



28-Jun-2018

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

Re: **Mesa H2-797 Spring Sampling**

Work Order: **18061420**

Dear Jake,

ALS Environmental received 2 samples on 21-Jun-2018 09:30 AM for the analyses presented in the following report.

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

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

The total number of pages in this report is 12.

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

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

Sincerely,

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

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

Certificate No: MN 998501

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

Environmental

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: Caerus Oil and Gas LLC
Project: Mesa H2-797 Spring Sampling
Work Order: 18061420

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
18061420-01	SWNWT7SR97WSEC2	Groundwater		6/19/2018 12:55	6/21/2018 09:30	<input type="checkbox"/>
18061420-02	Trip Blank	Water		6/19/2018 12:57	6/21/2018 09:30	<input type="checkbox"/>

Client: Caerus Oil and Gas LLC
Project: Mesa H2-797 Spring Sampling
WorkOrder: 18061420

QUALIFIERS, ACRONYMS, UNITS

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

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

<u>Units Reported</u>	<u>Description</u>
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter

ALS Group, USA**Date:** 28-Jun-18**Client:** Caerus Oil and Gas LLC**Project:** Mesa H2-797 Spring Sampling**Sample ID:** SWNWT7SR97WSEC2**Collection Date:** 6/19/2018 12:55 PM**Work Order:** 18061420**Lab ID:** 18061420-01**Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			SW8260C			Analyst: BG
Benzene	U		1.0	µg/L	1	6/23/2018 09:18 AM
Ethylbenzene	U		1.0	µg/L	1	6/23/2018 09:18 AM
m,p-Xylene	U		2.0	µg/L	1	6/23/2018 09:18 AM
o-Xylene	U		1.0	µg/L	1	6/23/2018 09:18 AM
Toluene	U		1.0	µg/L	1	6/23/2018 09:18 AM
Xylenes, Total	U		3.0	µg/L	1	6/23/2018 09:18 AM
Surr: 1,2-Dichloroethane-d4	118		75-120	%REC	1	6/23/2018 09:18 AM
Surr: 4-Bromofluorobenzene	90.8		80-110	%REC	1	6/23/2018 09:18 AM
Surr: Dibromofluoromethane	106		85-115	%REC	1	6/23/2018 09:18 AM
Surr: Toluene-d8	99.7		85-110	%REC	1	6/23/2018 09:18 AM
CHLORIDE			A4500-CL E-11			Analyst: STP
Chloride	11	x	1.0	mg/L	1	6/25/2018 04:30 PM
SULFIDE			E376.1			Analyst: RZM
Sulfide	U		1.0	mg/L	1	6/26/2018 04:02 PM
TOTAL DISSOLVED SOLIDS			A2540 C-11		Prep: FILTER 6/26/18 08:00	Analyst: MT
Total Dissolved Solids	550		10	mg/L	1	6/26/2018 02:46 PM

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

ALS Group, USA**Date:** 28-Jun-18

Client: Caerus Oil and Gas LLC
Project: Mesa H2-797 Spring Sampling
Sample ID: Trip Blank
Collection Date: 6/19/2018 12:57 PM

Work Order: 18061420
Lab ID: 18061420-02
Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			SW8260C			Analyst: BG
Benzene	U		1.0	µg/L	1	6/23/2018 04:54 AM
Ethylbenzene	U		1.0	µg/L	1	6/23/2018 04:54 AM
m,p-Xylene	U		2.0	µg/L	1	6/23/2018 04:54 AM
o-Xylene	U		1.0	µg/L	1	6/23/2018 04:54 AM
Toluene	U		1.0	µg/L	1	6/23/2018 04:54 AM
Xylenes, Total	U		3.0	µg/L	1	6/23/2018 04:54 AM
Surr: 1,2-Dichloroethane-d4	110		75-120	%REC	1	6/23/2018 04:54 AM
Surr: 4-Bromofluorobenzene	87.8		80-110	%REC	1	6/23/2018 04:54 AM
Surr: Dibromofluoromethane	104		85-115	%REC	1	6/23/2018 04:54 AM
Surr: Toluene-d8	98.8		85-110	%REC	1	6/23/2018 04:54 AM

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

ALS Group, USA

Date: 28-Jun-18

Client: Caerus Oil and Gas LLC
Work Order: 18061420
Project: Mesa H2-797 Spring Sampling

QC BATCH REPORT

Batch ID: **R238783a** Instrument ID **VMS6** Method: **SW8260C**

MBLK	Sample ID: VBKQW2-180622-R238783a					Units: µg/L	Analysis Date: 6/23/2018 03:18 AM			
Client ID:	Run ID: VMS6_180622B				SeqNo: 5110217		Prep Date:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Benzene	U	1.0								
Ethylbenzene	U	1.0								
m,p-Xylene	U	2.0								
o-Xylene	U	1.0								
Toluene	U	1.0								
Xylenes, Total	U	3.0								
Surr: 1,2-Dichloroethane-d4	22.6	0	20	0	113	75-120	0			
Surr: 4-Bromofluorobenzene	18.73	0	20	0	93.6	80-110	0			
Surr: Dibromofluoromethane	20.74	0	20	0	104	85-115	0			
Surr: Toluene-d8	20.46	0	20	0	102	85-110	0			

LCS	Sample ID: VLCSW2-180622-R238783a					Units: µg/L	Analysis Date: 6/23/2018 02:30 AM			
Client ID:	Run ID: VMS6_180622B				SeqNo: 5110216		Prep Date:	DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Benzene	20.29	1.0	20	0	101	85-125	0			
Ethylbenzene	21.07	1.0	20	0	105	76-123	0			
m,p-Xylene	40.01	2.0	40	0	100	75-130	0			
o-Xylene	20.02	1.0	20	0	100	76-127	0			
Toluene	20.29	1.0	20	0	101	76-125	0			
Xylenes, Total	60.03	3.0	60	0	100	76-127	0			
Surr: 1,2-Dichloroethane-d4	21.63	0	20	0	108	75-120	0			
Surr: 4-Bromofluorobenzene	20.45	0	20	0	102	80-110	0			
Surr: Dibromofluoromethane	20.23	0	20	0	101	85-115	0			
Surr: Toluene-d8	20.48	0	20	0	102	85-110	0			

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

Client: Caerus Oil and Gas LLC
 Work Order: 18061420
 Project: Mesa H2-797 Spring Sampling

QC BATCH REPORT

Batch ID: **R238783a** Instrument ID **VMS6** Method: **SW8260C**

MS				Sample ID: 18061389-06A MS			Units: µg/L		Analysis Date: 6/23/2018 12:06 PM		
Client ID:			Run ID: VMS6_180622B			SeqNo: 5110237		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	20.14	1.0	20	0	101	85-125	0				
Ethylbenzene	20.72	1.0	20	0	104	76-123	0				
m,p-Xylene	36.98	2.0	40	0	92.4	75-130	0				
o-Xylene	19.45	1.0	20	0	97.2	76-127	0				
Toluene	19.87	1.0	20	0	99.4	76-125	0				
Xylenes, Total	56.43	3.0	60	0	94	76-127	0				
Surr: 1,2-Dichloroethane-d4	22.08	0	20	0	110	75-120	0				
Surr: 4-Bromofluorobenzene	20.94	0	20	0	105	80-110	0				
Surr: Dibromofluoromethane	19.85	0	20	0	99.2	85-115	0				
Surr: Toluene-d8	20.26	0	20	0	101	85-110	0				

DUP				Sample ID: 18061389-05A DUP			Units: µg/L		Analysis Date: 6/23/2018 11:42 AM		
Client ID:			Run ID: VMS6_180622B			SeqNo: 5110236		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Benzene	U	1.0	0	0	0		0	0	30		
Ethylbenzene	U	1.0	0	0	0		0	0	30		
m,p-Xylene	U	2.0	0	0	0		0	0	30		
o-Xylene	U	1.0	0	0	0		0	0	30		
Toluene	U	1.0	0	0	0		0	0	30		
Xylenes, Total	U	3.0	0	0	0		0	0	30		
Surr: 1,2-Dichloroethane-d4	22.37	0	20	0	112	75-120	24	7.03	30		
Surr: 4-Bromofluorobenzene	19.43	0	20	0	97.2	80-110	18.41	5.39	30		
Surr: Dibromofluoromethane	19.76	0	20	0	98.8	85-115	21.73	9.5	30		
Surr: Toluene-d8	19.76	0	20	0	98.8	85-110	19.91	0.756	30		

The following samples were analyzed in this batch:

18061420-01A	18061420-02A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: Caerus Oil and Gas LLC
Work Order: 18061420
Project: Mesa H2-797 Spring Sampling

QC BATCH REPORT

Batch ID: **120345** Instrument ID **TDS** Method: **A2540 C-11**

MBLK		Sample ID: MBLK-120345-120345					Units: mg/L		Analysis Date: 6/26/2018 02:46 PM		
Client ID:			Run ID: TDS_180626A				SeqNo: 5113601		Prep Date: 6/26/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Total Dissolved Solids U 10

LCS		Sample ID: LCS-120345-120345				Units: mg/L		Analysis Date: 6/26/2018 02:46 PM		
Client ID:		Run ID: TDS_180626A				SeqNo: 5113600		Prep Date: 6/26/2018		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids 465 10 495 0 93.9 80-120 0

DUP		Sample ID: 1806938-10A DUP					Units: mg/L		Analysis Date: 6/26/2018 02:46 PM		
Client ID:			Run ID: TDS_180626A			SeqNo: 5113590		Prep Date: 6/26/2018		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Total Dissolved Solids 13 10 0 0 0 0-0 59 128 10 R

DUP				Sample ID: 1806938-11A DUP				Units: mg/L			Analysis Date: 6/26/2018 02:46 PM			
Client ID:				Run ID: TDS_180626A				SeqNo: 5113592			Prep Date: 6/26/2018		DF: 1	
Analyte				Result		PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Total Dissolved Solids 265 10 0 0 0 0-0 263 0.758 10

The following samples were analyzed in this batch:

18061420-01B

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

Client: Caerus Oil and Gas LLC
Work Order: 18061420
Project: Mesa H2-797 Spring Sampling

QC BATCH REPORT

Batch ID: **R238838** Instrument ID **GALLERY** Method: **A4500-CI E-11**

MBLK		Sample ID: MB-R238838-R238838				Units: mg/L		Analysis Date: 6/25/2018 04:30 PM		
Client ID:		Run ID: GALLERY_180625B		SeqNo: 5111402		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride 0.3069 1.0 Jx

MS		Sample ID: 18061489-01CMS				Units: mg/L		Analysis Date: 6/25/2018 04:30 PM		
Client ID:		Run ID: GALLERY_180625B		SeqNo: 5111415		Prep Date:		DF: 4		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride 175.4 4.0 50 138 74.9 75-125 0 Sx

MSD		Sample ID: 18061489-01CMSD				Units: mg/L		Analysis Date: 6/25/2018 04:30 PM		
Client ID:		Run ID: GALLERY_180625B		SeqNo: 5111416		Prep Date:		DF: 4		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride 171.4 4.0 50 138 66.8 75-125 175.4 2.33 25 Sx

LCS1		Sample ID: LCS1-R238838				Units: mg/L		Analysis Date: 6/25/2018 04:30 PM		
Client ID:		Run ID: GALLERY_180625B		SeqNo: 5111403		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride 9.386 1.0 10 0 93.9 80-120 0 x

LCS2		Sample ID: LCS2-R238838				Units: mg/L		Analysis Date: 6/25/2018 04:30 PM		
Client ID:		Run ID: GALLERY_180625B		SeqNo: 5111426		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chloride 50.47 1.0 50 0 101 80-120 0 x

The following samples were analyzed in this batch:

18061420-01C

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

Client: Caerus Oil and Gas LLC
Work Order: 18061420
Project: Mesa H2-797 Spring Sampling

QC BATCH REPORT

Batch ID: **R238941** Instrument ID **WETCHEM** Method: **E376.1**

MBLK	Sample ID: MB-R238941-R238941				Units: mg/L		Analysis Date: 6/26/2018 04:02 PM			
Client ID:	Run ID: WETCHEM_180626L				SeqNo: 5114246		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Sulfide U 1.0

MBLK	Sample ID: MB-R238941-R238941				Units: mg/L		Analysis Date: 6/26/2018 04:02 PM			
Client ID:	Run ID: WETCHEM_180626L				SeqNo: 5114249		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Sulfide U 1.0

MBLK	Sample ID: MB-R238941-R238941				Units: mg/L		Analysis Date: 6/26/2018 04:02 PM			
Client ID:	Run ID: WETCHEM_180626L				SeqNo: 5114258		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Sulfide U 1.0

LCS	Sample ID: LCS-R238941-R238941				Units: mg/L		Analysis Date: 6/26/2018 04:02 PM			
Client ID:	Run ID: WETCHEM_180626L				SeqNo: 5114247		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Sulfide 7.2 1.0 10.75 0 67 60-140 0

LCS	Sample ID: LCS-R238941-R238941				Units: mg/L		Analysis Date: 6/26/2018 04:02 PM			
Client ID:	Run ID: WETCHEM_180626L				SeqNo: 5114250		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Sulfide 7.2 1.0 10.75 0 67 60-140 0

LCS	Sample ID: LCS-R238941-R238941				Units: mg/L		Analysis Date: 6/26/2018 04:02 PM			
Client ID:	Run ID: WETCHEM_180626L				SeqNo: 5114259		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Sulfide 7.2 1.0 10.75 0 67 60-140 0

The following samples were analyzed in this batch:

18061420-01D

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



CHAIN OF CUSTODY

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

COC number (for client tracking)

18061420

Page 1 of 1

[illegible]

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 2810 1044 Fax: +852 2810 2021 Email: HongKong@alsglobal.com

8122 4.2°C

Sample Receipt Checklist

Client Name: **CAERUS**

Date/Time Received: **21-Jun-18 09:30**

Work Order: **18061420**

Received by: **DS**

Checklist completed by Diane Shaw 21-Jun-18
eSignature Date

Reviewed by: Tom Bramish 21-Jun-18
eSignature Date

Matrices: **Groundwater**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>4.2/4.2 c</u> <u>SR2</u>		
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>6/21/2018 5:29:27 PM</u>		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: