*		*20-140*	*%REC*	50	9/14/2017 06:44 PM
Surr: 4-Terphenyl-d14	*53.7*		*22-172*	*%REC*	50	9/14/2017 06:44 PM
Surr: Nitrobenzene-d5	*51.5*		*8-140*	*%REC*	50	9/14/2017 06:44 PM
VOLATILE ORGANIC COMPOUNDS			**SW8260B**	Prep: SW5035 9/14/17 11:37		Analyst: **EMR**
Benzene	**180**		**30**	**mg/Kg**	1000	9/14/2017 02:23 PM
Ethylbenzene	**140**		**30**	**mg/Kg**	1000	9/14/2017 02:23 PM
m,p-Xylene	**1,700**		**60**	**mg/Kg**	1000	9/14/2017 02:23 PM
o-Xylene	**260**		**30**	**mg/Kg**	1000	9/14/2017 02:23 PM
Toluene	**1,300**		**30**	**mg/Kg**	1000	9/14/2017 02:23 PM
Xylenes, Total	**2,000**		**90**	**mg/Kg**	1000	9/14/2017 02:23 PM
Surr: 1,2-Dichloroethane-d4	*91.2*		*70-130*	*%REC*	1000	9/14/2017 02:23 PM
Surr: 4-Bromofluorobenzene	*99.6*		*70-130*	*%REC*	1000	9/14/2017 02:23 PM
Surr: Dibromofluoromethane	*92.1*		*70-130*	*%REC*	1000	9/14/2017 02:23 PM
Surr: Toluene-d8	*104*		*70-130*	*%REC*	1000	9/14/2017 02:23 PM
ELECTRICAL CONDUCTIVITY (SAR)			**USDA H60 MET**	Prep: USDA Method 20B 9/18/17 15:00		Analyst: **JB**
Electrical Conductivity @ Saturation	**7.2**		**0.25**	**mmhos/cm @2**	50	9/19/2017 10:50 AM
CHROMIUM, TRIVALENT			**CALCULATION**			Analyst: **JJG**
Chromium, Trivalent	**38**		**1.3**	**mg/Kg-dry**	1	9/21/2017 08:22 AM
CHROMIUM, HEXAVALENT			**SW7196A**	Prep: SW3060A 9/18/17 19:30		Analyst: **RP**
Chromium, Hexavalent	ND		1.3	mg/Kg-dry	1	9/19/2017 03:30 PM
MOISTURE			**SW3550C**			Analyst: **NW**
Moisture	**25**		**0.050**	**% of sample**	1	9/15/2017 03:00 PM
PH			**SW9045D**	Prep: EXTRACT 9/15/17 12:16		Analyst: **STP**
pH	**7.17**		**0.100**	**s.u.**	1	9/15/2017 03:15 PM

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

ALS Group, USA

Date: 22-Sep-17

Client: Caerus Oil and Gas LLC

Work Order: 1709736

Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **107361** Instrument ID **GC8** Method: **SW8015C**

MBLK Sample ID: **DBLKS1-107361-107361** Units: **mg/Kg** Analysis Date: **9/14/2017 01:53 PM**

Client ID: Run ID: **GC8_170914A** SeqNo: **4639692** Prep Date: **9/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	ND	5.0								
Surr: 4-Terphenyl-d14	*2.783*	0	*3.33*	0	*83.6*	*34-130*	0			

LCS Sample ID: **DLCSS1-107361-107361** Units: **mg/Kg** Analysis Date: **9/14/2017 02:22 PM**

Client ID: Run ID: **GC8_170914A** SeqNo: **4639693** Prep Date: **9/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	289.8	5.0	333	0	87	65-122	0			
Surr: 4-Terphenyl-d14	*2.867*	0	*3.33*	0	*86.1*	*34-130*	0			

MS Sample ID: **1709736-01A MS** Units: **mg/Kg** Analysis Date: **9/14/2017 02:51 PM**

Client ID: **20170913-K35 CDP (E) 7'** Run ID: **GC8_170914A** SeqNo: **4639694** Prep Date: **9/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	2070	5.0	331.3	2766	-210	65-122	0			SEO
Surr: 4-Terphenyl-d14	*6.866*	0	*3.313*	0	*207*	*34-130*	0			*S*

MSD Sample ID: **1709736-01A MSD** Units: **mg/Kg** Analysis Date: **9/14/2017 03:20 PM**

Client ID: **20170913-K35 CDP (E) 7'** Run ID: **GC8_170914A** SeqNo: **4639695** Prep Date: **9/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	2667	5.0	330.6	2766	-30	65-122	2070	25.2	30	SEO
Surr: 4-Terphenyl-d14	*7.909*	0	*3.306*	0	*239*	*34-130*	6.866	*14.1*	*30*	*S*

The following samples were analyzed in this batch: 1709736-01A 1709736-02A 1709736-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 1709736
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **107399** Instrument ID **GC9** Method: **SW8015D**

MBLK Sample ID: **MBLK-107399-107399** Units: **µg/Kg-dry** Analysis Date: **9/14/2017 02:19 PM**
Client ID: Run ID: **GC9_170914A** SeqNo: **4639413** Prep Date: **9/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	ND	5,000								
Surr: Toluene-d8	*5097*	0	*5000*	0	*102*	*71-123*	0			

LCS Sample ID: **LCS-107399-107399** Units: **µg/Kg-dry** Analysis Date: **9/14/2017 01:20 PM**
Client ID: Run ID: **GC9_170914A** SeqNo: **4639412** Prep Date: **9/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	477200	5,000	500000	0	95.4	71-123	0			
Surr: Toluene-d8	*5984*	0	*5000*	0	*120*	*71-123*	0			

MS Sample ID: **1709736-01A MS** Units: **µg/Kg-dry** Analysis Date: **9/14/2017 02:49 PM**
Client ID: **20170913-K35 CDP (E) 7'** Run ID: **GC9_170914A** SeqNo: **4639414** Prep Date: **9/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	8011000	6,800	676500	8409000	-58.9	71-123	0			SEO
Surr: Toluene-d8	*89010*	0	*6765*	0	*1320*	*71-123*	0			*S*

MSD Sample ID: **1709736-01A MSD** Units: **µg/Kg-dry** Analysis Date: **9/14/2017 03:19 PM**
Client ID: **20170913-K35 CDP (E) 7'** Run ID: **GC9_170914A** SeqNo: **4639415** Prep Date: **9/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	7138000	6,800	676500	8409000	-188	71-123	8011000	11.5	30	SEO
Surr: Toluene-d8	*87380*	0	*6765*	0	*1290*	*71-123*	89010	*1.85*	*30*	*S*

The following samples were analyzed in this batch: 1709736-01A 1709736-02A 1709736-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 1709736
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **107459** Instrument ID **HG1** Method: **SW7471B**

MBLK Sample ID: **MBLK-107459-107459** Units: **mg/Kg** Analysis Date: **9/15/2017 01:19 PM**
Client ID: Run ID: **HG1_170915A** SeqNo: **4640916** 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
Mercury	ND	0.020								

LCS Sample ID: **LCS-107459-107459** Units: **mg/Kg** Analysis Date: **9/15/2017 01:21 PM**
Client ID: Run ID: **HG1_170915A** SeqNo: **4640917** 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
Mercury	0.1775	0.020	0.1665	0	107	80-120	0			

MS Sample ID: **1709497-05BMS** Units: **mg/Kg** Analysis Date: **9/15/2017 04:22 PM**
Client ID: Run ID: **HG1_170915A** SeqNo: **4641339** 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
Mercury	0.2367	0.017	0.1399	0.0986	98.7	75-125	0			

MSD Sample ID: **1709497-05BMSD** Units: **mg/Kg** Analysis Date: **9/15/2017 04:24 PM**
Client ID: Run ID: **HG1_170915A** SeqNo: **4641340** 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
Mercury	0.2584	0.017	0.1403	0.0986	114	75-125	0.2367	8.78	35	

The following samples were analyzed in this batch: 1709736-01A 1709736-02A 1709736-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 1709736
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **107393** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK Sample ID: **MBLK-107393-107393** Units: **mg/L** Analysis Date: **9/14/2017 10:16 PM**
Client ID: Run ID: **ICP2_170914A** SeqNo: **4640310** Prep Date: **9/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.25								
Cadmium	0.1125	0.50								J
Copper	ND	0.50								
Zinc	ND	0.50								

LCS Sample ID: **LCS-107393-107393** Units: **mg/L** Analysis Date: **9/14/2017 10:22 PM**
Client ID: Run ID: **ICP2_170914A** SeqNo: **4640311** Prep Date: **9/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	5.238	0.25	5	0	105	80-120	0			
Cadmium	5.406	0.50	5	0	108	80-120	0			
Copper	5.279	0.50	5	0	106	80-120	0			
Zinc	5.447	0.50	5	0	109	80-120	0			

MS Sample ID: **1709736-01AMS** Units: **mg/Kg** Analysis Date: **9/14/2017 11:50 PM**
Client ID: **20170913-K35 CDP (E) 7'** Run ID: **ICP2_170914A** SeqNo: **4640327** Prep Date: **9/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	16.05	0.39	7.825	6.816	118	75-125	0			
Barium	202.8	0.39	7.825	185.7	219	75-125	0			SO
Cadmium	9.184	0.78	7.825	0.2543	114	75-125	0			
Chromium	39.71	0.39	7.825	28.78	140	75-125	0			S
Copper	15.25	0.78	7.825	7.379	101	75-125	0			
Lead	17.57	0.39	7.825	9.876	98.3	75-125	0			
Nickel	21.14	0.39	7.825	13.42	98.7	75-125	0			
Selenium	9.108	0.78	7.825	1.694	94.8	75-125	0			
Silver	8.284	0.39	7.825	-0.3044	110	75-125	0			
Zinc	39.66	0.78	7.825	29.39	131	75-125	0			S

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

Client: Caerus Oil and Gas LLC
Work Order: 1709736
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **107393** Instrument ID **ICP2** Method: **SW846 6010C**

MSD Sample ID: **1709736-01AMSD** Units: **mg/Kg** Analysis Date: **9/14/2017 11:56 PM**
Client ID: **20170913-K35 CDP (E) 7'** Run ID: **ICP2_170914A** SeqNo: **4640328** Prep Date: **9/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	15.49	0.39	7.8	6.816	111	75-125	16.05	3.54	20	
Barium	175.5	0.39	7.8	185.7	-131	75-125	202.8	14.5	20	SO
Cadmium	9.191	0.78	7.8	0.2543	115	75-125	9.184	0.0729	20	
Chromium	37.05	0.39	7.8	28.78	106	75-125	39.71	6.95	20	
Copper	15.24	0.78	7.8	7.379	101	75-125	15.25	0.0646	20	
Lead	17.26	0.39	7.8	9.876	94.7	75-125	17.57	1.75	20	
Nickel	20.73	0.39	7.8	13.42	93.8	75-125	21.14	1.97	20	
Selenium	9.117	0.78	7.8	1.694	95.2	75-125	9.108	0.0981	20	
Silver	8.34	0.39	7.8	-0.3044	111	75-125	8.284	0.677	20	
Zinc	37.04	0.78	7.8	29.39	98.1	75-125	39.66	6.84	20	

The following samples were analyzed in this batch: 1709736-01A 1709736-02A 1709736-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 1709736
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **107541** Instrument ID **ICP2** Method: **SW846 6010C**

DUP Sample ID: **1709736-02ADUP** Units: **mg/L** Analysis Date: **9/21/2017 12:57 PM**
Client ID: **20170913-K35 CDP (E) 15'** Run ID: **ICP2_170921A** SeqNo: **4650587** Prep Date: **9/18/2017** DF: **10**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	52.39	5.0	0	0	0	0-0	0			
Magnesium	6.279	2.0	0	0	0	0-0	0			
Sodium	1377	2.0	0	0	0	0-0	0			

DUP Sample ID: **1709736-02ADUP** Units: **none** Analysis Date: **9/21/2017**
Client ID: **20170913-K35 CDP (E) 15'** Run ID: **SAR_170921A** SeqNo: **4650652** 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
Sodium Adsorption Ratio	47.85	0.010	0	0	0		46.92	1.97	50	

The following samples were analyzed in this batch: 1709736-01A 1709736-02A 1709736-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 1709736
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **107360** Instrument ID **SVMS6** Method: **SW846 8270D**

MBLK Sample ID: **SBLKS1-107360-107360** Units: **µg/Kg** Analysis Date: **9/14/2017 02:44 PM**
Client ID: Run ID: **SVMS6_170914A** SeqNo: **4639713** Prep Date: **9/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	ND	42								
Anthracene	ND	42								
Benzo(a)anthracene	ND	42								
Benzo(a)pyrene	ND	42								
Benzo(b)fluoranthene	ND	42								
Benzo(k)fluoranthene	ND	42								
Chrysene	ND	42								
Dibenzo(a,h)anthracene	ND	42								
Fluoranthene	ND	42								
Fluorene	ND	42								
Indeno(1,2,3-cd)pyrene	ND	42								
Naphthalene	ND	42								
Pyrene	ND	42								
Surr: 2-Fluorobiphenyl	*2870*	0	*3333*	0	*86.1*	*20-140*	0			
Surr: 4-Terphenyl-d14	*3405*	0	*3333*	0	*102*	*22-172*	0			
Surr: Nitrobenzene-d5	*3050*	0	*3333*	0	*91.5*	*8-140*	0			

LCS Sample ID: **SLCSS1-107360-107360** Units: **µg/Kg** Analysis Date: **9/14/2017 02:58 PM**
Client ID: Run ID: **SVMS6_170914A** SeqNo: **4639714** Prep Date: **9/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	1150	42	1333	0	86.3	40-140	0			
Anthracene	1185	42	1333	0	88.9	40-140	0			
Benzo(a)anthracene	1217	42	1333	0	91.3	40-140	0			
Benzo(a)pyrene	1337	42	1333	0	100	40-140	0			
Benzo(b)fluoranthene	1395	42	1333	0	105	40-140	0			
Benzo(k)fluoranthene	1185	42	1333	0	88.9	40-140	0			
Chrysene	1170	42	1333	0	87.8	40-140	0			
Dibenzo(a,h)anthracene	1461	42	1333	0	110	40-140	0			
Fluoranthene	968.1	42	1333	0	72.6	40-140	0			
Fluorene	1207	42	1333	0	90.5	40-140	0			
Indeno(1,2,3-cd)pyrene	1491	42	1333	0	112	40-140	0			
Naphthalene	1168	42	1333	0	87.6	40-140	0			
Pyrene	1038	42	1333	0	77.9	40-140	0			
Surr: 2-Fluorobiphenyl	*2947*	0	*3333*	0	*88.4*	*20-140*	0			
Surr: 4-Terphenyl-d14	*3107*	0	*3333*	0	*93.2*	*22-172*	0			
Surr: Nitrobenzene-d5	*3105*	0	*3333*	0	*93.2*	*8-140*	0			

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

Client: Caerus Oil and Gas LLC
Work Order: 1709736
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **107360** Instrument ID **SVMS6** Method: **SW846 8270D**

MS Sample ID: **1709736-02A MS** Units: **µg/Kg** Analysis Date: **9/14/2017 03:12 PM**
Client ID: **20170913-K35 CDP (E) 15'** Run ID: **SVMS6_170914A** SeqNo: **4639715** Prep Date: **9/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	477	41	1314	0	36.3	40-140	0			S
Anthracene	538.6	41	1314	0	41	40-140	0			
Benzo(a)anthracene	560.7	41	1314	0	42.7	40-140	0			
Benzo(a)pyrene	607.4	41	1314	0	46.2	40-140	0			
Benzo(b)fluoranthene	613.1	41	1314	0	46.7	40-140	0			
Benzo(k)fluoranthene	503.9	41	1314	0	38.4	40-140	0			S
Chrysene	512.5	41	1314	0	39	40-140	0			S
Dibenzo(a,h)anthracene	677.7	41	1314	0	51.6	40-140	0			
Fluoranthene	371.6	41	1314	0	28.3	40-140	0			S
Fluorene	793.4	41	1314	146.1	49.3	40-140	0			
Indeno(1,2,3-cd)pyrene	693.4	41	1314	0	52.8	40-140	0			
Naphthalene	4494	41	1314	2407	159	40-140	0			S
Pyrene	454.6	41	1314	0	34.6	40-140	0			S
Surr: 2-Fluorobiphenyl	*1235*	0	*3285*	0	*37.6*	*20-140*	0			
Surr: 4-Terphenyl-d14	*1394*	0	*3285*	0	*42.4*	*22-172*	0			
Surr: Nitrobenzene-d5	*632.7*	0	*3285*	0	*19.3*	*8-140*	0			

MSD Sample ID: **1709736-02A MSD** Units: **µg/Kg** Analysis Date: **9/14/2017 03:26 PM**
Client ID: **20170913-K35 CDP (E) 15'** Run ID: **SVMS6_170914A** SeqNo: **4639716** Prep Date: **9/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	634	41	1312	0	48.3	40-140	477	28.3	30	
Anthracene	715.6	41	1312	0	54.5	40-140	538.6	28.2	30	
Benzo(a)anthracene	725.3	41	1312	0	55.3	40-140	560.7	25.6	30	
Benzo(a)pyrene	812.8	41	1312	0	61.9	40-140	607.4	28.9	30	
Benzo(b)fluoranthene	806.8	41	1312	0	61.5	40-140	613.1	27.3	30	
Benzo(k)fluoranthene	687	41	1312	0	52.4	40-140	503.9	30.7	30	R
Chrysene	659.6	41	1312	0	50.3	40-140	512.5	25.1	30	
Dibenzo(a,h)anthracene	941	41	1312	0	71.7	40-140	677.7	32.5	30	R
Fluoranthene	483.7	41	1312	0	36.9	40-140	371.6	26.2	30	S
Fluorene	984.5	41	1312	146.1	63.9	40-140	793.4	21.5	30	
Indeno(1,2,3-cd)pyrene	928.1	41	1312	0	70.7	40-140	693.4	28.9	30	
Naphthalene	4978	41	1312	2407	196	40-140	4494	10.2	30	S
Pyrene	585.8	41	1312	0	44.6	40-140	454.6	25.2	30	
Surr: 2-Fluorobiphenyl	*1626*	0	*3281*	0	*49.6*	*20-140*	1235	*27.3*	*0*	
Surr: 4-Terphenyl-d14	*1839*	0	*3281*	0	*56*	*22-172*	1394	*27.5*	*0*	
Surr: Nitrobenzene-d5	*2269*	0	*3281*	0	*69.1*	*8-140*	632.7	*113*	*0*	

The following samples were analyzed in this batch: 1709736-01A 1709736-02A 1709736-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 1709736
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **107387** Instrument ID **VMS8** Method: **SW8260B**

MBLK Sample ID: **MBLK-107387-107387** Units: **µg/Kg-dry** Analysis Date: **9/14/2017 11:08 AM**
Client ID: Run ID: **VMS8_170914A** SeqNo: **4638824** Prep Date: **9/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	ND	30								
Ethylbenzene	ND	30								
m,p-Xylene	ND	60								
o-Xylene	ND	30								
Toluene	ND	30								
Xylenes, Total	ND	90								
Surr: 1,2-Dichloroethane-d4	*964*	0	*1000*	0	*96.4*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*965.5*	0	*1000*	0	*96.6*	*70-130*	0			
Surr: Dibromofluoromethane	*938.5*	0	*1000*	0	*93.8*	*70-130*	0			
Surr: Toluene-d8	*1023*	0	*1000*	0	*102*	*70-130*	0			

LCS Sample ID: **LCS-107387-107387** Units: **µg/Kg-dry** Analysis Date: **9/14/2017 10:19 AM**
Client ID: Run ID: **VMS8_170914A** SeqNo: **4638823** Prep Date: **9/14/2017** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1036	30	1000	0	104	75-125	0			
Ethylbenzene	1046	30	1000	0	105	75-125	0			
m,p-Xylene	2088	60	2000	0	104	80-125	0			
o-Xylene	1042	30	1000	0	104	75-125	0			
Toluene	1039	30	1000	0	104	70-125	0			
Xylenes, Total	3131	90	3000	0	104	75-125	0			
Surr: 1,2-Dichloroethane-d4	*1014*	0	*1000*	0	*101*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*1002*	0	*1000*	0	*100*	*70-130*	0			
Surr: Dibromofluoromethane	*1038*	0	*1000*	0	*104*	*70-130*	0			
Surr: Toluene-d8	*1054*	0	*1000*	0	*105*	*70-130*	0			

MS Sample ID: **1709736-01A MS** Units: **µg/Kg-dry** Analysis Date: **9/14/2017 06:18 PM**
Client ID: **20170913-K35 CDP (E) 7'** Run ID: **VMS8_170914A** SeqNo: **4639835** Prep Date: **9/14/2017** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	122600	4,100	135300	9450	83.6	75-125	0			
Ethylbenzene	134300	4,100	135300	20850	83.9	75-125	0			
m,p-Xylene	543500	8,100	270600	280400	97.2	80-125	0			
o-Xylene	158800	4,100	135300	40950	87.1	75-125	0			
Toluene	272300	4,100	135300	138400	99	70-125	0			
Xylenes, Total	702300	12,000	405900	321400	93.9	75-125	0			
Surr: 1,2-Dichloroethane-d4	*132000*	0	*135300*	0	*97.6*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*133800*	0	*135300*	0	*98.9*	*70-130*	0			
Surr: Dibromofluoromethane	*132900*	0	*135300*	0	*98.2*	*70-130*	0			
Surr: Toluene-d8	*139500*	0	*135300*	0	*103*	*70-130*	0			

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

Client: Caerus Oil and Gas LLC
Work Order: 1709736
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **107387** Instrument ID **VMS8** Method: **SW8260B**

MSD Sample ID: **1709736-01A MSD** Units: **µg/Kg-dry** Analysis Date: **9/14/2017 06:35 PM**
Client ID: **20170913-K35 CDP (E) 7'** Run ID: **VMS8_170914A** SeqNo: **4639836** Prep Date: **9/14/2017** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	139500	4,100	135300	9450	96.1	75-125	122600	12.9	30	
Ethylbenzene	151000	4,100	135300	20850	96.2	75-125	134300	11.7	30	
m,p-Xylene	557200	8,100	270600	280400	102	80-125	543500	2.48	30	
o-Xylene	173600	4,100	135300	40950	98.1	75-125	158800	8.95	30	
Toluene	275100	4,100	135300	138400	101	70-125	272300	0.989	30	
Xylenes, Total	730900	12,000	405900	321400	101	75-125	702300	3.98	30	
Surr: 1,2-Dichloroethane-d4	*129100*	0	*135300*	0	*95.4*	*70-130*	132000	*2.23*	*30*	
Surr: 4-Bromofluorobenzene	*133700*	0	*135300*	0	*98.8*	*70-130*	133800	*0.0506*	*30*	
Surr: Dibromofluoromethane	*139800*	0	*135300*	0	*103*	*70-130*	132900	*5.01*	*30*	
Surr: Toluene-d8	*142200*	0	*135300*	0	*105*	*70-130*	139500	*1.92*	*30*	

The following samples were analyzed in this batch: 1709736-01A 1709736-02A 1709736-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 1709736
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **107458** Instrument ID **WETCHEM** Method: **SW9045D**

LCS Sample ID: **LCS-107458-107458** Units: **s.u.** Analysis Date: **9/15/2017 03:15 PM**
Client ID: Run ID: **WETCHEM_170915K** SeqNo: **4641162** 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
pH	3.94	0.10	4	0	98.5	90-110	0			

DUP Sample ID: **1709589-01A DUP** Units: **s.u.** Analysis Date: **9/15/2017 03:15 PM**
Client ID: Run ID: **WETCHEM_170915K** SeqNo: **4641164** 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
pH	5.39	0.10	0	0	0	0-0	5.42	0.555	20	

The following samples were analyzed in this batch: 1709736-01A 1709736-02A 1709736-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 1709736
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **107541** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

DUP Sample ID: **1709736-02A DUP** Units: **mmhos/cm @25°** Analysis Date: **9/19/2017 10:50 AM**
Client ID: **20170913-K35 CDP (E) 15'** Run ID: **WETCHEM_170919D** SeqNo: **4645435** Prep Date: **9/18/2017** DF: **50**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	8.455	0.25	0	0	0		9.355	10.1	50	

The following samples were analyzed in this batch: 1709736-01A 1709736-02A 1709736-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 1709736
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **107696** Instrument ID **WETCHEM** Method: **SW7196A**

MBLK Sample ID: **MBLK-107696-107696** Units: **mg/Kg** Analysis Date: **9/19/2017 03:30 PM**
Client ID: Run ID: **WETCHEM_170919I** SeqNo: **4648790** 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
Chromium, Hexavalent	ND	1.0								

LCS Sample ID: **LCS-107696-107696** Units: **mg/Kg** Analysis Date: **9/19/2017 03:30 PM**
Client ID: Run ID: **WETCHEM_170919I** SeqNo: **4648791** 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
Chromium, Hexavalent	5.05	1.0	5	0	101	80-120	0			

MS Sample ID: **1709736-01A MS** Units: **mg/Kg** Analysis Date: **9/19/2017 03:30 PM**
Client ID: **20170913-K35 CDP (E) 7'** Run ID: **WETCHEM_170919I** SeqNo: **4648796** 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
Chromium, Hexavalent	4.68	1.0	5	0.28	88	75-125	0			

MS Sample ID: **1709736-01A MSI** Units: **mg/Kg** Analysis Date: **9/19/2017 03:30 PM**
Client ID: **20170913-K35 CDP (E) 7'** Run ID: **WETCHEM_170919I** SeqNo: **4648798** Prep Date: **9/18/2017** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	1386	100	1641	0.28	84.4	75-125	0			

MSD Sample ID: **1709736-01A MSD** Units: **mg/Kg** Analysis Date: **9/19/2017 03:30 PM**
Client ID: **20170913-K35 CDP (E) 7'** Run ID: **WETCHEM_170919I** SeqNo: **4648797** 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
Chromium, Hexavalent	4.93	1.0	5	0.28	93	75-125	4.68	5.2	20	

The following samples were analyzed in this batch: 1709736-01A 1709736-02A 1709736-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 1709736
Project: K35 CDP Pipeline

QC BATCH REPORT

Batch ID: **R220120** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R220120** Units: **% of sample** Analysis Date: **9/15/2017 03:00 PM**
Client ID: Run ID: **MOIST_170914A** SeqNo: **4640487** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	ND	0.050								

LCS Sample ID: **LCS-R220120** Units: **% of sample** Analysis Date: **9/15/2017 03:00 PM**
Client ID: Run ID: **MOIST_170914A** SeqNo: **4640486** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	100	0.050	100	0	100	99.5-100.5	0			

DUP Sample ID: **1709736-03A** Units: **% of sample** Analysis Date: **9/15/2017 03:00 PM**
Client ID: **20170913-K35 CDP POR 7'** Run ID: **MOIST_170914A** SeqNo: **4640484** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	24.59	0.050	0	0	0	0-0	24.59	0	5	

The following samples were analyzed in this batch: 1709736-01A 1709736-02A 1709736-03A

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 262r6

WORKORDER # 1709736

PAGE 1 of 1

DISPOSAL By Lab or Return to Client

PROJECT NAME	K35 CDP Pipeline	SAMPLER	Brett Middleton
PROJECT No.		SITE ID	
		EDD FORMAT	
		PURCHASE ORDER	
COMPANY NAME	Caerus Piceance,LLC	BILL TO COMPANY	Caerus Piceance, LLC
SEND REPORT TO	Jake Janicek	INVOICE ATTN TO	Jake Janicek
ADDRESS	120 N. Railroad,suite D	ADDRESS	120 N. Railroad,suite D
CITY / STATE / ZIP	Parachute Co 81635	CITY / STATE / ZIP	Parachute CO 81635
PHONE	970-285-9608	PHONE	970-285-9608
FAX		FAX	
E-MAIL	jjanicek@caerusoilandgas.com	E-MAIL	invoices@caerusoilandgas.com

DATE 9-13-17

TURNAROUND Same day

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	TPH/GRO/DRO	BTEX	Table 910 PAH's	EC	PH	SAR	Benzene	Table 910 Metals
1	20170913 - K35 CDP (E) 7'	S	9/13/17	1335	2			X	X	X	X	X	X	-	X
2	20170913 - K35 CDP (E) 15'	S	9/13/17	1410	2			X	X	X	X	X	X		X
3	20170913 - K35 CDP POL 7'	S	9/13/17	1340	2			X	X	X	X	X	X		X

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

For metals or anions, please detail analytes below.

Comments: Same day BTEX / TPH GRO/DRO

SR2 3.4°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	1430
RECEIVED BY			9-13-17	1430
RELINQUISHED BY			9-13-17	1830
RECEIVED BY		Diana F. Shaw	9/14/17	1000
RELINQUISHED BY				
RECEIVED BY				

ALS Group, USA

Sample Receipt Checklist

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

Work Order: **1709736** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 14-Sep-17 (Date) Reviewed by: Chad Whelton (eSignature) 15-Sep-17 (Date)

Matrices: Soil

Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Sample(s) received on ice?	Yes ☑	No ☐	
Temperature(s)/Thermometer(s):	3.4/3.4 c	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	9/14/2017 11:10:43 AM		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑
pH adjusted?	Yes ☐	No ☐	N/A ☑
pH adjusted by:	-		

Login Notes:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction: