ANALYTICAL SUMMARY REPORT

May 22, 2020

Extraction O&G
370 17th Street, Suite 5300
Denver, CO 80202

Work Order: G20040463

Project Name: BWSE

Energy Laboratories Inc. Gillette WY received the following 1 sample for Extraction O&G on 4/28/2020 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
G20040463-001	BW_Avery_99967	04/27/20 10:06	04/28/20	Aqueous	Carbon, Total Organic Client Provided Field Parameters Radium 226 + Radium 228 Radium 226, Total Radium 228, Total

The analyses presented in this report were performed by Energy Laboratories, Inc., 400 W. Boxelder Rd., Gillette, WY 82718, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these tests results, please contact your Project Manager.

Report Approved By:

Tracey Archer

Digitally signed by
Tracey Archer
Date: 2020.05.22 13:02:45 -06:00

CLIENT: Extraction O&G
Project: BWSE
Work Order: G20040463

Report Date: 05/22/20

CASE NARRATIVE

Tests associated with analyst identified as ELI-CA were subcontracted to Energy Laboratories, 2393 Salt Creek Hwy., Casper, WY, EPA Number WY00002.

LABORATORY ANALYTICAL REPORT

Prepared by Gillette, WY Branch

Client: Extraction O&G
Site Name: GWA_United_Pad
Project: BWSE
Client Sample ID: BW_Avery_99967
Location: NESE_9_1S_68W
Samp FRQ/Type: IN
Lab ID: G20040463-001

Report Date: 05/22/20
Collection Date: 04/27/20 10:06
Date Received: 04/28/20
Sampled By: Jeff Griggs
Matrix: Aqueous
Tracking Number: 281112

Analyses	Result	Units	RL	Qualifier	Method	Analysis Date / By
CLIENT PROVIDED FIELD PARAMETERS						
Conductivity, field	1429	umhos/cm			FIELD	04/27/20 10:06 / ***
Oxidation-Reduction Potential (ORP)	83.4	mV			FIELD	04/27/20 10:06 / ***
Oxygen-Dissolved, field	0.93	mg/L			FIELD	04/27/20 10:06 / ***
pH, field	7.58	s.u.			FIELD	04/27/20 10:06 / ***
Temperature °C, field	10.8	°C			FIELD	04/27/20 10:06 / ***
Turbidity, field	2.82	NTU			FIELD	04/27/20 10:06 / ***
*** Performed by Sampler						
NON-METALS						
Organic Carbon, Total (TOC)	7.7	mg/L	0.5		A5310 C	04/30/20 08:08 / eli-ca
RADIONUCLIDES, TOTAL						
Radium 226	0.3	pCi/L			E903.0	05/19/20 10:43 / eli-ca
Radium 226 precision (±)	0.1	pCi/L			E903.0	05/19/20 10:43 / eli-ca
Radium 226 MDC	0.2	pCi/L			E903.0	05/19/20 10:43 / eli-ca
Radium 226 + Radium 228	1.2	pCi/L		U	A7500-RA	05/20/20 16:57 / eli-ca
Radium 226 + Radium 228 precision (±)	0.9	pCi/L			A7500-RA	05/20/20 16:57 / eli-ca
Radium 226 + Radium 228 MDC	1.4	pCi/L			A7500-RA	05/20/20 16:57 / eli-ca
Radium 228	0.9	pCi/L		U	RA-05	05/13/20 12:20 / eli-ca
Radium 228 precision (±)	0.9	pCi/L			RA-05	05/13/20 12:20 / eli-ca
Radium 228 MDC	1.4	pCi/L			RA-05	05/13/20 12:20 / eli-ca

Report Definitions:
RL - Analyte Reporting Limit
QCL - Quality Control Limit
U - Not detected at Minimum Detectable Concentration (MDC)
MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Extraction O&G **Work Order:** G20040463 **Report Date:** 05/20/20

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E903.0									Batch: RA226-9632
Lab ID: LCS-RA226-9632	Laboratory Control Sample				Run: G542M-2_200504B				05/19/20 10:43
Radium 226	8.7	pCi/L		82	70	130			
Radium 226 precision (±)	1.7	pCi/L							
Radium 226 MDC	0.20	pCi/L							
Lab ID: MB-RA226-9632	Method Blank				Run: G542M-2_200504B				05/19/20 10:43
Radium 226	0.04	pCi/L							U
Radium 226 precision (±)	0.1	pCi/L							
Radium 226 MDC	0.2	pCi/L							
Lab ID: G20040463-001BDUP	Sample Duplicate				Run: G542M-2_200504B				05/19/20 10:43
Radium 226	0.38	pCi/L					25	30	
Radium 226 precision (±)	0.16	pCi/L							
Radium 226 MDC	0.20	pCi/L							

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Extraction O&G **Work Order:** G20040463 **Report Date:** 05/20/20

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **RA-05**									Batch: RA228-6240
Lab ID: **LCS-228-RA226-9632**	Laboratory Control Sample				Run: TENNELEC-4_200504A				05/13/20 12:20
Radium 228	8.0	pCi/L		87	70	130			
Radium 228 precision (±)	1.8	pCi/L							
Radium 228 MDC	1.3	pCi/L							
Lab ID: **MB-RA226-9632**	Method Blank				Run: TENNELEC-4_200504A				05/13/20 12:20
Radium 228	0.3	pCi/L							U
Radium 228 precision (±)	0.8	pCi/L							
Radium 228 MDC	1	pCi/L							
Lab ID: **G20040463-001BDUP**	Sample Duplicate				Run: TENNELEC-4_200504A				05/13/20 10:39
Radium 228	0.11	pCi/L					160	30	UR
Radium 228 precision (±)	0.67	pCi/L							
Radium 228 MDC	1.1	pCi/L							

- Duplicate RPD is outside of the acceptance range for this analysis. However, the RER is less than the limit of 2.0, the RER result is 0.67

Qualifiers:

RL - Analyte Reporting Limit

R - Relative Percent Difference (RPD) exceeds advisory limit

ND - Not detected at the Reporting Limit (RL)

U - Not detected at Minimum Detectable Concentration (MDC)

QA/QC Summary Report

Prepared by Casper, WY Branch

Client: Extraction O&G **Work Order:** G20040463 **Report Date:** 04/30/20

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **A5310 C**									Analytical Run: TOC3-C_200429A
Lab ID: **CCV-11020**	Continuing Calibration Verification Standard								04/30/20 04:33
Organic Carbon, Total (TOC)	4.79	mg/L	0.50	96	90	110			
Method: **A5310 C**									Batch: R257919
Lab ID: **LCS-11031**	Laboratory Control Sample				Run: TOC3-C_200429A				04/29/20 14:20
Organic Carbon, Total (TOC)	5.09	mg/L	0.50	102	90	109			
Lab ID: **MBLK**	Method Blank				Run: TOC3-C_200429A				04/29/20 14:55
Organic Carbon, Total (TOC)	ND	mg/L	0.1						
Lab ID: **C20040971-001HMS**	Sample Matrix Spike				Run: TOC3-C_200429A				04/30/20 00:45
Organic Carbon, Total (TOC)	38.2	mg/L	2.0	103	90	109			
Lab ID: **C20040971-001HMSD**	Sample Matrix Spike Duplicate				Run: TOC3-C_200429A				04/30/20 01:06
Organic Carbon, Total (TOC)	38.2	mg/L	2.0	103	90	109	0.1	20	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)

Work Order Receipt Checklist

Extraction O&G

G20040463

Login completed by: Chantel S. Johnson
Date Received: 4/28/2020
Reviewed by: Misty Stephens
Received by: csj
Reviewed Date: 4/29/2020
Carrier name: FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☑
Custody seals intact on all 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? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	11.3°C Melted Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☑	No ☐	Not Applicable ☐

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

Contact and Corrective Action Comments:

None

Chain of Custody and Analytical Request Record

ENERGY LABORATORIES

PLEASE PRINT- Provide as much information as possible.

Company Name: Extraction Oil and Gas (XOG)	Project Name, PWS, Permit, Etc. BWSE/GWA_United_Pad	Sample Origin State: CO	EPA/State Compliance: ☑ Yes ☐ No
Report Mail Address: Extraction Oil and Gas (XOG)/Apex	Contact Name: H. Shideman, R. Carlisle Phone/Fax:	Email: rochelle.carlisle@apexcos.com	Sampler: (Please Print) Jeff Griggs
Invoice Address: Extraction Oil and Gas (XOG)	Invoice Contact & Phone:	Purchase Order: ALLOC-733, 962, 32	Quote/Bottle Order:

Special Report/Formats – ELI must be notified prior to sample submittal for the following:

☐ DW ☐ A2LA
☐ GSA X EDD/EDT (Electronic Data)
☐ POTW/WWTP Format: COGCC Compatible
☐ State: _____ ☐ LEVEL IV
☐ Other: _____ ☐ NELAC 13 6

Number of Containers
Sample Type: A Air W Water S Soils/Solids V Vegetation B Bioassay O Other

ANALYSIS REQUESTED

SEE ATTACHED

Normal Turnaround (TAT)

RUSH

Contact ELI prior to **RUSH** sample submittal for charges and scheduling – See Instruction Page

Comments:

FacID 760087

Shipped by: fedex

Cooler ID(s):

Receipt Temp: 11.3 °C

On Ice: Yes No melted

Custody Seal Y N

Intact Y N

Signature Match Y N

SAMPLE IDENTIFICATION (Name, Location, Interval, etc.)	Collection Date	Collection Time	MATRIX	Ra 226 & 228, Total	TOC								SEE ATTACHED	Normal TAT	RUSH	
BW_Avery_99967	04/27/2020	1006	2W	X	X									X		IN
NESE_9_1S_68W																
																IN
Field Parameters	**Value**	**Units**														
Conductivity	1429	uS/cm														Isotopic Lab:
Dissolved Oxygen	0.93	mg/L														
Oxidation Reduction Potential	83.4	mV														
pH	7.58	S.U.														
Temperature	10.8	°C														
Turbidity	2.82	NTU														

LABORATORY USE ONLY G2004104-03

Custody Record MUST be Signed	Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
	Jeff Griggs	04/27/2020/1428				
	Relinquished by (print):	Date/Time:	Signature:	Received by (print):	Date/Time:	Signature:
				Received by Laboratory:	Date/Time: 1933 4/28/20	Signature:

Sample Disposal: Return to Client: _____ Lab Disposal: _____

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested.
This serves as notice of this possibility. All sub-contract data will be clearly notated on your analytical report.
Visit our web site at www.energylab.com for additional information, downloadable fee schedule, forms, and links.