26-Sep-2018

Brett Middleton
Caerus Oil and Gas LLC
143 Diamond Ave.
Parachute, CO 81635

Re: **29C** Work Order: **18091066**

Dear Brett,

ALS Environmental received 3 samples on 18-Sep-2018 09:00 AM for the analyses presented in the following report.

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

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

The total number of pages in this report is 28.

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,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

ALS Group, USA

Date: 26-Sep-18

Client: Caerus Oil and Gas LLC
Project: 29C
Work Order: **18091066**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
18091066-01	20180911-29C (Terminus @6")	Soil		9/11/2018 11:58	9/18/2018 09:00	☐
18091066-02	20180911-29C (SS-01 @6")	Soil		9/11/2018 12:05	9/18/2018 09:00	☐
18091066-03	20180911-29C (SS-02 @6"	Soil		9/11/2018 12:15	9/18/2018 09:00	☐

Client: Caerus Oil and Gas LLC
Project: 29C
Work Order: 18091066

Case Narrative

Batch 124877, Method PH_9045_S, Samples 18091066-01A, -02A, and -03A: Sample holding times for pH expired before receipt by laboratory. Results should be considered estimated.

Batch 124897, Method SVO_8270_S, Sample 18091066-01A MS/MSD: The MS/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 124897, Method SVO_8270_S, Sample 18091066-02A: One or more base/neutral surrogate recoveries were below the lower control limits. The base/neutral sample results may be biased low.

Batch 124899, Method DRO_8015_S, Sample 18091066-01A MS/MSD: The MS/MSD recovery was below the lower control limit for DRO. The corresponding result in the parent sample may be biased low.

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
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
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: *26-Sep-18*

Client: Caerus Oil and Gas LLC
Project: 29C
Sample ID: 20180911-29C (Terminus @6")
Collection Date: 9/11/2018 11:58 AM

Work Order: 18091066
Lab ID: 18091066-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID		Method: **SW8015M**			Prep: SW3546 / 9/21/18		Analyst: **RP**
DRO (C10-C28)	U		3.0	5.2	mg/Kg-dry	1	9/21/2018 16:18
Surr: 4-Terphenyl-d14	*76.5*			*33-111*	*%REC*	1	9/21/2018 16:18
GASOLINE RANGE ORGANICS BY GC-FID		Method: **SW8015D**			Prep: SW5035 / 9/19/18		Analyst: **RP**
GRO (C6-C10)	U		2.3	5.5	mg/Kg	1	9/20/2018 06:27
Surr: Toluene-d8	*90.9*			*71-123*	*%REC*	1	9/20/2018 06:27
MERCURY BY CVAA		Method: **SW7471B**			Prep: SW7471 / 9/21/18		Analyst: **RSH**
Mercury	**0.028**		**0.0018**	**0.018**	**mg/Kg-dry**	1	9/21/2018 11:45
METALS ANALYSIS BY ICP		Method: **SW846 6010C**			Prep: SW3050B / 9/20/18		Analyst: **DSC**
Arsenic	**5.4**		**0.097**	**0.37**	**mg/Kg-dry**	1	9/20/2018 22:55
Barium	**430**		**0.15**	**0.37**	**mg/Kg-dry**	1	9/20/2018 22:55
Cadmium	**0.20**	J	**0.036**	**0.75**	**mg/Kg-dry**	1	9/20/2018 22:55
Chromium	**28**		**0.021**	**0.37**	**mg/Kg-dry**	1	9/20/2018 22:55
Copper	**20**		**0.16**	**0.75**	**mg/Kg-dry**	1	9/20/2018 22:55
Lead	**13**		**0.079**	**0.37**	**mg/Kg-dry**	1	9/20/2018 22:55
Nickel	**18**		**0.15**	**0.37**	**mg/Kg-dry**	1	9/20/2018 22:55
Selenium	**0.24**	J	**0.21**	**0.75**	**mg/Kg-dry**	1	9/20/2018 22:55
Silver	U		0.046	0.37	mg/Kg-dry	1	9/20/2018 22:55
Zinc	**50**		**0.060**	**0.75**	**mg/Kg-dry**	1	9/20/2018 22:55
SOLUBLE CATIONS FOR SAR		Method: **SW6020A**			Prep: USDA Method 20B / 9/21/18		Analyst: **STP**
Calcium	**330**		**0.86**	**5.0**	**mg/L**	10	9/21/2018 22:22
Magnesium	**220**		**0.068**	**2.0**	**mg/L**	10	9/21/2018 22:22
Sodium	**940**		**0.34**	**2.0**	**mg/L**	10	9/21/2018 22:22
SODIUM ADSORPTION RATIO		Method: **USDA H60 METHOD 2**			Prep: USDA Method 20B / 9/21/18		Analyst: **STP**
Sodium Adsorption Ratio	**9.9**		**0.010**	**0.010**	**none**	1	9/21/2018
SEMI-VOLATILE ORGANIC COMPOUNDS		Method: **SW846 8270D**			Prep: SW3546 / 9/21/18		Analyst: **KAW**
Acenaphthene	U		0.0051	0.0070	mg/Kg-dry	1	9/21/2018 13:20
Anthracene	U		0.0049	0.0070	mg/Kg-dry	1	9/21/2018 13:20
Benzo(a)anthracene	**0.0091**		**0.0060**	**0.0070**	**mg/Kg-dry**	1	9/21/2018 13:20
Benzo(a)pyrene	**0.013**		**0.0043**	**0.0070**	**mg/Kg-dry**	1	9/21/2018 13:20
Benzo(b)fluoranthene	**0.019**		**0.0052**	**0.0070**	**mg/Kg-dry**	1	9/21/2018 13:20
Benzo(k)fluoranthene	**0.0091**		**0.0053**	**0.0070**	**mg/Kg-dry**	1	9/21/2018 13:20
Chrysene	**0.0077**		**0.0057**	**0.0070**	**mg/Kg-dry**	1	9/21/2018 13:20
Dibenzo(a,h)anthracene	U		0.0038	0.0070	mg/Kg-dry	1	9/21/2018 13:20
Fluoranthene	**0.0084**		**0.0034**	**0.0070**	**mg/Kg-dry**	1	9/21/2018 13:20

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

Client: Caerus Oil and Gas LLC
Project: 29C
Sample ID: 20180911-29C (Terminus @6")
Collection Date: 9/11/2018 11:58 AM

Work Order: 18091066
Lab ID: 18091066-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	U		0.0051	0.0070	mg/Kg-dry	1	9/21/2018 13:20
Indeno(1,2,3-cd)pyrene	**0.019**		**0.0049**	**0.0070**	**mg/Kg-dry**	1	9/21/2018 13:20
Naphthalene	**0.012**		**0.0045**	**0.0070**	**mg/Kg-dry**	1	9/21/2018 13:20
Pyrene	**0.0084**		**0.0013**	**0.0070**	**mg/Kg-dry**	1	9/21/2018 13:20
Surr: 2-Fluorobiphenyl	*69.0*			*44-107*	*%REC*	1	9/21/2018 13:20
Surr: 4-Terphenyl-d14	*58.1*			*52-123*	*%REC*	1	9/21/2018 13:20
Surr: Nitrobenzene-d5	*61.0*			*41-94*	*%REC*	1	9/21/2018 13:20
VOLATILE ORGANIC COMPOUNDS		Method:	**SW8260C**		Prep: SW5035 / 9/19/18		Analyst: **AK**
Benzene	U		0.0051	0.030	mg/Kg	1	9/19/2018 19:16
Ethylbenzene	U		0.0063	0.030	mg/Kg	1	9/19/2018 19:16
m,p-Xylene	U		0.014	0.060	mg/Kg	1	9/19/2018 19:16
o-Xylene	U		0.012	0.030	mg/Kg	1	9/19/2018 19:16
Toluene	U		0.0082	0.030	mg/Kg	1	9/19/2018 19:16
Xylenes, Total	U		0.026	0.090	mg/Kg	1	9/19/2018 19:16
Surr: 1,2-Dichloroethane-d4	*96.5*			*70-130*	*%REC*	1	9/19/2018 19:16
Surr: 4-Bromofluorobenzene	*113*			*70-130*	*%REC*	1	9/19/2018 19:16
Surr: Dibromofluoromethane	*83.7*			*70-130*	*%REC*	1	9/19/2018 19:16
Surr: Toluene-d8	*107*			*70-130*	*%REC*	1	9/19/2018 19:16
ELECTRICAL CONDUCTIVITY (SAR)		Method:	**USDA H60 METHOD 2**		Prep: USDA Method 20B / 9/21/18		Analyst: **JB**
Electrical Conductivity @ Saturation	**0.51**		**0.011**	**0.10**	**mmhos/cm @25°**	20	9/23/2018 15:15
CHROMIUM, TRIVALENT		Method:	**CALCULATION**				Analyst: **MB**
Chromium, Trivalent	**27**		**0.33**	**1.1**	**mg/Kg-dry**	1	9/24/2018 17:30
CHROMIUM, HEXAVALENT		Method:	**SW7196A**		Prep: SW3060A / 9/20/18		Analyst: **JEB**
Chromium, Hexavalent	**0.78**	J	**0.33**	**1.1**	**mg/Kg-dry**	1	9/21/2018 12:00
MOISTURE		Method:	**SW3550C**				Analyst: **TRP**
Moisture	**5.0**		**0.025**	**0.050**	**% of sample**	1	9/24/2018 19:05
PH		Method:	**SW9045D**		Prep: EXTRACT / 9/20/18		Analyst: **RZM**
pH	**7.44**	H	**0.10**	**0.100**	**s.u.**	1	9/20/2018 16:31

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

ALS Group, USA

Date: *26-Sep-18*

Client: Caerus Oil and Gas LLC
Project: 29C
Sample ID: 20180911-29C (SS-01 @6")
Collection Date: 9/11/2018 12:05 PM

Work Order: 18091066
Lab ID: 18091066-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID		Method: **SW8015M**			Prep: SW3546 / 9/21/18		Analyst: **RP**
DRO (C10-C28)	**99**		**3.9**	**6.8**	**mg/Kg-dry**	1	9/21/2018 16:47
Surr: 4-Terphenyl-d14	*64.3*			*33-111*	*%REC*	1	9/21/2018 16:47
GASOLINE RANGE ORGANICS BY GC-FID		Method: **SW8015D**			Prep: SW5035 / 9/19/18		Analyst: **RP**
GRO (C6-C10)	U		3.7	8.9	mg/Kg	1	9/20/2018 06:55
Surr: Toluene-d8	*92.6*			*71-123*	*%REC*	1	9/20/2018 06:55
MERCURY BY CVAA		Method: **SW7471B**			Prep: SW7471 / 9/21/18		Analyst: **RSH**
Mercury	**0.034**		**0.0022**	**0.022**	**mg/Kg-dry**	1	9/21/2018 11:47
METALS ANALYSIS BY ICP		Method: **SW846 6010C**			Prep: SW3050B / 9/20/18		Analyst: **DSC**
Arsenic	**11**		**0.12**	**0.47**	**mg/Kg-dry**	1	9/20/2018 23:02
Barium	**910**		**0.19**	**0.47**	**mg/Kg-dry**	1	9/20/2018 23:02
Cadmium	**0.25**	J	**0.045**	**0.94**	**mg/Kg-dry**	1	9/20/2018 23:02
Chromium	**41**		**0.026**	**0.47**	**mg/Kg-dry**	1	9/20/2018 23:02
Copper	**30**		**0.21**	**0.94**	**mg/Kg-dry**	1	9/20/2018 23:02
Lead	**17**		**0.099**	**0.47**	**mg/Kg-dry**	1	9/20/2018 23:02
Nickel	**24**		**0.19**	**0.47**	**mg/Kg-dry**	1	9/20/2018 23:02
Selenium	**0.44**	J	**0.26**	**0.94**	**mg/Kg-dry**	1	9/20/2018 23:02
Silver	U		0.058	0.47	mg/Kg-dry	1	9/20/2018 23:02
Zinc	**74**		**0.075**	**0.94**	**mg/Kg-dry**	1	9/20/2018 23:02
SOLUBLE CATIONS FOR SAR		Method: **SW6020A**			Prep: USDA Method 20B / 9/21/18		Analyst: **STP**
Calcium	**320**		**0.86**	**5.0**	**mg/L**	10	9/21/2018 22:24
Magnesium	**130**		**0.068**	**2.0**	**mg/L**	10	9/21/2018 22:24
Sodium	**1,200**		**0.34**	**2.0**	**mg/L**	10	9/21/2018 22:24
SODIUM ADSORPTION RATIO		Method: **USDA H60 METHOD 2**			Prep: USDA Method 20B / 9/21/18		Analyst: **STP**
Sodium Adsorption Ratio	**15**		**0.010**	**0.010**	**none**	1	9/21/2018
SEMI-VOLATILE ORGANIC COMPOUNDS		Method: **SW846 8270D**			Prep: SW3546 / 9/21/18		Analyst: **KAW**
Acenaphthene	U		0.0065	0.0091	mg/Kg-dry	1	9/21/2018 13:43
Anthracene	**0.018**		**0.0064**	**0.0091**	**mg/Kg-dry**	1	9/21/2018 13:43
Benzo(a)anthracene	**0.024**		**0.0078**	**0.0091**	**mg/Kg-dry**	1	9/21/2018 13:43
Benzo(a)pyrene	**0.024**		**0.0055**	**0.0091**	**mg/Kg-dry**	1	9/21/2018 13:43
Benzo(b)fluoranthene	**0.039**		**0.0067**	**0.0091**	**mg/Kg-dry**	1	9/21/2018 13:43
Benzo(k)fluoranthene	**0.013**		**0.0069**	**0.0091**	**mg/Kg-dry**	1	9/21/2018 13:43
Chrysene	**0.022**		**0.0073**	**0.0091**	**mg/Kg-dry**	1	9/21/2018 13:43
Dibenzo(a,h)anthracene	U		0.0049	0.0091	mg/Kg-dry	1	9/21/2018 13:43
Fluoranthene	**0.051**		**0.0043**	**0.0091**	**mg/Kg-dry**	1	9/21/2018 13:43

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

Client: Caerus Oil and Gas LLC
Project: 29C
Sample ID: 20180911-29C (SS-01 @6")
Collection Date: 9/11/2018 12:05 PM

Work Order: 18091066
Lab ID: 18091066-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	**0.088**		**0.0066**	**0.0091**	**mg/Kg-dry**	1	9/21/2018 13:43
Indeno(1,2,3-cd)pyrene	**0.028**		**0.0063**	**0.0091**	**mg/Kg-dry**	1	9/21/2018 13:43
Naphthalene	**0.34**		**0.0058**	**0.0091**	**mg/Kg-dry**	1	9/21/2018 13:43
Pyrene	**0.032**		**0.0016**	**0.0091**	**mg/Kg-dry**	1	9/21/2018 13:43
Surr: 2-Fluorobiphenyl	*58.2*			*44-107*	*%REC*	1	9/21/2018 13:43
Surr: 4-Terphenyl-d14	*44.6*	S		*52-123*	*%REC*	1	9/21/2018 13:43
Surr: Nitrobenzene-d5	*50.4*			*41-94*	*%REC*	1	9/21/2018 13:43
VOLATILE ORGANIC COMPOUNDS		Method:	**SW8260C**		Prep: SW5035 / 9/19/18		Analyst: **AK**
Benzene	U		0.0051	0.030	mg/Kg	1	9/19/2018 19:32
Ethylbenzene	U		0.0063	0.030	mg/Kg	1	9/19/2018 19:32
m,p-Xylene	**0.028**	J	**0.014**	**0.060**	**mg/Kg**	1	9/19/2018 19:32
o-Xylene	**0.012**	J	**0.012**	**0.030**	**mg/Kg**	1	9/19/2018 19:32
Toluene	U		0.0082	0.030	mg/Kg	1	9/19/2018 19:32
Xylenes, Total	**0.040**	J	**0.026**	**0.090**	**mg/Kg**	1	9/19/2018 19:32
Surr: 1,2-Dichloroethane-d4	*96.0*			*70-130*	*%REC*	1	9/19/2018 19:32
Surr: 4-Bromofluorobenzene	*107*			*70-130*	*%REC*	1	9/19/2018 19:32
Surr: Dibromofluoromethane	*83.8*			*70-130*	*%REC*	1	9/19/2018 19:32
Surr: Toluene-d8	*101*			*70-130*	*%REC*	1	9/19/2018 19:32
ELECTRICAL CONDUCTIVITY (SAR)		Method:	**USDA H60 METHOD 2**		Prep: USDA Method 20B / 9/21/18		Analyst: **JB**
Electrical Conductivity @ Saturation	**5.4**		**0.011**	**0.10**	**mmhos/cm @25°**	20	9/23/2018 15:15
CHROMIUM, TRIVALENT		Method:	**CALCULATION**				Analyst: **MB**
Chromium, Trivalent	**41**		**0.43**	**1.4**	**mg/Kg-dry**	1	9/24/2018 17:30
CHROMIUM, HEXAVALENT		Method:	**SW7196A**		Prep: SW3060A / 9/21/18		Analyst: **JEB**
Chromium, Hexavalent	U		0.42	1.4	mg/Kg-dry	1	9/24/2018 09:30
MOISTURE		Method:	**SW3550C**				Analyst: **TRP**
Moisture	**28**		**0.025**	**0.050**	**% of sample**	1	9/24/2018 19:05
PH		Method:	**SW9045D**		Prep: EXTRACT / 9/20/18		Analyst: **RZM**
pH	**7.62**	H	**0.10**	**0.100**	**s.u.**	1	9/20/2018 16:31

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

ALS Group, USA

Date: *26-Sep-18*

Client: Caerus Oil and Gas LLC
Project: 29C
Sample ID: 20180911-29C (SS-02 @6"
Collection Date: 9/11/2018 12:15 PM

Work Order: 18091066
Lab ID: 18091066-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID		Method: **SW8015M**			Prep: SW3546 / 9/21/18		Analyst: **RP**
DRO (C10-C28)	**63**		**3.6**	**6.3**	**mg/Kg-dry**	1	9/21/2018 17:17
Surr: 4-Terphenyl-d14	*83.1*			*33-111*	*%REC*	1	9/21/2018 17:17
GASOLINE RANGE ORGANICS BY GC-FID		Method: **SW8015D**			Prep: SW5035 / 9/19/18		Analyst: **RP**
GRO (C6-C10)	U		3.2	7.7	mg/Kg	1	9/20/2018 07:53
Surr: Toluene-d8	*83.4*			*71-123*	*%REC*	1	9/20/2018 07:53
MERCURY BY CVAA		Method: **SW7471B**			Prep: SW7471 / 9/21/18		Analyst: **RSH**
Mercury	**0.036**		**0.0021**	**0.021**	**mg/Kg-dry**	1	9/21/2018 11:50
METALS ANALYSIS BY ICP		Method: **SW846 6010C**			Prep: SW3050B / 9/20/18		Analyst: **DSC**
Arsenic	**6.4**		**0.11**	**0.42**	**mg/Kg-dry**	1	9/20/2018 23:26
Barium	**550**		**0.17**	**0.42**	**mg/Kg-dry**	1	9/20/2018 23:26
Cadmium	**0.25**	J	**0.041**	**0.85**	**mg/Kg-dry**	1	9/20/2018 23:26
Chromium	**30**		**0.024**	**0.42**	**mg/Kg-dry**	1	9/20/2018 23:26
Copper	**24**		**0.19**	**0.85**	**mg/Kg-dry**	1	9/20/2018 23:26
Lead	**11**		**0.090**	**0.42**	**mg/Kg-dry**	1	9/20/2018 23:26
Nickel	**17**		**0.17**	**0.42**	**mg/Kg-dry**	1	9/20/2018 23:26
Selenium	**0.28**	J	**0.24**	**0.85**	**mg/Kg-dry**	1	9/20/2018 23:26
Silver	U		0.053	0.42	mg/Kg-dry	1	9/20/2018 23:26
Zinc	**56**		**0.068**	**0.85**	**mg/Kg-dry**	1	9/20/2018 23:26
SOLUBLE CATIONS FOR SAR		Method: **SW6020A**			Prep: USDA Method 20B / 9/21/18		Analyst: **STP**
Calcium	**33**		**0.86**	**5.0**	**mg/L**	10	9/21/2018 22:32
Magnesium	**13**		**0.068**	**2.0**	**mg/L**	10	9/21/2018 22:32
Sodium	**15**		**0.34**	**2.0**	**mg/L**	10	9/21/2018 22:32
SODIUM ADSORPTION RATIO		Method: **USDA H60 METHOD 2**			Prep: USDA Method 20B / 9/21/18		Analyst: **STP**
Sodium Adsorption Ratio	**0.55**		**0.010**	**0.010**	**none**	1	9/21/2018
SEMI-VOLATILE ORGANIC COMPOUNDS		Method: **SW846 8270D**			Prep: SW3546 / 9/21/18		Analyst: **KAW**
Acenaphthene	U		0.0061	0.0084	mg/Kg-dry	1	9/21/2018 14:06
Anthracene	**0.0067**	J	**0.0059**	**0.0084**	**mg/Kg-dry**	1	9/21/2018 14:06
Benzo(a)anthracene	**0.023**		**0.0072**	**0.0084**	**mg/Kg-dry**	1	9/21/2018 14:06
Benzo(a)pyrene	**0.023**		**0.0051**	**0.0084**	**mg/Kg-dry**	1	9/21/2018 14:06
Benzo(b)fluoranthene	**0.039**		**0.0062**	**0.0084**	**mg/Kg-dry**	1	9/21/2018 14:06
Benzo(k)fluoranthene	**0.014**		**0.0064**	**0.0084**	**mg/Kg-dry**	1	9/21/2018 14:06
Chrysene	**0.016**		**0.0068**	**0.0084**	**mg/Kg-dry**	1	9/21/2018 14:06
Dibenzo(a,h)anthracene	U		0.0045	0.0084	mg/Kg-dry	1	9/21/2018 14:06
Fluoranthene	**0.017**		**0.0040**	**0.0084**	**mg/Kg-dry**	1	9/21/2018 14:06

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

Client: Caerus Oil and Gas LLC
Project: 29C
Sample ID: 20180911-29C (SS-02 @6"
Collection Date: 9/11/2018 12:15 PM

Work Order: 18091066
Lab ID: 18091066-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluorene	**0.024**		**0.0061**	**0.0084**	**mg/Kg-dry**	1	9/21/2018 14:06
Indeno(1,2,3-cd)pyrene	**0.030**		**0.0058**	**0.0084**	**mg/Kg-dry**	1	9/21/2018 14:06
Naphthalene	**0.054**		**0.0054**	**0.0084**	**mg/Kg-dry**	1	9/21/2018 14:06
Pyrene	**0.021**		**0.0015**	**0.0084**	**mg/Kg-dry**	1	9/21/2018 14:06
Surr: 2-Fluorobiphenyl	*70.2*			*44-107*	*%REC*	1	9/21/2018 14:06
Surr: 4-Terphenyl-d14	*59.2*			*52-123*	*%REC*	1	9/21/2018 14:06
Surr: Nitrobenzene-d5	*63.4*			*41-94*	*%REC*	1	9/21/2018 14:06
VOLATILE ORGANIC COMPOUNDS		Method:	**SW8260C**		Prep: SW5035 / 9/19/18		Analyst: **AK**
Benzene	U		0.0051	0.030	mg/Kg	1	9/19/2018 19:47
Ethylbenzene	U		0.0063	0.030	mg/Kg	1	9/19/2018 19:47
m,p-Xylene	**0.022**	J	**0.014**	**0.060**	**mg/Kg**	1	9/19/2018 19:47
o-Xylene	U		0.012	0.030	mg/Kg	1	9/19/2018 19:47
Toluene	U		0.0082	0.030	mg/Kg	1	9/19/2018 19:47
Xylenes, Total	U		0.026	0.090	mg/Kg	1	9/19/2018 19:47
Surr: 1,2-Dichloroethane-d4	*102*			*70-130*	*%REC*	1	9/19/2018 19:47
Surr: 4-Bromofluorobenzene	*105*			*70-130*	*%REC*	1	9/19/2018 19:47
Surr: Dibromofluoromethane	*86.6*			*70-130*	*%REC*	1	9/19/2018 19:47
Surr: Toluene-d8	*98.2*			*70-130*	*%REC*	1	9/19/2018 19:47
ELECTRICAL CONDUCTIVITY (SAR)		Method:	**USDA H60 METHOD 2**		Prep: USDA Method 20B / 9/21/18		Analyst: **JB**
Electrical Conductivity @ Saturation	**4.2**		**0.011**	**0.10**	**mmhos/cm @25°**	20	9/23/2018 15:15
CHROMIUM, TRIVALENT		Method:	**CALCULATION**				Analyst: **MB**
Chromium, Trivalent	**30**		**0.39**	**1.3**	**mg/Kg-dry**	1	9/24/2018 17:30
CHROMIUM, HEXAVALENT		Method:	**SW7196A**		Prep: SW3060A / 9/21/18		Analyst: **JEB**
Chromium, Hexavalent	**0.45**	J	**0.40**	**1.3**	**mg/Kg-dry**	1	9/24/2018 09:30
MOISTURE		Method:	**SW3550C**				Analyst: **TRP**
Moisture	**21**		**0.025**	**0.050**	**% of sample**	1	9/24/2018 19:05
PH		Method:	**SW9045D**		Prep: EXTRACT / 9/20/18		Analyst: **RZM**
pH	**9.00**	H	**0.10**	**0.100**	**s.u.**	1	9/20/2018 16:31

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

ALS Group, USA

Date: 26-Sep-18

Client: Caerus Oil and Gas LLC

Work Order: 18091066

Project: 29C

QC BATCH REPORT

Batch ID: **124899** Instrument ID **GC8** Method: **SW8015M**

MBLK Sample ID: **DBLKS1-124899-124899** Units: **mg/Kg** Analysis Date: **9/21/2018 03:19 PM**

Client ID: Run ID: **GC8_180921A** SeqNo: **5273227** Prep Date: **9/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	U	5.0								
Surr: 4-Terphenyl-d14	*2.329*	0	*3.33*	0	*69.9*	*33-111*	0			

LCS Sample ID: **DLCSS1-124899-124899** Units: **mg/Kg** Analysis Date: **9/21/2018 03:48 PM**

Client ID: Run ID: **GC8_180921A** SeqNo: **5273614** Prep Date: **9/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	255.4	5.0	333	0	76.7	58-111	0			
Surr: 4-Terphenyl-d14	*2.805*	0	*3.33*	0	*84.2*	*33-111*	0			

MS Sample ID: **18091066-01A MS** Units: **mg/Kg** Analysis Date: **9/21/2018 06:15 PM**

Client ID: **20180911-29C (Terminus @6")** Run ID: **GC8_180921A** SeqNo: **5274990** Prep Date: **9/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	154.8	4.9	328.9	2.015	46.5	58-111	0			S
Surr: 4-Terphenyl-d14	*2.5*	0	*3.289*	0	*76*	*33-111*	0			

MSD Sample ID: **18091066-01A MSD** Units: **mg/Kg** Analysis Date: **9/21/2018 06:44 PM**

Client ID: **20180911-29C (Terminus @6")** Run ID: **GC8_180921A** SeqNo: **5274992** Prep Date: **9/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
DRO (C10-C28)	123.5	4.9	328.2	2.015	37	58-111	154.8	22.5	30	S
Surr: 4-Terphenyl-d14	*2.453*	0	*3.282*	0	*74.7*	*33-111*	2.5	*1.9*	*30*	

The following samples were analyzed in this batch:

18091066-01A	18091066-02A	18091066-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 18091066
Project: 29C

QC BATCH REPORT

Batch ID: **124789** Instrument ID **GC9** Method: **SW8015D**

MBLK	Sample ID: **MBLK-124789-124789**			Units: **µg/Kg-dry**			Analysis Date: **9/20/2018 05:29 AM**			
Client ID:	Run ID: **GC9_180919A**			SeqNo: **5270356**			Prep Date: **9/19/2018**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	U	5,000								
Surr: Toluene-d8	*5175*	0	*5000*	0	*104*	*71-123*	0			

LCS	Sample ID: **LCS-124789-124789**			Units: **µg/Kg-dry**			Analysis Date: **9/20/2018 04:32 AM**			
Client ID:	Run ID: **GC9_180919A**			SeqNo: **5270355**			Prep Date: **9/19/2018**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	512500	5,000	500000	0	102	71-123	0			
Surr: Toluene-d8	*4366*	0	*5000*	0	*87.3*	*71-123*	0			

The following samples were analyzed in this batch: 18091066-01A 18091066-02A 18091066-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 18091066
Project: 29C

QC BATCH REPORT

Batch ID: **124944** Instrument ID **HG1** Method: **SW7471B**

MBLK Sample ID: **MBLK-124944-124944** Units: **mg/Kg** Analysis Date: **9/21/2018 11:40 AM**
Client ID: Run ID: **HG1_180921A** SeqNo: **5272249** Prep Date: **9/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.00425	0.020								J

LCS Sample ID: **LCS-124944-124944** Units: **mg/Kg** Analysis Date: **9/21/2018 11:42 AM**
Client ID: Run ID: **HG1_180921A** SeqNo: **5272250** Prep Date: **9/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1442	0.020	0.1665	0	86.6	80-120	0			

MS Sample ID: **18091249-01AMS** Units: **mg/Kg** Analysis Date: **9/21/2018 11:57 AM**
Client ID: Run ID: **HG1_180921A** SeqNo: **5272256** Prep Date: **9/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1344	0.015	0.1249	0.02506	87.5	75-125	0			

MSD Sample ID: **18091249-01AMSD** Units: **mg/Kg** Analysis Date: **9/21/2018 12:00 PM**
Client ID: Run ID: **HG1_180921A** SeqNo: **5272257** Prep Date: **9/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1347	0.015	0.1252	0.02506	87.6	75-125	0.1344	0.25	35	

The following samples were analyzed in this batch:

18091066-01A	18091066-02A	18091066-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 18091066
Project: 29C

QC BATCH REPORT

Batch ID: **124887** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK Sample ID: **MBLK-124887-124887** Units: **mg/Kg** Analysis Date: **9/20/2018 10:43 PM**
Client ID: Run ID: **ICP2_180920A** SeqNo: **5270743** Prep Date: **9/20/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Cadmium	U	0.50								
Chromium	0.02495	0.25								J
Copper	U	0.50								
Lead	U	0.25								
Nickel	U	0.25								
Selenium	U	0.50								
Silver	0.0497	0.25								J
Zinc	0.08	0.50								J

LCS Sample ID: **LCS-124887-124887** Units: **mg/Kg** Analysis Date: **9/20/2018 10:49 PM**
Client ID: Run ID: **ICP2_180920A** SeqNo: **5270744** Prep Date: **9/20/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.73	0.25	5	0	94.6	80-120	0			
Barium	4.83	0.25	5	0	96.6	80-120	0			
Cadmium	4.965	0.50	5	0	99.3	80-120	0			
Chromium	4.9	0.25	5	0	98	80-120	0			
Copper	5.305	0.50	5	0	106	80-120	0			
Lead	4.84	0.25	5	0	96.8	80-120	0			
Nickel	5.067	0.25	5	0	101	80-120	0			
Selenium	4.635	0.50	5	0	92.7	80-120	0			
Silver	4.83	0.25	5	0	96.6	80-120	0			
Zinc	5.01	0.50	5	0	100	80-120	0			

MS Sample ID: **1809823-08AMS** Units: **mg/Kg** Analysis Date: **9/20/2018 11:45 PM**
Client ID: Run ID: **ICP2_180920A** SeqNo: **5270753** Prep Date: **9/20/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	13.83	0.36	7.205	8.266	77.3	75-125	0			
Barium	69.89	0.36	7.205	63.65	86.6	75-125	0			O
Cadmium	7.493	0.72	7.205	0.4834	97.3	75-125	0			
Chromium	18.24	0.36	7.205	12.86	74.7	75-125	0			S
Copper	28.77	0.72	7.205	24.72	56.2	75-125	0			S
Lead	75.16	0.36	7.205	84.3	-127	75-125	0			SO
Nickel	14.96	0.36	7.205	8.678	87.2	75-125	0			
Selenium	6.931	0.72	7.205	0.09913	94.8	75-125	0			
Silver	7.379	0.36	7.205	0.01548	102	75-125	0			
Zinc	106.7	0.72	7.205	119.9	-183	75-125	0			SO

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

Client: Caerus Oil and Gas LLC
Work Order: 18091066
Project: 29C

QC BATCH REPORT

Batch ID: **124887** Instrument ID **ICP2** Method: **SW846 6010C**

MSD Sample ID: **1809823-08AMSD** Units: **mg/Kg** Analysis Date: **9/20/2018 11:51 PM**
Client ID: Run ID: **ICP2_180920A** SeqNo: **5270754** Prep Date: **9/20/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	15.17	0.36	7.194	8.266	95.9	75-125	13.83	9.19	20	
Barium	70.99	0.36	7.194	63.65	102	75-125	69.89	1.57	20	O
Cadmium	7.598	0.72	7.194	0.4834	98.9	75-125	7.493	1.39	20	
Chromium	19.82	0.36	7.194	12.86	96.7	75-125	18.24	8.3	20	
Copper	29.19	0.72	7.194	24.72	62.1	75-125	28.77	1.45	20	S
Lead	63.36	0.36	7.194	84.3	-291	75-125	75.16	17	20	SO
Nickel	15.54	0.36	7.194	8.678	95.4	75-125	14.96	3.76	20	
Selenium	6.95	0.72	7.194	0.09913	95.2	75-125	6.931	0.271	20	
Silver	7.454	0.36	7.194	0.01548	103	75-125	7.379	1.01	20	
Zinc	108.7	0.72	7.194	119.9	-157	75-125	106.7	1.79	20	SO

The following samples were analyzed in this batch: 18091066-01A 18091066-02A 18091066-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 18091066
Project: 29C

QC BATCH REPORT

Batch ID: **124957** Instrument ID **ICPMS3** Method: **SW6020A**

DUP	Sample ID: **18091066-02ADUP**				Units: **mg/L**		Analysis Date: **9/21/2018 10:25 PM**			
Client ID: **20180911-29C (SS-01 @6")**	Run ID: **ICPMS3_180921A**				SeqNo: **5275706**		Prep Date: **9/21/2018**		DF: **10**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	529	5.0	0	0	0	0-0	323.8	48.1		
Magnesium	92.23	2.0	0	0	0	0-0	127.7	32.2		
Sodium	1462	2.0	0	0	0	0-0	1226	17.6		

The following samples were analyzed in this batch: 18091066-01A 18091066-02A 18091066-03A

Batch ID: **124957** Instrument ID **SAR** Method: **USDA H60 Metho**

DUP	Sample ID: **18091066-02ADUP**				Units: **none**		Analysis Date: **9/21/2018**			
Client ID: **20180911-29C (SS-01 @6")**	Run ID: **SAR_180921B**				SeqNo: **5276439**		Prep Date: **9/21/2018**		DF: **1**	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	15.43	0.010	0	0	0		14.61	5.46	50	

The following samples were analyzed in this batch: 18091066-01A 18091066-02A 18091066-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 18091066
Project: 29C

QC BATCH REPORT

Batch ID: **124897** Instrument ID **SVMS5** Method: **SW846 8270D**

MBLK Sample ID: **SBLKS1-124897-124897** Units: **µg/Kg** Analysis Date: **9/21/2018 11:48 AM**
Client ID: Run ID: **SVMS5_180921A** SeqNo: **5273115** Prep Date: **9/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	U	6.7								
Anthracene	U	6.7								
Benzo(a)anthracene	U	6.7								
Benzo(a)pyrene	U	6.7								
Benzo(b)fluoranthene	U	6.7								
Benzo(k)fluoranthene	U	6.7								
Chrysene	U	6.7								
Dibenzo(a,h)anthracene	U	6.7								
Fluoranthene	U	6.7								
Fluorene	U	6.7								
Indeno(1,2,3-cd)pyrene	U	6.7								
Naphthalene	U	6.7								
Pyrene	U	6.7								
Surr: 2-Fluorobiphenyl	*1911*	0	*3333*	0	*57.3*	*44-107*	0			
Surr: 4-Terphenyl-d14	*2008*	0	*3333*	0	*60.2*	*52-123*	0			
Surr: Nitrobenzene-d5	*1735*	0	*3333*	0	*52.1*	*41-94*	0			

LCS Sample ID: **SLCSS1-124897-124897** Units: **µg/Kg** Analysis Date: **9/21/2018 12:10 PM**
Client ID: Run ID: **SVMS5_180921A** SeqNo: **5273116** Prep Date: **9/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	863.3	6.7	1333	0	64.8	55-101	0			
Anthracene	970.7	6.7	1333	0	72.8	67-105	0			
Benzo(a)anthracene	1071	6.7	1333	0	80.3	68-105	0			
Benzo(a)pyrene	1043	6.7	1333	0	78.2	68-110	0			
Benzo(b)fluoranthene	1019	6.7	1333	0	76.4	65-110	0			
Benzo(k)fluoranthene	972	6.7	1333	0	72.9	66-113	0			
Chrysene	1001	6.7	1333	0	75.1	68-108	0			
Dibenzo(a,h)anthracene	1272	6.7	1333	0	95.4	62-119	0			
Fluoranthene	948	6.7	1333	0	71.1	67-106	0			
Fluorene	914	6.7	1333	0	68.6	59-107	0			
Indeno(1,2,3-cd)pyrene	1473	6.7	1333	0	111	56-120	0			
Naphthalene	789.3	6.7	1333	0	59.2	46-98	0			
Pyrene	1074	6.7	1333	0	80.6	60-119	0			
Surr: 2-Fluorobiphenyl	*2055*	0	*3333*	0	*61.7*	*44-107*	0			
Surr: 4-Terphenyl-d14	*1901*	0	*3333*	0	*57*	*52-123*	0			
Surr: Nitrobenzene-d5	*1859*	0	*3333*	0	*55.8*	*41-94*	0			

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

Client: Caerus Oil and Gas LLC
Work Order: 18091066
Project: 29C

QC BATCH REPORT

Batch ID: **124897** Instrument ID **SVMS5** Method: **SW846 8270D**

MS Sample ID: **18091066-01A MS** Units: **µg/Kg** Analysis Date: **9/21/2018 12:33 PM**
Client ID: **20180911-29C (Terminus @6")** Run ID: **SVMS5_180921A** SeqNo: **5273117** Prep Date: **9/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	635.5	6.6	1322	0	48.1	55-101	0			S
Anthracene	683.7	6.6	1322	3.987	51.4	67-105	0			S
Benzo(a)anthracene	739.9	6.6	1322	8.638	55.3	68-105	0			S
Benzo(a)pyrene	719.4	6.6	1322	12.63	53.5	68-110	0			S
Benzo(b)fluoranthene	708.2	6.6	1322	17.94	52.2	65-110	0			S
Benzo(k)fluoranthene	675.1	6.6	1322	8.638	50.4	66-113	0			S
Chrysene	685.7	6.6	1322	7.309	51.3	68-108	0			S
Dibenzo(a,h)anthracene	855.7	6.6	1322	0	64.7	62-119	0			
Fluoranthene	677.1	6.6	1322	7.974	50.6	67-106	0			S
Fluorene	704.9	6.6	1322	0	53.3	59-107	0			S
Indeno(1,2,3-cd)pyrene	958.8	6.6	1322	17.94	71.2	56-120	0			
Naphthalene	770.3	6.6	1322	11.3	57.4	46-98	0			
Pyrene	761.1	6.6	1322	7.974	57	60-119	0			S
Surr: 2-Fluorobiphenyl	*1574*	0	*3306*	0	*47.6*	*44-107*	0			
Surr: 4-Terphenyl-d14	*1316*	0	*3306*	0	*39.8*	*52-123*	0			*S*
Surr: Nitrobenzene-d5	*1438*	0	*3306*	0	*43.5*	*41-94*	0			

MSD Sample ID: **18091066-01A MSD** Units: **µg/Kg** Analysis Date: **9/21/2018 12:57 PM**
Client ID: **20180911-29C (Terminus @6")** Run ID: **SVMS5_180921A** SeqNo: **5273118** Prep Date: **9/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	565	6.5	1303	0	43.4	55-101	635.5	11.7	30	S
Anthracene	607.3	6.5	1303	3.987	46.3	67-105	683.7	11.8	30	S
Benzo(a)anthracene	624.3	6.5	1303	8.638	47.2	68-105	739.9	17	30	S
Benzo(a)pyrene	585.2	6.5	1303	12.63	43.9	68-110	719.4	20.6	30	S
Benzo(b)fluoranthene	604.7	6.5	1303	17.94	45	65-110	708.2	15.8	30	S
Benzo(k)fluoranthene	562.4	6.5	1303	8.638	42.5	66-113	675.1	18.2	30	S
Chrysene	596.2	6.5	1303	7.309	45.2	68-108	685.7	14	30	S
Dibenzo(a,h)anthracene	714.8	6.5	1303	0	54.9	62-119	855.7	17.9	30	S
Fluoranthene	584.5	6.5	1303	7.974	44.2	67-106	677.1	14.7	30	S
Fluorene	632.1	6.5	1303	0	48.5	59-107	704.9	10.9	30	S
Indeno(1,2,3-cd)pyrene	813.9	6.5	1303	17.94	61.1	56-120	958.8	16.3	30	
Naphthalene	639.3	6.5	1303	11.3	48.2	46-98	770.3	18.6	30	
Pyrene	660.1	6.5	1303	7.974	50.1	60-119	761.1	14.2	30	S
Surr: 2-Fluorobiphenyl	*1499*	0	*3258*	0	*46*	*44-107*	1574	*4.88*	*40*	
Surr: 4-Terphenyl-d14	*1196*	0	*3258*	0	*36.7*	*52-123*	1316	*9.51*	*40*	*S*
Surr: Nitrobenzene-d5	*1444*	0	*3258*	0	*44.3*	*41-94*	1438	*0.45*	*40*	

The following samples were analyzed in this batch:

18091066-01A	18091066-02A	18091066-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 18091066
Project: 29C

QC BATCH REPORT

Batch ID: **124788** Instrument ID **VMS9** Method: **SW8260C**

MBLK Sample ID: **MBLK-124788-124788** Units: **µg/Kg-dry** Analysis Date: **9/19/2018 03:21 PM**
Client ID: Run ID: **VMS9_180919A** SeqNo: **5267661** Prep Date: **9/19/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	30								
Ethylbenzene	U	30								
m,p-Xylene	U	60								
o-Xylene	U	30								
Toluene	U	30								
Xylenes, Total	U	90								
Surr: 1,2-Dichloroethane-d4	*995*	0	*1000*	0	*99.5*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*1034*	0	*1000*	0	*103*	*70-130*	0			
Surr: Dibromofluoromethane	*906.5*	0	*1000*	0	*90.6*	*70-130*	0			
Surr: Toluene-d8	*991*	0	*1000*	0	*99.1*	*70-130*	0			

LCS Sample ID: **LCS-124788-124788** Units: **µg/Kg-dry** Analysis Date: **9/19/2018 02:21 PM**
Client ID: Run ID: **VMS9_180919A** SeqNo: **5267658** Prep Date: **9/19/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1037	30	1000	0	104	75-125	0			
Ethylbenzene	1049	30	1000	0	105	75-125	0			
m,p-Xylene	2111	60	2000	0	106	80-125	0			
o-Xylene	1033	30	1000	0	103	75-125	0			
Toluene	991.5	30	1000	0	99.2	70-125	0			
Xylenes, Total	3144	90	3000	0	105	75-125	0			
Surr: 1,2-Dichloroethane-d4	*1062*	0	*1000*	0	*106*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*992.5*	0	*1000*	0	*99.2*	*70-130*	0			
Surr: Dibromofluoromethane	*986*	0	*1000*	0	*98.6*	*70-130*	0			
Surr: Toluene-d8	*993.5*	0	*1000*	0	*99.4*	*70-130*	0			

MS Sample ID: **18091066-01A MS** Units: **µg/Kg-dry** Analysis Date: **9/19/2018 11:17 PM**
Client ID: **20180911-29C (Terminus @6")** Run ID: **VMS9_180919A** SeqNo: **5267684** Prep Date: **9/19/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	952	30	1000	0	95.2	75-125	0			
Ethylbenzene	956	30	1000	0	95.6	75-125	0			
m,p-Xylene	1962	60	2000	12	97.5	80-125	0			
o-Xylene	1005	30	1000	11.5	99.4	75-125	0			
Toluene	897	30	1000	0	89.7	70-125	0			
Xylenes, Total	2966	90	3000	0	98.9	75-125	0			
Surr: 1,2-Dichloroethane-d4	*1040*	0	*1000*	0	*104*	*70-130*	0			
Surr: 4-Bromofluorobenzene	*1070*	0	*1000*	0	*107*	*70-130*	0			
Surr: Dibromofluoromethane	*961*	0	*1000*	0	*96.1*	*70-130*	0			
Surr: Toluene-d8	*952.5*	0	*1000*	0	*95.2*	*70-130*	0			

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

Client: Caerus Oil and Gas LLC
Work Order: 18091066
Project: 29C

QC BATCH REPORT

Batch ID: **124788** Instrument ID **VMS9** Method: **SW8260C**

MSD Sample ID: **18091066-01A MSD** Units: **µg/Kg-dry** Analysis Date: **9/19/2018 11:32 PM**
Client ID: **20180911-29C (Terminus @6")** Run ID: **VMS9_180919A** SeqNo: **5267685** Prep Date: **9/19/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	918.5	30	1000	0	91.8	75-125	952	3.58	30	
Ethylbenzene	984.5	30	1000	0	98.4	75-125	956	2.94	30	
m,p-Xylene	2023	60	2000	12	101	80-125	1962	3.09	30	
o-Xylene	1020	30	1000	11.5	101	75-125	1005	1.43	30	
Toluene	937	30	1000	0	93.7	70-125	897	4.36	30	
Xylenes, Total	3042	90	3000	0	101	75-125	2966	2.53	30	
Surr: 1,2-Dichloroethane-d4	*1036*	0	*1000*	0	*104*	*70-130*	1040	*0.337*	*30*	
Surr: 4-Bromofluorobenzene	*1094*	0	*1000*	0	*109*	*70-130*	1070	*2.17*	*30*	
Surr: Dibromofluoromethane	*955.5*	0	*1000*	0	*95.6*	*70-130*	961	*0.574*	*30*	
Surr: Toluene-d8	*1004*	0	*1000*	0	*100*	*70-130*	952.5	*5.31*	*30*	

The following samples were analyzed in this batch: 18091066-01A 18091066-02A 18091066-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 18091066
Project: 29C

QC BATCH REPORT

Batch ID: **124873** Instrument ID **WETCHEM** Method: **SW7196A**

MBLK Sample ID: **MBLK-124873-124873** Units: **mg/Kg** Analysis Date: **9/21/2018 12:00 PM**
Client ID: Run ID: **WETCHEM_180921E** SeqNo: **5272825** Prep Date: **9/20/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	U	1.0								

MBLK Sample ID: **MBLK-124873-124873** Units: **mg/Kg** Analysis Date: **9/21/2018 12:00 PM**
Client ID: Run ID: **WETCHEM_180921E** SeqNo: **5276586** Prep Date: **9/20/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	U	1.0								

LCS Sample ID: **LCS-124873-124873** Units: **mg/Kg** Analysis Date: **9/21/2018 12:00 PM**
Client ID: Run ID: **WETCHEM_180921E** SeqNo: **5272826** Prep Date: **9/20/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	4.74	1.0	5	0	94.8	80-120	0			

LCS Sample ID: **LCS-124873-124873** Units: **mg/Kg** Analysis Date: **9/21/2018 12:00 PM**
Client ID: Run ID: **WETCHEM_180921E** SeqNo: **5276587** Prep Date: **9/20/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	4.74	1.0	5	0	94.8	80-120	0			

MS Sample ID: **18091049-04AMS** Units: **mg/Kg** Analysis Date: **9/21/2018 12:00 PM**
Client ID: Run ID: **WETCHEM_180921E** SeqNo: **5272833** Prep Date: **9/20/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	4.265	0.98	4.902	-0.0396	87.8	75-125	0			

MS Sample ID: **18091049-04AMSI** Units: **mg/Kg** Analysis Date: **9/21/2018 12:00 PM**
Client ID: Run ID: **WETCHEM_180921E** SeqNo: **5272835** Prep Date: **9/20/2018** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	2233	99	2278	-0.0396	98	75-125	0			

MSD Sample ID: **18091049-04AMSD** Units: **mg/Kg** Analysis Date: **9/21/2018 12:00 PM**
Client ID: Run ID: **WETCHEM_180921E** SeqNo: **5272834** Prep Date: **9/20/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	4.48	1.0	5	-0.0396	90.4	75-125	4.265	4.92	20	

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

Client: Caerus Oil and Gas LLC
Work Order: 18091066
Project: 29C

QC BATCH REPORT

Batch ID: **124873** Instrument ID **WETCHEM** Method: **SW7196A**

The following samples were analyzed in this batch:	18091066-01A

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

Client: Caerus Oil and Gas LLC
Work Order: 18091066
Project: 29C

QC BATCH REPORT

Batch ID: **124877** Instrument ID **WETCHEM** Method: **SW9045D**

LCS Sample ID: **LCS-124877-124877** Units: **s.u.** Analysis Date: **9/20/2018 04:31 PM**
Client ID: Run ID: **WETCHEM_180920K** SeqNo: **5270430** Prep Date: **9/20/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	3.96	0.10	4	0	99	90-110	0			

DUP Sample ID: **18091066-01A DUP** Units: **s.u.** Analysis Date: **9/20/2018 04:31 PM**
Client ID: **20180911-29C (Terminus @6")** Run ID: **WETCHEM_180920K** SeqNo: **5270438** Prep Date: **9/20/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.52	0.10	0	0	0	0-0	7.44	1.07	20	H

DUP Sample ID: **18091188-01A DUP** Units: **s.u.** Analysis Date: **9/20/2018 04:31 PM**
Client ID: Run ID: **WETCHEM_180920K** SeqNo: **5270442** Prep Date: **9/20/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.94	0.10	0	0	0	0-0	8.04	1.25	20	

The following samples were analyzed in this batch:

18091066-01A	18091066-02A	18091066-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 18091066
Project: 29C

QC BATCH REPORT

Batch ID: **124957** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

DUP Sample ID: **18091066-02A DUP** Units: **mmhos/cm @25°** Analysis Date: **9/23/2018 03:15 PM**

Client ID: **20180911-29C (SS-01 @6")** Run ID: **WETCHEM_180923D** SeqNo: **5274464** Prep Date: **9/21/2018** DF: **20**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	5.28	0.10	0	0	0		5.42	2.62	50	

The following samples were analyzed in this batch:

18091066-01A	18091066-02A	18091066-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 18091066
Project: 29C

QC BATCH REPORT

Batch ID: **124984** Instrument ID **WETCHEM** Method: **SW7196A**

MBLK Sample ID: **MBLK-124984-124984** Units: **mg/Kg** Analysis Date: **9/24/2018 09:30 AM**
Client ID: Run ID: **WETCHEM_180924A** SeqNo: **5276138** Prep Date: **9/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	U	1.0								

LCS Sample ID: **LCS-124984-124984** Units: **mg/Kg** Analysis Date: **9/24/2018 09:30 AM**
Client ID: Run ID: **WETCHEM_180924A** SeqNo: **5276139** Prep Date: **9/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	4.61	1.0	5	0	92.2	80-120	0			

MS Sample ID: **18091066-02A MS** Units: **mg/Kg** Analysis Date: **9/24/2018 09:30 AM**
Client ID: **20180911-29C (SS-01 @6")** Run ID: **WETCHEM_180924A** SeqNo: **5274826** Prep Date: **9/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	4.61	1.0	5	0.2178	87.8	75-125	0			

MS Sample ID: **18091066-02A MSI** Units: **mg/Kg** Analysis Date: **9/24/2018 09:30 AM**
Client ID: **20180911-29C (SS-01 @6")** Run ID: **WETCHEM_180924A** SeqNo: **5274828** Prep Date: **9/21/2018** DF: **100**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	1760	99	2087	0.2178	84.3	75-125	0			

MSD Sample ID: **18091066-02A MSD** Units: **mg/Kg** Analysis Date: **9/24/2018 09:30 AM**
Client ID: **20180911-29C (SS-01 @6")** Run ID: **WETCHEM_180924A** SeqNo: **5274827** Prep Date: **9/21/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Chromium, Hexavalent	4.657	1.0	5.051	0.2178	87.9	75-125	4.61	1.01	20	

The following samples were analyzed in this batch:

18091066-02A	18091066-03A

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

Client: Caerus Oil and Gas LLC
Work Order: 18091066
Project: 29C

QC BATCH REPORT

Batch ID: **R245206** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R245206** Units: **% of sample** Analysis Date: **9/24/2018 07:05 PM**
Client ID: Run ID: **MOIST_180924E** SeqNo: **5278569** Prep Date: DF: **1**

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

LCS Sample ID: **LCS-R245206** Units: **% of sample** Analysis Date: **9/24/2018 07:05 PM**
Client ID: Run ID: **MOIST_180924E** SeqNo: **5278568** 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: **18091005-01B DUP** Units: **% of sample** Analysis Date: **9/24/2018 07:05 PM**
Client ID: Run ID: **MOIST_180924E** SeqNo: **5278547** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	71.57	0.050	0	0	0	0-0	71.66	0.126	10	

DUP Sample ID: **1809796-02A DUP** Units: **% of sample** Analysis Date: **9/24/2018 07:05 PM**
Client ID: Run ID: **MOIST_180924E** SeqNo: **5278555** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	12.7	0.050	0	0	0	0-0	12.47	1.83	10	

The following samples were analyzed in this batch:

18091066-01A	18091066-02A	18091066-03A

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

ALS Laboratory Group

CHAIN OF CUSTODY

Failure to complete all section of this form may delay analysis.

COC number (for client tracking) 1809 10666

Page 1 of 1

CLIENT CONTACT AND REPORTING INFORMATION	INVOICE ADDRESS (if other than reporting address)
Company Name: Caerus Oil and Gas LLC	Company Name: Same
Project Manager: Brett Middleton	Contact Name: Same
Address: 143 Diamond Avenue	Address: Same
Parachute, CO 81635	
Phone: 970-285-9606	PROJECT INFORMATION
Email 1: bmiddleton@caerusoilandgas.com	Project ID: 29C
Email 2: jjanicek@caerusoilandgas.com	Site:
	PO No:
☑ Regular (default) 5 Day Standard TAT	ALS Quote No:
☐ (Pls specify date required __SAME DAY_____) (express fee will apply)	

ANALYSIS REQUIRED (suite codes must be listed to attract suite prices)

Full 910-1

ALS ID #	SAMPLE IDENTIFICATION (this description will appear on report)	MATRIX (a)	SAMPLING AND CONTAINER INFO			REMARKS	CROSS THE REQUESTED ANALYSIS
			Date	Time	Tot Bottle		
1	20180911-29C (Terminus @6")	S	9/11/2018	1158	4		X
2	20180911-29C (SS-01 @6")	S	9/11/2018	1205	4		X
3	20180911-29C (SS-02 @6")	S	9/11/2018	1215	4		X

CLIENT SIGNATURES

Client's Signature: Brittany Covina

Client's Date and Time of Completion: 9/11/18 1500

For lab use only

Cooler Security Seal	Sample Temp	No of Cooler Received	Received by (lab)	Date and Time
☐ sealed	☐ chilled deg 'C	carton / cooler box		9/12/18 0900
☐ broken	☐ ambient	Courier Name	Committed by	Date and Time
☐ not available				

Note: (a) **DW** (Drinking water), **SW** (Surface water), **GW** (Ground water), **WW** (Waste water), **S** (Soil), **SL** (Sludge), **SE** (Sediment), **OS** (Other solid material)

ALS Technichem (HK) Pty Ltd Address: 11/F, Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong Tel: +852 2610 1044 Fax: +852 2610 2021 Ema

SR2 3.0

ALS Group, USA

Sample Receipt Checklist

Client Name: **CAERUS** Date/Time Received: **18-Sep-18 09:00**

Work Order: **18091066** Received by: **DS**

Checklist completed by Diane Shaw (eSignature) 18-Sep-18 (Date) Reviewed by: Chad Whitton (eSignature) 19-Sep-18 (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):	3.0/3.0 c	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	9/18/2018 2:30:43 PM		
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: