



Analytical Report 620049

for

Crestone Peak Resources

Project Manager: Brent Hedstrom

Pratt 4G-29H

04.11.2019

Collected By: Client



**4147 Greenbriar Dr.
Stafford, TX 77477**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)
Xenco-Lakeland: Florida (E84098)



04.11.2019

Project Manager: **Brent Hedstrom**

Crestone Peak Resources

10188 E I-25 Frontage Road

Longmont, CO 80504

Reference: XENCO Report No(s): **620049**

Pratt 4G-29H

Project Address:

Brent Hedstrom:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 620049. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 620049 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads 'Wendy Walfoort'. The signature is written in a cursive, flowing style.

Wendy Walfoort

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Sample Cross Reference 620049

Crestone Peak Resources, Longmont, CO

Pratt 4G-29H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Pratt 4G-29H	W	04.01.2019 00:00		620049-001



CASE NARRATIVE

Client Name: Crestone Peak Resources

Project Name: Pratt 4G-29H

Project ID:

Work Order Number(s): 620049

Report Date: 04.11.2019

Date Received: 04.04.2019

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3084968 BTEX by SW 8260B

Sample required dilution due to matrix interference. Sample affected is: 620049-001.



Certificate of Analytical Results 620049

Crestone Peak Resources, Longmont, CO

Pratt 4G-29H

Sample Id: **Pratt 4G-29H**

Matrix: Product

Date Received: 04.04.2019 09:10

Lab Sample Id: 620049-001

Date Collected: 04.01.2019 00:00

Analytical Method: Anions by EPA 300

Prep Method: E300P

Tech: JYM

% Moisture:

Analyst: JYM

Date Prep: 04.05.2019 12:40

Basis: Wet Weight

Seq Number: 3084802

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.0	10.0	mg/kg	04.05.2019 19:14	U	1
Sulfate	14808-79-8	<10.0	10.0	mg/kg	04.05.2019 19:14	U	1

Analytical Method: ICP Metals by SW6010B

Prep Method: SW3050B

Tech: PJB

% Moisture:

Analyst: DEP

Date Prep: 04.10.2019 12:30

Basis: Wet Weight

Seq Number: 3085290

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	<19.2	19.2	mg/kg	04.11.2019 04:45	U	1
Magnesium	7439-95-4	<38.5	38.5	mg/kg	04.11.2019 04:45	U	1
Potassium	7440-09-7	<48.1	48.1	mg/kg	04.11.2019 04:45	U	1
Sodium	7440-23-5	<48.1	48.1	mg/kg	04.11.2019 04:45	U	1

Analytical Method: BTEX by SW 8260B

Prep Method: SW5035A

Tech: CRL

% Moisture:

Analyst: CRL

Date Prep: 04.08.2019 15:50

Basis: Wet Weight

Seq Number: 3084968

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.623	0.200	mg/kg	04.08.2019 20:33		200
Toluene	108-88-3	6.27	0.200	mg/kg	04.08.2019 20:33		200
Ethylbenzene	100-41-4	5.75	0.200	mg/kg	04.08.2019 20:33		200
m,p-Xylenes	179601-23-1	23.1	0.399	mg/kg	04.08.2019 20:33		200
o-Xylene	95-47-6	11.6	0.200	mg/kg	04.08.2019 20:33		200
Total Xylenes	1330-20-7	34.7	0.200	mg/kg	04.08.2019 20:33		200
Total BTEX		47.3	0.200	mg/kg	04.08.2019 20:33		200

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
Dibromofluoromethane	1868-53-7	96	%	73-132	04.08.2019 20:33	
1,2-Dichloroethane-D4	17060-07-0	102	%	73-124	04.08.2019 20:33	
Toluene-D8	2037-26-5	107	%	69-124	04.08.2019 20:33	
4-Bromofluorobenzene	460-00-4	116	%	58-152	04.08.2019 20:33	

Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



Crestone Peak Resources

Pratt 4G-29H

Analytical Method: Anions by EPA 300

Seq Number: 3084802

MB Sample Id: 7675120-1-BLK

Matrix: Solid

LCS Sample Id: 7675120-1-BKS

Prep Method: E300P

Date Prep: 04.05.2019

LCSD Sample Id: 7675120-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	100	100	100	103	103	80-120	3	20	mg/kg	04.05.2019 17:52	
Sulfate	<10.0	100	97.4	97	95.2	95	80-120	2	20	mg/kg	04.05.2019 17:52	

Analytical Method: Anions by EPA 300

Seq Number: 3084802

Parent Sample Id: 620028-001

Matrix: Solid

MS Sample Id: 620028-001 S

Prep Method: SW9056P

Date Prep: 04.05.2019

MSD Sample Id: 620028-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	4.88	99.4	111	107	111	107	80-120	0	20	mg/kg	04.05.2019 21:00	
Sulfate	2.08	99.4	106	105	106	105	80-120	0	20	mg/kg	04.05.2019 21:00	

Analytical Method: Anions by EPA 300

Seq Number: 3084802

Parent Sample Id: 620031-001

Matrix: Soil

MS Sample Id: 620031-001 S

Prep Method: E300P

Date Prep: 04.05.2019

MSD Sample Id: 620031-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.354	100	103	103	103	103	80-120	0	20	mg/kg	04.05.2019 18:30	
Sulfate	<10.0	100	102	102	102	102	80-120	0	20	mg/kg	04.05.2019 18:30	

Analytical Method: ICP Metals by SW6010B

Seq Number: 3085290

MB Sample Id: 7675463-1-BLK

Matrix: Solid

LCS Sample Id: 7675463-1-BKS

Prep Method: SW3050B

Date Prep: 04.10.2019

LCSD Sample Id: 7675463-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<2.46	2500	2640	106	2640	106	75-125	0	20	mg/kg	04.11.2019 04:36	
Magnesium	<1.28	2500	2590	104	2590	104	75-125	0	20	mg/kg	04.11.2019 04:36	
Potassium	<5.45	1000	1060	106	1060	106	75-125	0	20	mg/kg	04.11.2019 04:36	
Sodium	<1.56	2500	2600	104	2600	104	75-125	0	20	mg/kg	04.11.2019 04:36	

Analytical Method: ICP Metals by SW6010B

Seq Number: 3085290

Parent Sample Id: 620049-001

Matrix: Product

MS Sample Id: 620049-001 S

Prep Method: SW3050B

Date Prep: 04.10.2019

MSD Sample Id: 620049-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	14.7	2400	2380	99	2300	99	75-125	3	20	mg/kg	04.11.2019 04:49	
Magnesium	<1.23	2400	2320	97	2240	97	75-125	4	20	mg/kg	04.11.2019 04:49	
Potassium	<5.24	962	953	99	915	99	75-125	4	20	mg/kg	04.11.2019 04:49	
Sodium	14.3	2400	2380	99	2300	99	75-125	3	20	mg/kg	04.11.2019 04:49	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



Crestone Peak Resources

Pratt 4G-29H

Analytical Method: BTEX by SW 8260B

Seq Number: 3084968

MB Sample Id: 7675312-1-BLK

Matrix: Solid

LCS Sample Id: 7675312-1-BKS

Prep Method: SW5035A

Date Prep: 04.08.2019

LCSD Sample Id: 7675312-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00100	0.0500	0.0464	93	0.0497	99	62-132	7	25	mg/kg	04.08.2019 13:10	
Toluene	<0.00100	0.0500	0.0461	92	0.0496	99	66-124	7	25	mg/kg	04.08.2019 13:10	
Ethylbenzene	<0.00100	0.0500	0.0475	95	0.0507	101	71-134	7	25	mg/kg	04.08.2019 13:10	
m,p-Xylenes	<0.00200	0.100	0.0950	95	0.102	102	69-128	7	25	mg/kg	04.08.2019 13:10	
o-Xylene	<0.00100	0.0500	0.0477	95	0.0510	102	72-131	7	25	mg/kg	04.08.2019 13:10	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
Dibromofluoromethane	102		106		106		73-132	%	04.08.2019 13:10
1,2-Dichloroethane-D4	102		102		102		73-124	%	04.08.2019 13:10
Toluene-D8	98		99		99		69-124	%	04.08.2019 13:10
4-Bromofluorobenzene	96		99		100		58-152	%	04.08.2019 13:10

Analytical Method: BTEX by SW 8260B

Seq Number: 3084968

Parent Sample Id: 620140-001

Matrix: Soil

MS Sample Id: 620140-001 S

Prep Method: SW5035A

Date Prep: 04.08.2019

MSD Sample Id: 620140-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00103	0.0513	0.0427	83	0.0406	79	62-132	5	25	mg/kg	04.08.2019 13:58	
Toluene	0.000611	0.0513	0.0416	80	0.0399	76	66-124	4	25	mg/kg	04.08.2019 13:58	
Ethylbenzene	<0.00103	0.0513	0.0410	80	0.0397	77	71-134	3	25	mg/kg	04.08.2019 13:58	
m,p-Xylenes	0.00237	0.103	0.0823	78	0.0792	75	69-128	4	25	mg/kg	04.08.2019 13:58	
o-Xylene	0.00118	0.0513	0.0403	76	0.0391	74	72-131	3	25	mg/kg	04.08.2019 13:58	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
Dibromofluoromethane	105		106		73-132	%	04.08.2019 13:58
1,2-Dichloroethane-D4	104		107		73-124	%	04.08.2019 13:58
Toluene-D8	98		100		69-124	%	04.08.2019 13:58
4-Bromofluorobenzene	99		103		58-152	%	04.08.2019 13:58

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C-A) / B$
 $RPD = 200 * |(C-E) / (C+E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec

620049

9748 Whithorn Drive, Houston, Texas 77095
Main - 281-856-9333

GEOMARK

Chain of Custody

**Project
Information:**

Brent Hedstrom
Crestone Peak Resources
Field Operations Technician
Mobile 303-434-3007

Authorized by:

**Shipping
Information:**

GeoMark Research, Ltd.
9748 Whithorn Drive
Houston, Texas 77095

Attn:

Sample Summary

Material Shipped/Received	# Of Samples	COGCC (Required)	Billing Information	Analysis Requested
Pratt 4G-29H	8	434525	C73994	See attached form from COGCC guidelines for testing required.
				See attached form from COGCC guidelines for testing required.
				See attached form from COGCC guidelines for testing required.
				See attached form from COGCC guidelines for testing required.
				See attached form from COGCC guidelines for testing required.
				See attached form from COGCC guidelines for testing required.
				See attached form from COGCC guidelines for testing required.

Purpose for Release: Analysis on sampling

Date Released: 4/2/2019

Date Received:

Released by: Brent Hedstrom

Received by:

Company: Crestone Peak Resources

Company:

Signature:

Signature:

Rec+Rel: FedEx 4/4/19 9:10 Rec: *[Signature]*

ORIGIN ID:FNLA (303) 774-3919
 BRENT HEDSTROM
 CRESTONE PEAK RESOURCES
 10188 E I-25 FRONTAGE ROAD
 FIRESTONE, CO 80504
 UNITED STATES US

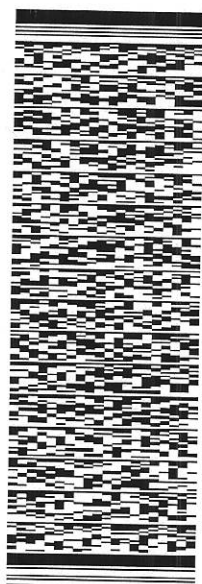
SHIP DATE: 02APR19
 ACTWGT: 20.00 LB
 CAD: 110304030/NET4100
 DIMS: 24x14x15 IN
 BILL SENDER

TO **SAMPLE CUSTODY**
XENCO HOUSTON
4147 GREENBRIAR DRIVE

STAFFORD TX 77477

(281) 240-4200 REF:
 INV:
 PO:

DEPT:



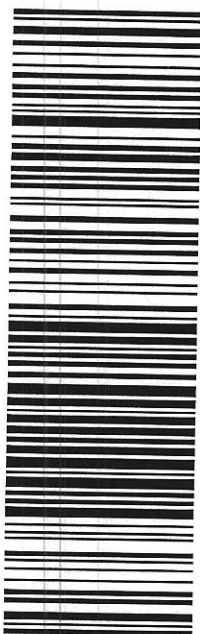
J191019010701ur

TRK#
 0201 **7748 6091 8873**

FRI - 05 APR 4:30P
EXPRESS SAVER

SH SGRA

77477
 TX-US **IAH**



a.D.

565J1107E5/23AD

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: Crestone Peak Resources

Date/ Time Received: 04.04.2019 09.10.00 AM

Work Order #: 620049

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : hou-068

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	8.9
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes very little ice, received above temp, start additional cooling in lab
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	No pulled dates from containers "4/1/19"
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	No product btex should be unpreserved
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	No all vials have headspace

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by: Heidi Mathews
Heidi Mathews

Date: 04.04.2019

Checklist reviewed by: Wendy Walfoort
Wendy Walfoort

Date: 04.10.2019