



March 25, 2019

Mike Bratcher (District 1 Release)
Oil Conservation Division, District 1
1625 N. French Dr.
Hobbs, NM

Crystal Weaver
Bureau of Land Management
620 E. Green St.
Carlsbad, NM 88220

Re: Closure Request
Stratocaster 20 Federal 1H Tank Battery
API #: 30-025-37295
RP#: 1RP-5335
GPS: 32.28507, -103.49908
Unit Letter M, Section 12, Township 22 South, Range 33 East
Lea County, NM

Mr. Bratcher/Ms. Weaver,

COG Operating, LLC (COG) is pleased to submit the following closure report in response to a release that occurred at the Stratocaster 20 Federal 1H Tank Battery located in Unit Letter M, Section 12, Township 22 South and Range 33 East in Lea County, New Mexico.

BACKGROUND

The release was discovered on January 2, 2019 and a C-141 initial report was submitted and approved by the New Mexico Oil Conservation Division (NMOCD). The release was caused by the pressure reducing valve freezing and sending oil out of the flare line. The fluids release was overspray impacting the area edge of the pad and pasture. Approximately five (5) barrels of crude oil were released from the well and no fluids were recovered. The initial C-141 is shown in Appendix A.

GROUNDWATER AND REGULATORY FRAMEWORK

No wells are listed in Section 20 on the New Mexico Office of the State Engineer's (NMOSE) database, USGS National Water Information System, or the Geology and Ground-Water Conditions in Southern Lea County, New Mexico (Report 6). The nearest well listed is in Section 16 on the USGS National Water Information System, approximately 0.7 miles north of the site, and has a reported depth to groundwater of 345 feet below surface. The Chevron trend map shows the depth to water >300'.

A risk based evaluation and site determinations were performed in accordance to the New Mexico Oil Conservation Division (NMOCD) Rule (Title 19 Chapter 15 Part 29) for releases on oil and gas development and production in New Mexico (effective August 14, 2018). According to the site characterization evaluation, no other receptors (water wells, water course, playas, karst, flood plain, lake beds or ordinance boundaries) were located within each specific boundaries or distance from the site. The delineation and closure criteria are listed below:

General Site Characterization and Groundwater:

Site Characterization	Average Groundwater Depth (ft.)
None	>100 feet

Delineation and Closure Criteria:

Recommended Remedial Action Levels (RRALs)	
Chlorides	20,000 mg/kg
TPH (GRO and DRO and MRO)	2,500 mg/kg
TPH (GRO and DRO)	1,000 mg/kg
Benzene	10 mg/kg
Total BTEX	50 mg/kg

REMEDIATION PLAN

All samples were below the Table 1 closure criteria concentrations and thus no remediation will occur at the site.

SITE RECLAMATION AND RESTORATION

All samples were below the Table 1 closure criteria concentrations and thus no reclamation and restoration is required at the site.

CLOSURE REQUEST

Based on the information provided, COG requesting closure of the release. The signed C-141 Final is included in Appendix A. Should you have any questions or concerns on the closure report, please do not hesitate to contact me.

Sincerely,

Should you have any questions or concerns on the proposed remediation activities, please do not hesitate to contact me.

Sincerely,

Concho Operating, LLC



Ike Tavarez, P. G.
Senior HSE Supervisor
itavarez@concho.com

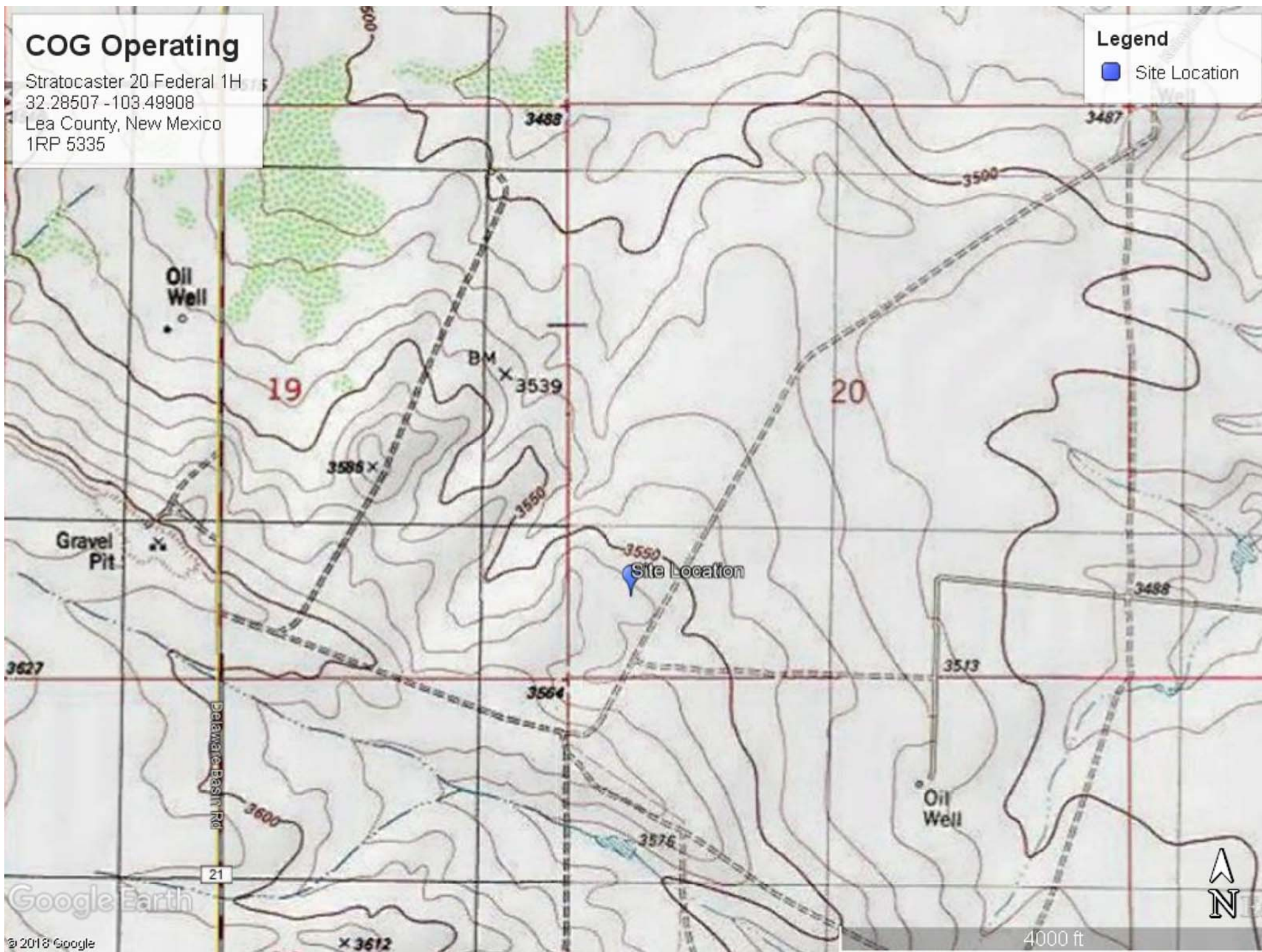
Figures

COG Operating

Stratocaster 20 Federal 1H
32.28507 -103.49908
Lea County, New Mexico
1RP 5335

Legend

Site Location



COG Operating

Stratocaster 20 Federal 1H
32.28507 -103.49908
Lea County, New Mexico
1RP 5335

Legend

- Sample Locations
- Overspray Area



Google Earth

© 2013 Google

Tables

Table 1
COG Operating LLC.
Stratocaster 20 Federal 1H
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)						Benzene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)	
			In-Situ	Removed	GRO	DRO	MRO	Total	GRO	DRO				Total
Average Depth to Groundwater (ft) >100'														
NMOCD Remediation Action Limits (mg/kg)					-	-	-	2,500	-	-	1,000	10	50	20,000
#1	1/30/2019	0-0.5	X		<15.0	190	38.9	228.9	<15.0	190	190	<0.0020	<0.0020	14.7
#2	1/30/2019	0-0.5	X		<15.0	26.3	<15.0	26.3	<15.0	26.3	26.3	<0.0020	<0.0020	<4.95
#3	1/30/2019	0-0.5	X		<15.0	201	42	243	<15.0	201	201	<0.0020	<0.0020	<4.95

(-) Not Analyzed

Appendix A

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural
Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	OGRID
Contact Name	Contact Telephone
Contact email	Incident # (assigned by OCD)
Contact mailing address	

Location of Release Source

Latitude _____ Longitude _____
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Site Type
Date Release Discovered	API# (if applicable)

Unit Letter	Section	Township	Range	County

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☐ Private (Name: _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

<input type="checkbox"/> The source of the release has been stopped. <input type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: _____	Title: _____
Signature: <u>Delann Opreant</u>	Date: _____
email: _____	Telephone: _____
<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <u>OCD Only</u> Received by: _____ </div> <div style="border: 1px solid black; padding: 10px; background-color: #e6f2ff;"> <p style="margin: 0;">RECEIVED</p> <p style="margin: 0;">By CHernandez at 8:17 am, Feb 05, 2019</p> </div> </div>	

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	_____ (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

<p>Characterization Report Checklist: <i>Each of the following items must be included in the report.</i></p> <ul style="list-style-type: none"><input type="checkbox"/> Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.<input type="checkbox"/> Field data<input type="checkbox"/> Data table of soil contaminant concentration data<input type="checkbox"/> Depth to water determination<input type="checkbox"/> Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release<input type="checkbox"/> Boring or excavation logs<input type="checkbox"/> Photographs including date and GIS information<input type="checkbox"/> Topographic/Aerial maps<input type="checkbox"/> Laboratory data including chain of custody
--

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

Incident ID	
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: _____ Title: _____

Signature:  _____ Date: _____

email: _____ Telephone: _____

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	1RP 5335
Facility ID	
Application ID	

Closure


The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☐ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Ike Tavaréz Title: Senior HSE Supervisor

Signature:  Date: 3/21/19

email: itavaréz@concho.com Telephone: 432-683-7443

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - Stratocaster 20 Fed #3H

22 South			33 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

22 South			34 East		
6	5	4	3	2	1
7	8	9	10	11 30	12 50
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

22 South			35 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

23 South			33 East		
6	5	4	3	2	1
7 475	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
400	400				
30	29	28	27	26	25
31	32	33	34	35	36

23 South			34 East		
6	5	4	3	2	1
	200				
7	8	9	10	11	12
	225				
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

23 South			35 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South			33 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South			34 East		
6	5	4	3	2	1
81		475			
7	8	9	10	11	12
				40	
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South			35 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	97	21	22	23
30	29	28	27	26	25
31	32	33	34	35	36

- 88 New Mexico State Engineers Well Reports
- 105 USGS Well Reports
- 90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)
- 90 Geology and Groundwater Resources of Eddy County, NM (Report 3)
- 34 NMOCD - Groundwater Data
- 121 Abandoned Waterwell (recently measured)



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced,
O=orphaned,
C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
C 03620 POD1		CUB	LE	1	4	3	32	23S	34E	641790	3569941	480	130	350
CP 00556 POD1		CP	LE	4	4	3	08	23S	34E	641762	3576206	497	255	242
CP 00580		CP	LE	3	4	3	23	23S	34E	646524	3572948*	220		
CP 00606		CP	LE		4	1	23	23S	34E	646613	3573854*	650	265	385
CP 00618		CP	LE	1	2	4	22	23S	34E	645713	3573539*	428	295	133
CP 00637		CP	LE	3	3	4	15	23S	34E	645293	3574541*	430	430	0
CP 00872 POD1		CP	LE	1	1	1	08	23S	34E	641225	3577504*	494	305	189
CP 01075 POD1		CP	LE		1	1	08	23S	34E	641278	3577525	430	20	410
CP 01120 POD1		CP	LE			3	14	23S	34E	646366	3574753	397	318	79
CP 01130 POD1		CP	LE	2	1	2	07	23S	34E	640662	3577558	27		
CP 01130 POD2		CP	LE	2	1	2	07	23S	34E	640674	3577549	27		
CP 01258 POD1		CP	LE	1	4	3	22	23S	34E	645015	3573221	25		
CP 01258 POD2		CP	LE	1	4	3	22	23S	34E	644941	3572883	65		
CP 01258 POD3		CP	LE	1	4	3	22	23S	34E	644938	3573097	25		
CP 01502 POD1		CP	LE	4	3	3	05	23S	34E	641342	3577635	648	200	448

Average Depth to Water: **246 feet**

Minimum Depth: **20 feet**

Maximum Depth: **430 feet**

Record Count: 15

PLSS Search:

Township: 23S **Range:** 34E

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

11/14/18 10:37 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER



USGS Home
Contact USGS
Search USGS

National Water Information System: Web Interface

USGS Water Resources

Data Category:


Groundwater

Geographic Area:

New Mexico

GO

Click to hide News Bulletins

- [Please see news on new formats](#)
- **UPDATE, 11/9: As of November 8, the USGS has successfully restored all of the operational gages that stopped transmitting due to an issue with the satellite telemetry system that records and transmits data. The USGS will now focus on restoring other equipment that experienced the telemetry issues, including about 85 rapid deployment gages that are used periodically for emergency response. Read [more](#)**
- [Full News](#) 

Groundwater levels for New Mexico

Click to hide state-specific text

Search Results -- 1 sites found

site_no list =

- 321734103290001

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 321734103290001 23S.34E.16.333312

Available data for this site

Groundwater: Field measurements

GO

Lea County, New Mexico

Hydrologic Unit Code 13070007

Latitude 32°17'53", Longitude 103°28'59" NAD27

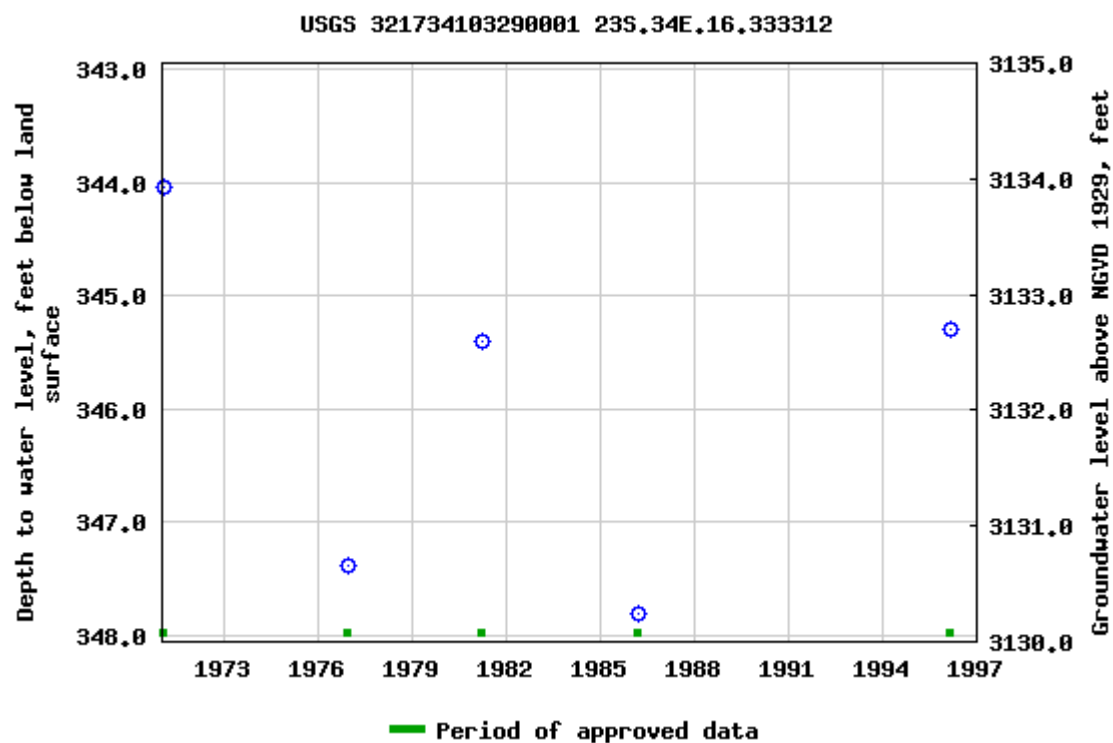
Land-surface elevation 3,478.00 feet above NGVD29

The depth of the well is 400 feet below land surface.

This well is completed in the Chinle Formation (231CHNL) local aquifer.

Output formats

Table of data
Tab-separated data
Graph of data
Reselect period



Breaks in the plot represent a gap of at least one year between field measurements.

[Download a presentation-quality graph](#)

[Questions about sites/data?](#)

[Feedback on this web site](#)

[Automated retrievals](#)

[Help](#)

[Data Tips](#)

[Explanation of terms](#)

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[U.S. Department of the Interior](#) | [U.S. Geological Survey](#)

Title: Groundwater for New Mexico: Water Levels

URL: <https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?>



Page Contact Information: [New Mexico Water Data Maintainer](#)

Page Last Modified: 2018-11-14 12:38:21 EST

COG Operating

Stratocaster 20 Federal 1H
32.28507 -103.49908
Lea County, New Mexico
1RP 5335

Legend

- High
- Low
- Medium
- Site Location

Site Location

Delaware Basin Rd

21

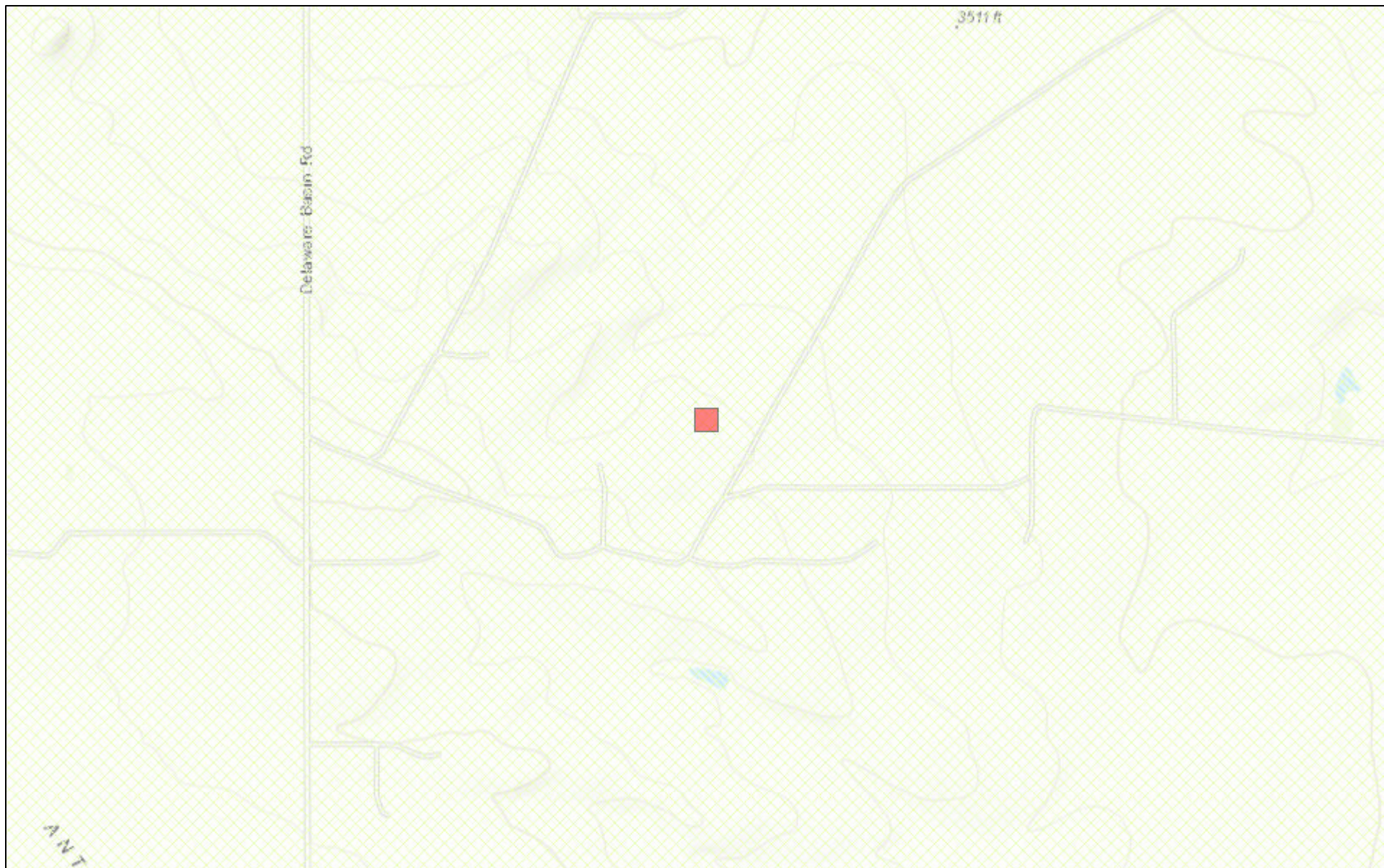
Google Earth

© 2018 Google

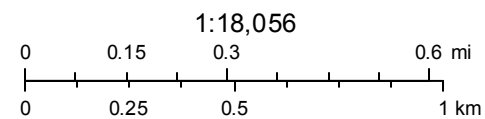
4000 ft

N

New Mexico NFHL Data



March 27, 2019



FEMA
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,

Appendix C



Certificate of Analysis Summary 613152

COG Operating LLC, Artesia, NM

Project Name: Stratocaster 20 Federal #1H (1/2/19)



Project Id:

Contact: Ike Tavarez

Project Location: Lea Co, NM

Date Received in Lab: Fri Feb-01-19 08:05 am

Report Date: 04-FEB-19

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	613152-001	613152-002	613152-003			
	<i>Field Id:</i>	#1 0-0.5	#2 0-0.5'	#3 0-0.5'			
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL			
	<i>Sampled:</i>	Jan-30-19 00:00	Jan-30-19 00:00	Jan-30-19 00:00			
BTEX by EPA 8021B	<i>Extracted:</i>	Feb-01-19 10:00	Feb-01-19 10:00	Feb-01-19 10:00			
	<i>Analyzed:</i>	Feb-01-19 17:05	Feb-01-19 16:46	Feb-01-19 16:27			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene		<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200			
Toluene		<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200			
Ethylbenzene		<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200			
m,p-Xylenes		<0.00402 0.00402	<0.00401 0.00401	<0.00400 0.00400			
o-Xylene		<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200			
Total Xylenes		<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200			
Total BTEX		<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200			
Chloride by EPA 300	<i>Extracted:</i>	Feb-02-19 13:30	Feb-02-19 13:30	Feb-02-19 13:30			
	<i>Analyzed:</i>	Feb-04-19 09:56	Feb-04-19 10:15	Feb-04-19 10:21			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		14.7 4.96	<4.95 4.95	<4.98 4.98			
TPH By SW8015 Mod	<i>Extracted:</i>	Feb-02-19 08:00	Feb-02-19 08:00	Feb-02-19 08:00			
	<i>Analyzed:</i>	Feb-03-19 02:41	Feb-03-19 03:01	Feb-03-19 03:21			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Gasoline Range Hydrocarbons		<15.0 15.0	<15.0 15.0	<15.0 15.0			
Diesel Range Organics		190 15.0	26.3 15.0	201 15.0			
Motor Oil Range Hydrocarbons (MRO)		38.9 15.0	<15.0 15.0	42.0 15.0			
Total TPH		229 15.0	26.3 15.0	243 15.0			

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Jessica Kramer

Jessica Kramer
Project Assistant

Analytical Report 613152

for COG Operating LLC

Project Manager: Ike Tavaréz
Stratocaster 20 Federal #1H (1/2/19)

04-FEB-19

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

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)
Xenco-Lakeland: Florida (E84098)



04-FEB-19

Project Manager: **Ike Tavaréz**

COG Operating LLC

2407 Pecos Avenue

Artesia, NM 88210

Reference: XENCO Report No(s): **613152**

Stratocaster 20 Federal #1H (1/2/19)

Project Address: Lea Co, NM

Ike Tavaréz:

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) 613152. 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. 613152 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,

Jessica Kramer

Project Assistant

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America



Sample Cross Reference 613152



COG Operating LLC, Artesia, NM

Stratocaster 20 Federal #1H (1/2/19)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
#1 0-0.5	S	01-30-19 00:00		613152-001
#2 0-0.5'	S	01-30-19 00:00		613152-002
#3 0-0.5'	S	01-30-19 00:00		613152-003



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: Stratocaster 20 Federal #1H (1/2/19)

Project ID:
Work Order Number(s): 613152

Report Date: 04-FEB-19
Date Received: 02/01/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3077947 Inorganic Anions by EPA 300

Lab Sample ID 613152-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 613152-001, -002, -003.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3077950 BTEX by EPA 8021B

Lab Sample ID 613152-002 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). o-Xylene recovered below QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 613152-001, -002, -003.

The Laboratory Control Sample for o-Xylene is within laboratory Control Limits, therefore the data was accepted.

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.



Certificate of Analytical Results 613152



COG Operating LLC, Artesia, NM

Stratocaster 20 Federal #1H (1/2/19)

Sample Id: #1 0-0.5
Lab Sample Id: 613152-001

Matrix: Soil
Date Collected: 01.30.19 00.00

Date Received: 02.01.19 08.05

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3077947

Prep Method: E300P

% Moisture:

Date Prep: 02.02.19 13.30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14.7	4.96	mg/kg	02.04.19 09.56		1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3077970

Prep Method: TX1005P

% Moisture:

Date Prep: 02.02.19 08.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	02.03.19 02.41	U	1
Diesel Range Organics	C10C28DRO	190	15.0	mg/kg	02.03.19 02.41		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	38.9	15.0	mg/kg	02.03.19 02.41		1
Total TPH	PHC635	229	15.0	mg/kg	02.03.19 02.41		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	02.03.19 02.41	
o-Terphenyl	84-15-1	97	%	70-135	02.03.19 02.41	



Certificate of Analytical Results 613152



COG Operating LLC, Artesia, NM

Stratocaster 20 Federal #1H (1/2/19)

Sample Id: #1 0-0.5
Lab Sample Id: 613152-001

Matrix: Soil
Date Collected: 01.30.19 00.00

Date Received: 02.01.19 08.05

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 02.01.19 10.00

Basis: Wet Weight

Seq Number: 3077950

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	02.01.19 17.05	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	02.01.19 17.05	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	02.01.19 17.05	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	02.01.19 17.05	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	02.01.19 17.05	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	02.01.19 17.05	U	1
Total BTEX		<0.00201	0.00201	mg/kg	02.01.19 17.05	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	119	%	70-130	02.01.19 17.05		
1,4-Difluorobenzene	540-36-3	112	%	70-130	02.01.19 17.05		



Certificate of Analytical Results 613152



COG Operating LLC, Artesia, NM

Stratocaster 20 Federal #1H (1/2/19)

Sample Id: #2 0-0.5'
Lab Sample Id: 613152-002

Matrix: Soil
Date Collected: 01.30.19 00.00

Date Received: 02.01.19 08.05

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3077947

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Date Prep: 02.02.19 13.30

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.95	4.95	mg/kg	02.04.19 10.15	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3077970

Prep Method: TX1005P

% Moisture:

Basis: Wet Weight

Date Prep: 02.02.19 08.00

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	02.03.19 03.01	U	1
Diesel Range Organics	C10C28DRO	26.3	15.0	mg/kg	02.03.19 03.01		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	02.03.19 03.01	U	1
Total TPH	PHC635	26.3	15.0	mg/kg	02.03.19 03.01		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	93	%	70-135	02.03.19 03.01		
o-Terphenyl	84-15-1	92	%	70-135	02.03.19 03.01		



Certificate of Analytical Results 613152



COG Operating LLC, Artesia, NM

Stratocaster 20 Federal #1H (1/2/19)

Sample Id: #2 0-0.5'

Matrix: Soil

Date Received: 02.01.19 08.05

Lab Sample Id: 613152-002

Date Collected: 01.30.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 02.01.19 10.00

Basis: Wet Weight

Seq Number: 3077950

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.01.19 16.46	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.01.19 16.46	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.01.19 16.46	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	02.01.19 16.46	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.01.19 16.46	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.01.19 16.46	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.01.19 16.46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	115	%	70-130	02.01.19 16.46		
1,4-Difluorobenzene	540-36-3	113	%	70-130	02.01.19 16.46		



Certificate of Analytical Results 613152



COG Operating LLC, Artesia, NM

Stratocaster 20 Federal #1H (1/2/19)

Sample Id: #3 0-0.5'
Lab Sample Id: 613152-003

Matrix: Soil
Date Collected: 01.30.19 00.00

Date Received: 02.01.19 08.05

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3077947

Prep Method: E300P

% Moisture:

Date Prep: 02.02.19 13.30

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	02.04.19 10.21	U	1

Analytical Method: TPH By SW8015 Mod

Tech: ARM

Analyst: ARM

Seq Number: 3077970

Prep Method: TX1005P

% Moisture:

Date Prep: 02.02.19 08.00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	02.03.19 03.21	U	1
Diesel Range Organics	C10C28DRO	201	15.0	mg/kg	02.03.19 03.21		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	42.0	15.0	mg/kg	02.03.19 03.21		1
Total TPH	PHC635	243	15.0	mg/kg	02.03.19 03.21		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	101	%	70-135	02.03.19 03.21		
o-Terphenyl	84-15-1	107	%	70-135	02.03.19 03.21		



Certificate of Analytical Results 613152



COG Operating LLC, Artesia, NM

Stratocaster 20 Federal #1H (1/2/19)

Sample Id: #3 0-0.5'

Matrix: Soil

Date Received: 02.01.19 08.05

Lab Sample Id: 613152-003

Date Collected: 01.30.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 02.01.19 10.00

Basis: Wet Weight

Seq Number: 3077950

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.01.19 16.27	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.01.19 16.27	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.01.19 16.27	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	02.01.19 16.27	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.01.19 16.27	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.01.19 16.27	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.01.19 16.27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	109	%	70-130	02.01.19 16.27		
4-Bromofluorobenzene	460-00-4	119	%	70-130	02.01.19 16.27		

- 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 **SQL** 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



QC Summary 613152

COG Operating LLC Stratocaster 20 Federal #1H (1/2/19)

Analytical Method: Chloride by EPA 300

Seq Number: 3077947

MB Sample Id: 7670971-1-BLK

Matrix: Solid

LCS Sample Id: 7670971-1-BKS

Prep Method: E300P

Date Prep: 02.02.19

LCSD Sample Id: 7670971-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.858	250	256	102	262	105	90-110	2	20	mg/kg	02.04.19 09:44	

Analytical Method: Chloride by EPA 300

Seq Number: 3077947

Parent Sample Id: 613060-003

Matrix: Soil

MS Sample Id: 613060-003 S

Prep Method: E300P

Date Prep: 02.02.19

MSD Sample Id: 613060-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	392	250	642	100	662	108	90-110	3	20	mg/kg	02.04.19 11:56	

Analytical Method: Chloride by EPA 300

Seq Number: 3077947

Parent Sample Id: 613152-001

Matrix: Soil

MS Sample Id: 613152-001 S

Prep Method: E300P

Date Prep: 02.02.19

MSD Sample Id: 613152-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	14.7	248	326	126	305	117	90-110	7	20	mg/kg	02.04.19 10:02	X

Analytical Method: TPH By SW8015 Mod

Seq Number: 3077970

MB Sample Id: 7671016-1-BLK

Matrix: Solid

LCS Sample Id: 7671016-1-BKS

Prep Method: TX1005P

Date Prep: 02.02.19

LCSD Sample Id: 7671016-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<8.00	1000	858	86	868	87	70-135	1	20	mg/kg	02.02.19 20:05	
Diesel Range Organics	<8.13	1000	948	95	958	96	70-135	1	20	mg/kg	02.02.19 20:05	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		121		122		70-135	%	02.02.19 20:05
o-Terphenyl	106		102		102		70-135	%	02.02.19 20:05

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



QC Summary 613152

COG Operating LLC Stratocaster 20 Federal #1H (1/2/19)

Analytical Method: TPH By SW8015 Mod

Seq Number: 3077970

Parent Sample Id: 613219-001

Matrix: Soil

MS Sample Id: 613219-001 S

Prep Method: TX1005P

Date Prep: 02.02.19

MSD Sample Id: 613219-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<7.99	999	813	81	836	84	70-135	3	20	mg/kg	02.02.19 21:03	
Diesel Range Organics	<8.12	999	907	91	940	94	70-135	4	20	mg/kg	02.02.19 21:03	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	124		126		70-135	%	02.02.19 21:03
o-Terphenyl	119		110		70-135	%	02.02.19 21:03

Analytical Method: BTEX by EPA 8021B

Seq Number: 3077950

MB Sample Id: 7670961-1-BLK

Matrix: Solid

LCS Sample Id: 7670961-1-BKS

Prep Method: SW5030B

Date Prep: 02.01.19

LCSD Sample Id: 7670961-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000387	0.101	0.118	117	0.113	113	70-130	4	35	mg/kg	02.01.19 13:42	
Toluene	<0.000458	0.101	0.104	103	0.0998	100	70-130	4	35	mg/kg	02.01.19 13:42	
Ethylbenzene	<0.000568	0.101	0.0985	98	0.0948	95	70-130	4	35	mg/kg	02.01.19 13:42	
m,p-Xylenes	<0.00102	0.201	0.196	98	0.189	95	70-130	4	35	mg/kg	02.01.19 13:42	
o-Xylene	<0.000346	0.101	0.0974	96	0.0945	95	70-130	3	35	mg/kg	02.01.19 13:42	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		106		106		70-130	%	02.01.19 13:42
4-Bromofluorobenzene	96		104		104		70-130	%	02.01.19 13:42

Analytical Method: BTEX by EPA 8021B

Seq Number: 3077950

Parent Sample Id: 613152-002

Matrix: Soil

MS Sample Id: 613152-002 S

Prep Method: SW5030B

Date Prep: 02.01.19

MSD Sample Id: 613152-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0994	0.0970	98	0.102	101	70-130	5	35	mg/kg	02.01.19 14:20	
Toluene	<0.000453	0.0994	0.0814	82	0.0861	85	70-130	6	35	mg/kg	02.01.19 14:20	
Ethylbenzene	<0.000561	0.0994	0.0694	70	0.0721	71	70-130	4	35	mg/kg	02.01.19 14:20	
m,p-Xylenes	<0.00101	0.199	0.139	70	0.143	71	70-130	3	35	mg/kg	02.01.19 14:20	
o-Xylene	<0.000342	0.0994	0.0685	69	0.0716	71	70-130	4	35	mg/kg	02.01.19 14:20	X

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	109		108		70-130	%	02.01.19 14:20
4-Bromofluorobenzene	105		107		70-130	%	02.01.19 14:20

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

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

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

Page 1 of 1



9/3/52

ANALYSIS REQUEST
(Name or Specify Method No.)ORIGINAL COPY



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 02/01/2019 08:05:00 AM

Work Order #: 613152

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#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?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#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)?	N/A
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Brianna Teel

Date: 02/01/2019

Checklist reviewed by:

Jessica Kramer

Jessica Kramer

Date: 02/01/2019