CONCHO

May 13, 2019

Dylan Rose-Coss
Oil Conservation Division, District 1
1625 N. French Dr.
Hobbs, NM 88240

Re: Closure Report
COG Operating
Boone 16 State Com 3H (12/29/18)
API #: 30-025-41432
GPS: 32.470531, -103.578689
RP#: 1RP-5327
Unit Letter O, Section 16, Township 21 South, Range 33 East
Lea County, New Mexico

Mr. Rose-Coss,

COG Operating, LLC (COG) is pleased to submit the following closure report in response to a release that occurred at the Boone 16 State Com 3H located in Unit Letter O, Section 16, Township 21 South, Range 33 East in Lea County, New Mexico.

BACKGROUND

The release was discovered on December 29, 2018 and a C-141 initial report was submitted and approved by the New Mexico Oil Conservation Division (NMOCD). The crude oil release was caused by an air compressor failure resulting in the lines over filling. All of the fluids remained on the pad. Approximately 5 barrels of crude oil were released and recovered approximately 4.5 barrels of oil. The initial C-141 is shown in Appendix A.

GROUNDWATER AND REGULATORY FRAMEWORK

According to the New Mexico Office of the State Engineer (NMOSE), reported a water well located in Section 11 with ground water depth of 150 feet below surface. The USGS database showed wells in Sections 11, 18 and 28 with a depth to water of 135', 119' and 179' below surface. The water well information is shown in Appendix B.

A risk based evaluation and site determinations were perform 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 facilities in New Mexico (effective August 14, 2018). According to the site characterization evaluation, no other receptors (water wells, playas, karst, water course, 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 Located	>100 feet

Delineation and Closure Criteria:

Remedial Action Levels (RALs)	
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

The impacted area of AH-1 was excavated to a depth of 1.0' below surface. Once excavated, confirmation samples were collected from the bottom and sidewalls. Based on the results, all of the samples were below the Table 1 closure criteria.

SITE RECLAMATION AND RESTORATION

The spill remained on the facility pad and no reclamation is required for the release.

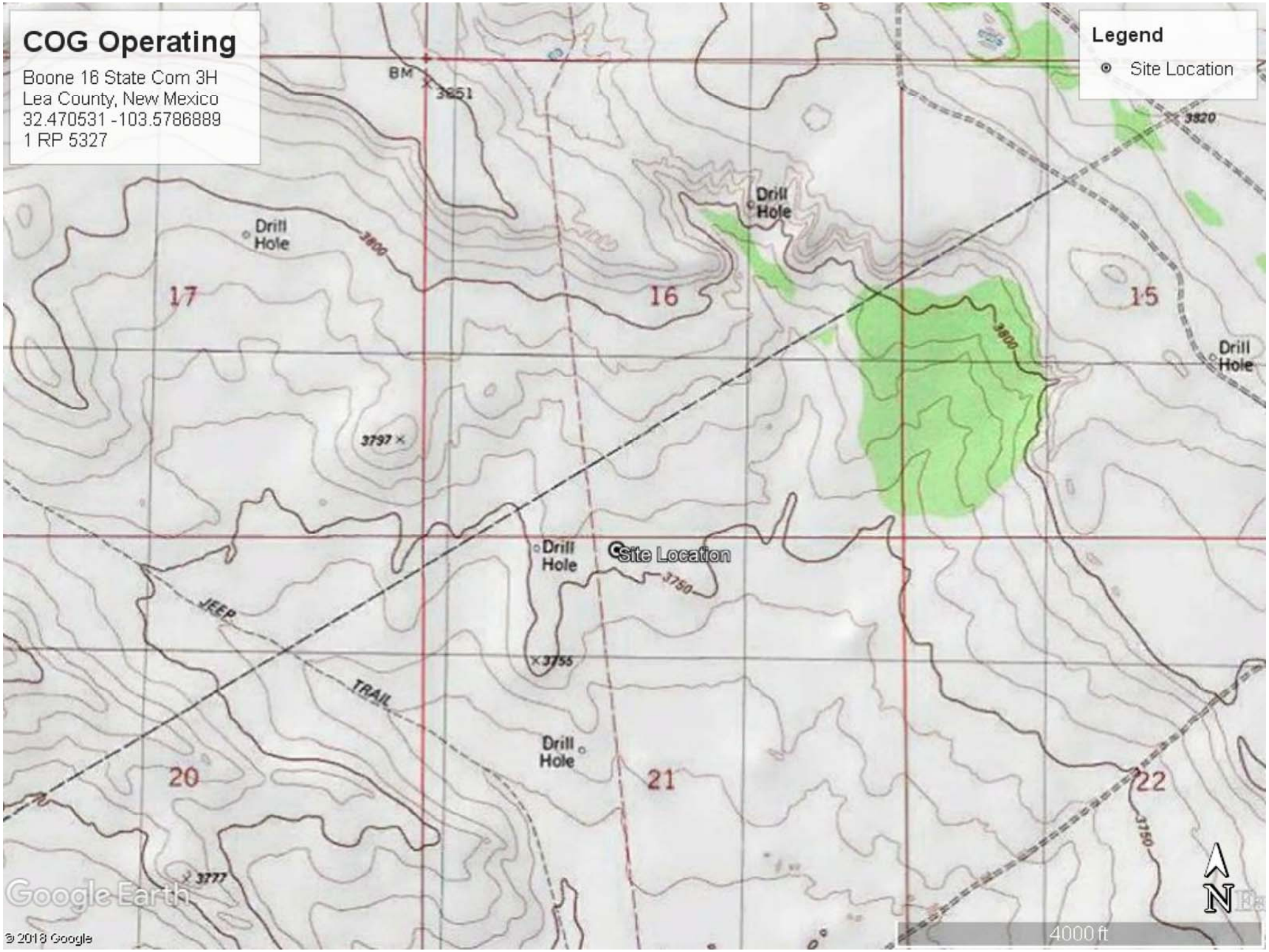
CLOSURE REQUEST

Based on the results and remediation performed, 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,

Sincerely,
Concho Operating, LLC

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

Figures


COG Operating
Boone 16 State Com 3H
Lea County, New Mexico
32.470531 -103.5786889
1 RP 5327
Legend
Site Location
BM
3851
3820
Drill Hole
3800
17
16
15
3797
Site Location
3750
JEEP
TRAIL
3755
20
21
22
3777
Google Earth
© 2018 Google
4000 ft
N


COG Operating
Boone 16 State Com 3H
Lea County, New Mexico
32.470531 -103.5786889
1 RP 5327
Legend
Auger hole
Fenced Area
Spill Area
Fenced Area
AH-1
East
West
AH-2
South
N
Google Earth
100 ft


COG Operating
Boone 16 State Com 3H
Lea County, New Mexico
32.470531 -103.5786889
1 RP 5327
Legend
Excavation Area
Auger hole
FencedArea
Spill Area
Northwall
Fenced Area
Westwall
AH-1
Eastwall
Southwall
AH-2
N
90 ft
Google Earth

Tables

Table 1
COG Operating LLC.
Boone 16 Com 3H
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**
AH-1	1/14/2019	0-1		X	585	1210	47.9	1840	585	1210	**1795**	0.104	5.77	521
AH-2	1/14/2019	0-1	X		49.3	246	<15.0	295	49.3	246	295.3	<0.00200	0.347	376
West	1/14/2019	0-0.5	X		<15.0	61.0	<15.0	61.0	<15.0	61	61	<0.00200	<0.00200	691
East	1/14/2019	0-0.5	X		<15.0	29.4	<15.0	29.4	<15.0	29.4	29.4	<0.00202	<0.00202	935
South	1/14/2019	0-0.5	X		<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	591
Bottom (AH-1)	5/1/2019	1.0'	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	112
North Wall	5/1/2019	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	208
South Wall	5/1/2019	-	X		59.9	744	130	933.9	59.9	744	803.9	<0.050	0.975	448
West Wall	5/1/2019	-	X		<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	<0.050	<0.050	240
East Wall	5/1/2019	-	X		<10.0	88.7	18.5	107.2	<10.0	88.7	88.7	<0.050	<0.050	784

(-) Not Analyzed

Soil Excavated and Removed

Photos

COG
Boone 16 State Com 3H
Lea County, New Mexico

View of Excavation Area

View of Excavation Area –

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	1RP 5327
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party	COG Operating, LLC	OGRID	229137
Contact Name	Robert McNeill	Contact Telephone	(432) 683-7443
Contact email	RMcNeill@concho.com	Incident # *(assigned by OCD)*	
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701		

Location of Release Source

Latitude 32.47293 Longitude -103.57575

(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Boone 16 State Com #003H	Site Type	Tank Battery
Date Release Discovered	December 29, 2018	API# *(if applicable)*	30-025-41432

Unit Letter	Section	Township	Range	County
O	16	21S	33E	Lea

Surface Owner: ☐ State ☐ Federal ☐ Tribal ■ Private (*Name:* Merchant Livestock)

Nature and Volume of Release

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

■ Crude Oil	Volume Released (bbls) 5	Volume Recovered (bbls) 4.5
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

The release was caused by an air compressor failure resulting in the lines overfilling. The lines and equipment will be emptied. The release was on location. A vacuum truck was dispatched to remove all freestanding fluids.
Concho will evaluate the site to determine if we may commence remediation immediately or delineate any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	1RP 5327
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ■ 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

- ■ The source of the release has been stopped.
- ■ The impacted area has been secured to protect human health and the environment.
- ■ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ■ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not 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: DeAnn Grant Title: HSE Administrative Assistant

Signature: DeAnn Grant Date: 12/31/2018

email: agrant@concho.com Telephone: (432) 253-4513

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	1RP-5327
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 Tavarez Title: Senior HSE Supervisor

Signature: Date: 5/13/2019

email: itavarez@concho.com Telephone: (432) 701-8630

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

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	Twn	Rng	X	Y		Depth Well	Depth Water	Water Column
CP 00578		CP	LE		4	3	11	21S	33E	636674	3595445*		165	150	15
CP 00579		CP	LE		2	2	02	21S	33E	637438	3598269*		125	100	25
CP 00600 POD1		CP	LE		2	4	25	21S	33E	639152	3591054*		65		
CP 00601 POD1		CP	LE		2	1	28	21S	33E	633502	3591791*		223		
CP 00765 POD1		CP	LE		3	2	13	21S	33E	638698	3594668*		508		
CP 00766 POD1		CP	LE		3	2	13	21S	33E	638698	3594668*		510		
CP 00794 POD1		CP	LE	4	1	1	18	21S	33E	629976	3594865*		160		
CP 00795 POD1		CP	LE	4	1	1	18	21S	33E	629976	3594865*		170		
CP 00796 POD1		CP	LE	2	2	4	02	21S	33E	637548	3597564*		102		
CP 00797 POD1		CP	LE	1	2	4	02	21S	33E	637348	3597564*		110		
CP 00801 POD1		CP	LE	3	2	1	11	21S	33E	636555	3596549*		200		
CP 00802 POD1		CP	LE	3	3	2	02	21S	33E	637001	3598672		1154		
CP 00803 POD1		CP	LE	3	2	2	02	21S	33E	637337	3598168*		1100		
CP 00804 POD1		CP	LE	3	2	2	02	21S	33E	637337	3598168*		170		
CP 00854 POD1		CP	LE	1	1	2	33	21S	33E	633879	3590223		950	600	350
CP 01290 POD1		CP	LE		3	1	02	21S	33E	637114	3598855		1250	725	525
CP 01316 POD1		CP	LE	3	2	4	02	21S	33E	637432	3597709		1370		
CP 01317 POD1		CP	LE	1	3	2	02	21S	33E	636884	3598450		1250	1025	225
CP 01349 POD1		CP	LE	2	3	1	27	21S	33E	635304	3591576		1188	572	616
CP 01355 POD1		CP	LE	2	1	3	27	21S	33E	634773	3591061		1192	582	610
CP 01356 POD1		CP	LE	4	2	2	33	21S	33E	634560	3590014		1098	555	543
CP 01357 POD1		CP	LE	4	3	1	27	21S	33E	634782	3591347		1286	578	708
CP 01411 POD1		CP	LE		2	2	34	21S	33E	635968	3590386		1149		
CP 01411 POD2		CP	LE		1	2	34	21S	33E	635534	3590380		1125		

Average Depth to Water: **543 feet**

Minimum Depth: **100 feet**

Maximum Depth: **1025 feet**

Record Count: 24

PLSS Search:

Township: 21S **Range:** 33E

***UTM location was derived from PLSS - see Help**

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Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 322702103344001

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

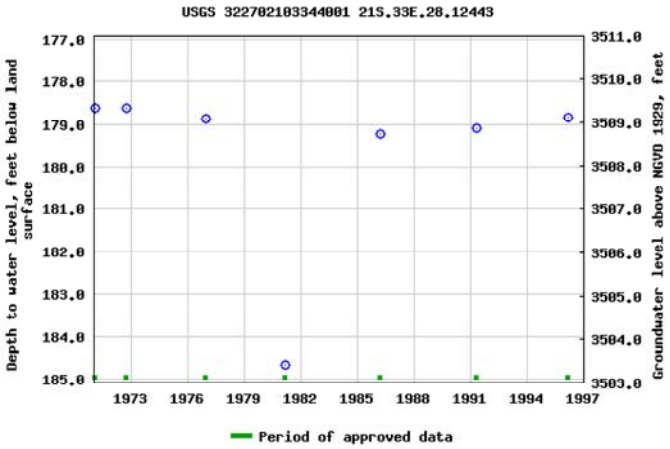
USGS 322702103344001 21S.33E.28.12443

Available data for this site | Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°27'13", Longitude 103°34'42" NAD27
Land-surface elevation 3,688.00 feet above NGVD29
The depth of the well is 224 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.
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Search Results -- 1 sites found

site_no list =

- 322913103324301

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

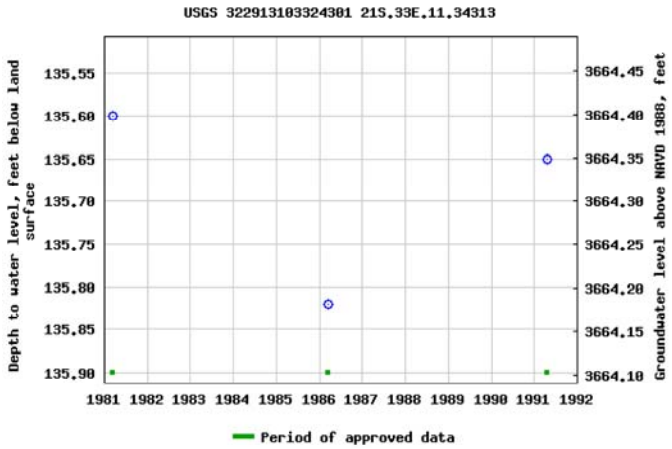
USGS 322913103324301 21S.33E.11.34313

Available data for this site | Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code --
Latitude 32°29'13", Longitude 103°32'43" NAD27
Land-surface elevation 3,800 feet above NAVD88
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

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



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site_no list =

- 322702103344002

Minimum number of levels = 1

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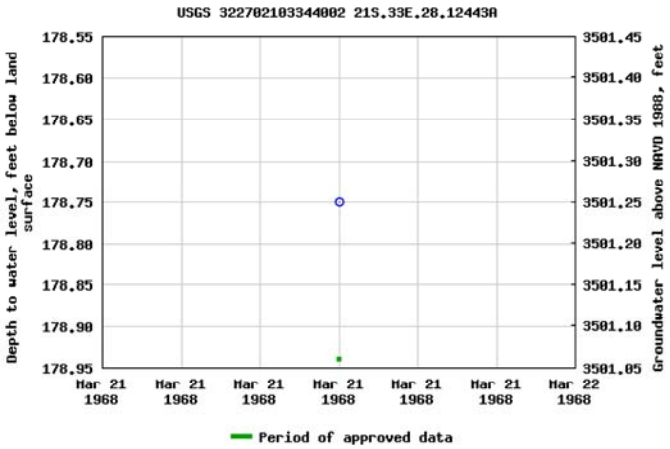
USGS 322702103344002 21S.33E.28.12443A

Available data for this site | Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°27'02", Longitude 103°34'40" NAD27
Land-surface elevation 3,680 feet above NAVD88
This well is completed in the Chinle Formation (231CHNL) local aquifer.

Output formats

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



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Groundwater levels for the Nation

Search Results -- 1 sites found

site_no list =

- 322851103365202

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

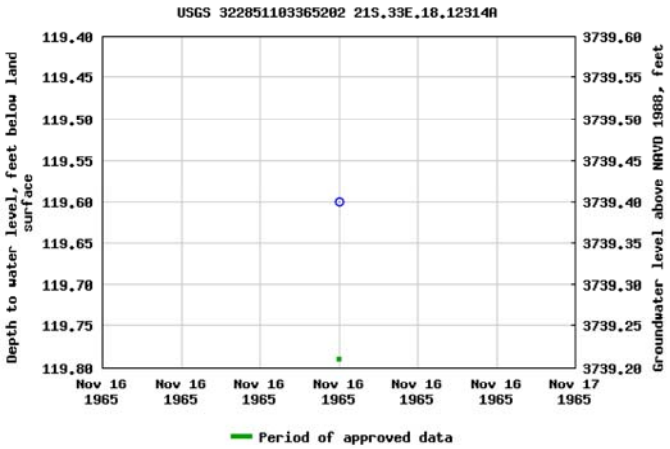
USGS 322851103365202 21S.33E.18.12314A

Available data for this site | Groundwater: Field measurements | GO

Lea County, New Mexico
Hydrologic Unit Code 13070007
Latitude 32°28'51", Longitude 103°36'52" NAD27
Land-surface elevation 3,859 feet above NAVD88
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

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



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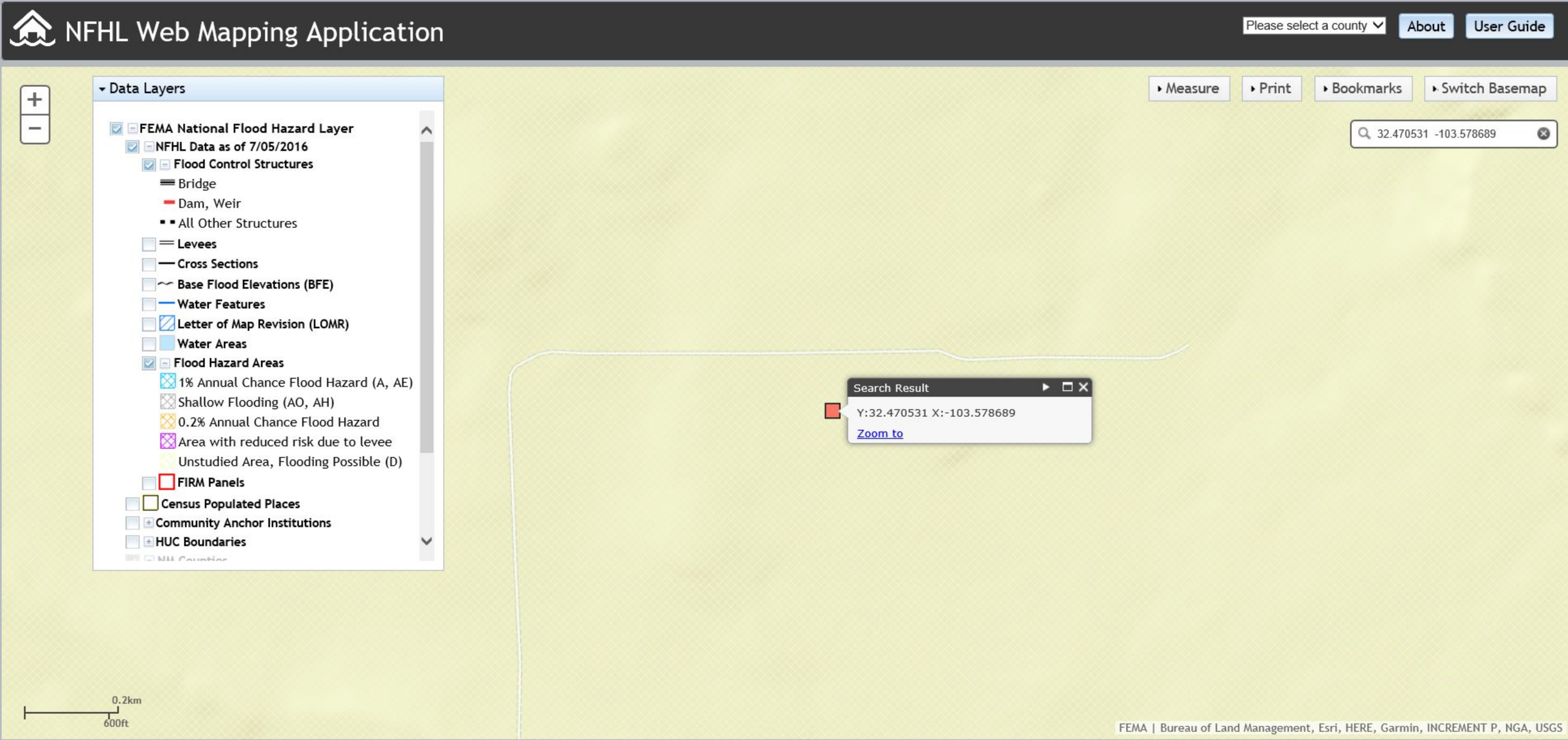
Sites
Map
Search
Search by Street Address:
32.470531 -103.578689
Search by Place Name:
Enter Placename
Search by Site Number(s):
Enter Site Number(s)
Search by State/Territory:
Select an Area
Search by Watershed Region:
Select a Region
Surface-Water Sites
Groundwater Sites
Springs
Atmospheric Sites
Other Sites
-103.506, 32.460
Site Information


COG Operating
Boone 16 State Com 3H
Lea County, New Mexico
32.470531 -103.5786889
1 RP 5327
Legend
High
Low
Medium
Site Location
Site Location
N
Google Earth
700 ft


NFHL Web Mapping Application
Please select a county
About
User Guide
Measure
Print
Bookmarks
Switch Basemap
Data Layers
FEMA National Flood Hazard Layer
NFHL Data as of 7/05/2016
Flood Control Structures
Bridge
Dam, Weir
All Other Structures
Levees
Cross Sections
Base Flood Elevations (BFE)
Water Features
Letter of Map Revision (LOMR)
Water Areas
Flood Hazard Areas
1% Annual Chance Flood Hazard (A, AE)
Shallow Flooding (AO, AH)
0.2% Annual Chance Flood Hazard
Area with reduced risk due to levee
Unstudied Area, Flooding Possible (D)
FIRM Panels
Census Populated Places
Community Anchor Institutions
HUC Boundaries
32.470531 -103.578689
Search Result
Y:32.470531 X:-103.578689
Zoom to
0.2km
600ft
FEMA | Bureau of Land Management, Esri, HERE, Garmin, INCREMENT P, NGA, USGS

Appendix C

Certificate of Analysis Summary 611434

COG Operating LLC, Artesia, NM

Project Name: Boone 16 Com 3H (12-29-18)

Project Id:
Contact: Ike Tavarez
Project Location: Lea Co.NM

Date Received in Lab: Wed Jan-16-19 09:56 am
Report Date: 22-JAN-19
Project Manager: Jessica Kramer

Analysis Requested											
	Lab Id:	611434-001		611434-002		611434-003		611434-004		611434-005	
	Field Id:	AH-1 (0-1)		AH-2 (0-1)		West		East		South	
	Depth:										
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jan-14-19 00:00		Jan-14-19 00:00		Jan-14-19 00:00		Jan-14-19 00:00		Jan-14-19 00:00	
BTEX by EPA 8021B	***Extracted:***	Jan-18-19 14:30		Jan-17-19 17:00		Jan-17-19 17:00		Jan-17-19 17:00		Jan-17-19 17:00	
	Analyzed:	Jan-19-19 03:09		Jan-18-19 12:31		Jan-18-19 12:50		Jan-18-19 13:09		Jan-18-19 13:28	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		0.104	0.0201	<0.00200	0.00200	<0.00200	0.00200	<0.00202	0.00202	<0.00200	0.00200
Toluene		0.296	0.0201	0.0213	0.00200	<0.00200	0.00200	<0.00202	0.00202	<0.00200	0.00200
Ethylbenzene		0.971	0.0201	0.0446	0.00200	<0.00200	0.00200	<0.00202	0.00202	<0.00200	0.00200
m,p-Xylenes		3.26	0.0402	0.192	0.00400	<0.00399	0.00399	<0.00403	0.00403	<0.00401	0.00401
o-Xylene		1.14	0.0201	0.0891	0.00200	<0.00200	0.00200	<0.00202	0.00202	<0.00200	0.00200
Total Xylenes		4.40	0.0201	0.281	0.00200	<0.00200	0.00200	<0.00202	0.00202	<0.00200	0.00200
Total BTEX		5.77	0.0201	0.347	0.00200	<0.00200	0.00200	<0.00202	0.00202	<0.00200	0.00200
Chloride by EPA 300	***Extracted:***	Jan-17-19 11:00		Jan-17-19 11:00		Jan-17-19 11:00		Jan-17-19 11:00		Jan-17-19 11:00	
	Analyzed:	Jan-17-19 12:10		Jan-17-19 14:15		Jan-17-19 14:25		Jan-17-19 14:35		Jan-17-19 15:06	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		521	4.97	376	4.99	691	4.98	935	4.98	591	5.00
TPH By SW8015 Mod	***Extracted:***	Jan-19-19 09:00		Jan-19-19 09:00		Jan-20-19 08:00		Jan-20-19 08:00		Jan-20-19 08:00	
	Analyzed:	Jan-19-19 12:42		Jan-19-19 12:22		Jan-20-19 13:33		Jan-20-19 12:53		Jan-20-19 13:13	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons		585	15.0	49.3	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
Diesel Range Organics		1210	15.0	246	15.0	61.0	15.0	29.4	15.0	<15.0	15.0
Motor Oil Range Hydrocarbons (MRO)		47.9	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0
Total TPH		1840	15.0	295	15.0	61.0	15.0	29.4	15.0	<15.0	15.0

Jessica Kramer
Project Assistant

Analytical Report 611434

for

COG Operating LLC

Project Manager: Ike Tavarez

Boone 16 Com 3H (12-29-18)

22-JAN-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)

22-JAN-19

Project Manager: **Ike Tavarez**
COG Operating LLC
2407 Pecos Avenue
Artesia, NM 88210

Reference: XENCO Report No(s): **611434**
Boone 16 Com 3H (12-29-18)
Project Address: Lea Co.NM

Ike Tavarez:

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) 611434. 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. 611434 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

Jessica Kramer
Project Assistant

Sample Cross Reference 611434

COG Operating LLC, Artesia, NM

Boone 16 Com 3H (12-29-18)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH-1 (0-1)	S	01-14-19 00:00		611434-001
AH-2 (0-1)	S	01-14-19 00:00		611434-002
West	S	01-14-19 00:00		611434-003
East	S	01-14-19 00:00		611434-004
South	S	01-14-19 00:00		611434-005

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3076271 Chloride by EPA 300
Lab Sample ID 611434-004 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 611434-001, -002, -003, -004, -005.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3076351 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected.
Samples affected are: 611434-002.
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3076361 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.
Surrogate 1,4-Difluorobenzene, Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected.
Samples affected are: 611434-001.

Batch: LBA-3076405 TPH By SW8015 Mod
Surrogate o-Terphenyl recovered above QC limits Data confirmed by re-analysis. Samples affected are: 7670058-1-BSD.

Batch: LBA-3076435 TPH By SW8015 Mod
Surrogate 1-Chlorooctane, Surrogate o-Terphenyl recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.
Samples affected are: 611429-003 SD,611434-005.

Certificate of Analytical Results 611434

COG Operating LLC, Artesia, NM

Boone 16 Com 3H (12-29-18)

Sample Id:	**AH-1 (0-1)**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611434-001	Date Collected:	01.14.19 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	01.17.19 11.00	Basis:	Wet Weight
Seq Number:	3076271				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**521**	4.97	mg/kg	01.17.19 12.10		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	01.19.19 09.00	Basis:	Wet Weight
Seq Number:	3076405				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	**585**	15.0	mg/kg	01.19.19 12.42		1
Diesel Range Organics	C10C28DRO	**1210**	15.0	mg/kg	01.19.19 12.42		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**47.9**	15.0	mg/kg	01.19.19 12.42		1
Total TPH	PHC635	**1840**	15.0	mg/kg	01.19.19 12.42		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	122	%	70-135	01.19.19 12.42	
o-Terphenyl	84-15-1	112	%	70-135	01.19.19 12.42	

Certificate of Analytical Results 611434

COG Operating LLC, Artesia, NM

Boone 16 Com 3H (12-29-18)

Sample Id:	**AH-1 (0-1)**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611434-001	Date Collected:	01.14.19 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	01.18.19 14.30	Basis:	Wet Weight
Seq Number:	3076361				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**0.104**	0.0201	mg/kg	01.19.19 03.09		10
Toluene	108-88-3	**0.296**	0.0201	mg/kg	01.19.19 03.09		10
Ethylbenzene	100-41-4	**0.971**	0.0201	mg/kg	01.19.19 03.09		10
m,p-Xylenes	179601-23-1	**3.26**	0.0402	mg/kg	01.19.19 03.09		10
o-Xylene	95-47-6	**1.14**	0.0201	mg/kg	01.19.19 03.09		10
Total Xylenes	1330-20-7	**4.40**	0.0201	mg/kg	01.19.19 03.09		10
Total BTEX		**5.77**	0.0201	mg/kg	01.19.19 03.09		10

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	135	%	70-130	01.19.19 03.09	**
4-Bromofluorobenzene	460-00-4	220	%	70-130	01.19.19 03.09	**

Certificate of Analytical Results 611434

COG Operating LLC, Artesia, NM

Boone 16 Com 3H (12-29-18)

Sample Id:	**AH-2 (0-1)**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611434-002	Date Collected:	01.14.19 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	01.17.19 11.00	Basis:	Wet Weight
Seq Number:	3076271				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**376**	4.99	mg/kg	01.17.19 14.15		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	01.19.19 09.00	Basis:	Wet Weight
Seq Number:	3076405				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	**49.3**	15.0	mg/kg	01.19.19 12.22		1
Diesel Range Organics	C10C28DRO	**246**	15.0	mg/kg	01.19.19 12.22		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	01.19.19 12.22	U	1
Total TPH	PHC635	**295**	15.0	mg/kg	01.19.19 12.22		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	01.19.19 12.22	
o-Terphenyl	84-15-1	119	%	70-135	01.19.19 12.22	

Certificate of Analytical Results 611434

COG Operating LLC, Artesia, NM

Boone 16 Com 3H (12-29-18)

Sample Id:	**AH-2 (0-1)**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611434-002	Date Collected:	01.14.19 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	01.17.19 17.00	Basis:	Wet Weight
Seq Number:	3076351				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.18.19 12.31	U	1
Toluene	108-88-3	**0.0213**	0.00200	mg/kg	01.18.19 12.31		1
Ethylbenzene	100-41-4	**0.0446**	0.00200	mg/kg	01.18.19 12.31		1
m,p-Xylenes	179601-23-1	**0.192**	0.00400	mg/kg	01.18.19 12.31		1
o-Xylene	95-47-6	**0.0891**	0.00200	mg/kg	01.18.19 12.31		1
Total Xylenes	1330-20-7	**0.281**	0.00200	mg/kg	01.18.19 12.31		1
Total BTEX		**0.347**	0.00200	mg/kg	01.18.19 12.31		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	107	%	70-130	01.18.19 12.31	
4-Bromofluorobenzene	460-00-4	158	%	70-130	01.18.19 12.31	**

Certificate of Analytical Results 611434

COG Operating LLC, Artesia, NM

Boone 16 Com 3H (12-29-18)

Sample Id:	**West**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611434-003	Date Collected:	01.14.19 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	01.17.19 11.00	Basis:	Wet Weight
Seq Number:	3076271				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**691**	4.98	mg/kg	01.17.19 14.25		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	01.20.19 08.00	Basis:	Wet Weight
Seq Number:	3076435				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	01.20.19 13.33	U	1
Diesel Range Organics	C10C28DRO	**61.0**	15.0	mg/kg	01.20.19 13.33		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	01.20.19 13.33	U	1
Total TPH	PHC635	**61.0**	15.0	mg/kg	01.20.19 13.33		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	01.20.19 13.33	
o-Terphenyl	84-15-1	104	%	70-135	01.20.19 13.33	

Certificate of Analytical Results 611434

COG Operating LLC, Artesia, NM

Boone 16 Com 3H (12-29-18)

Sample Id:	**West**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611434-003	Date Collected:	01.14.19 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	01.17.19 17.00	Basis:	Wet Weight
Seq Number:	3076351				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.18.19 12.50	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.18.19 12.50	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.18.19 12.50	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	01.18.19 12.50	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.18.19 12.50	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.18.19 12.50	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.18.19 12.50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	116	%	70-130	01.18.19 12.50	
1,4-Difluorobenzene	540-36-3	116	%	70-130	01.18.19 12.50	

Certificate of Analytical Results 611434

COG Operating LLC, Artesia, NM

Boone 16 Com 3H (12-29-18)

Sample Id:	**East**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611434-004	Date Collected:	01.14.19 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	01.17.19 11.00	Basis:	Wet Weight
Seq Number:	3076271				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**935**	4.98	mg/kg	01.17.19 14.35		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	01.20.19 08.00	Basis:	Wet Weight
Seq Number:	3076435				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	01.20.19 12.53	U	1
Diesel Range Organics	C10C28DRO	**29.4**	15.0	mg/kg	01.20.19 12.53		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	01.20.19 12.53	U	1
Total TPH	PHC635	**29.4**	15.0	mg/kg	01.20.19 12.53		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	01.20.19 12.53	
o-Terphenyl	84-15-1	97	%	70-135	01.20.19 12.53	

Certificate of Analytical Results 611434

COG Operating LLC, Artesia, NM

Boone 16 Com 3H (12-29-18)

Sample Id:	**East**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611434-004	Date Collected:	01.14.19 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	01.17.19 17.00	Basis:	Wet Weight
Seq Number:	3076351				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	01.18.19 13.09	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	01.18.19 13.09	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	01.18.19 13.09	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	01.18.19 13.09	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	01.18.19 13.09	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	01.18.19 13.09	U	1
Total BTEX		<0.00202	0.00202	mg/kg	01.18.19 13.09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	117	%	70-130	01.18.19 13.09	
4-Bromofluorobenzene	460-00-4	115	%	70-130	01.18.19 13.09	

Certificate of Analytical Results 611434

COG Operating LLC, Artesia, NM

Boone 16 Com 3H (12-29-18)

Sample Id:	**South**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611434-005	Date Collected:	01.14.19 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	01.17.19 11.00	Basis:	Wet Weight
Seq Number:	3076271				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**591**	5.00	mg/kg	01.17.19 15.06		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ALJ			% Moisture:	
Analyst:	ALJ	Date Prep:	01.20.19 08.00	Basis:	Wet Weight
Seq Number:	3076435				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	01.20.19 13.13	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	01.20.19 13.13	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	01.20.19 13.13	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	01.20.19 13.13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	194	%	70-135	01.20.19 13.13	**
o-Terphenyl	84-15-1	199	%	70-135	01.20.19 13.13	**

Certificate of Analytical Results 611434

COG Operating LLC, Artesia, NM

Boone 16 Com 3H (12-29-18)

Sample Id:	**South**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611434-005	Date Collected:	01.14.19 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	01.17.19 17.00	Basis:	Wet Weight
Seq Number:	3076351				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.18.19 13.28	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.18.19 13.28	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.18.19 13.28	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	01.18.19 13.28	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.18.19 13.28	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.18.19 13.28	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.18.19 13.28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	118	%	70-130	01.18.19 13.28	
1,4-Difluorobenzene	540-36-3	116	%	70-130	01.18.19 13.28	

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

QC Summary 611434

COG Operating LLC

Boone 16 Com 3H (12-29-18)

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3076271 Matrix: Solid Date Prep: 01.17.19
MB Sample Id: 7669894-1-BLK LCS Sample Id: 7669894-1-BKS LCSD Sample Id: 7669894-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	237	95	243	97	90-110	3	20	mg/kg	01.17.19 11:50	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3076271 Matrix: Soil Date Prep: 01.17.19
Parent Sample Id: 611434-001 MS Sample Id: 611434-001 S MSD Sample Id: 611434-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	521	249	748	91	751	92	90-110	0	20	mg/kg	01.17.19 12:21	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3076271 Matrix: Soil Date Prep: 01.17.19
Parent Sample Id: 611434-004 MS Sample Id: 611434-004 S MSD Sample Id: 611434-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	935	249	1150	86	1150	86	90-110	0	20	mg/kg	01.17.19 14:46	X

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3076405 Matrix: Solid Date Prep: 01.19.19
MB Sample Id: 7670058-1-BLK LCS Sample Id: 7670058-1-BKS LCSD Sample Id: 7670058-1-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	798	80	797	80	70-135	0	20	mg/kg	01.19.19 10:27	
Diesel Range Organics	<8.13	1000	878	88	863	86	70-135	2	20	mg/kg	01.19.19 10:27	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	88		123		122		70-135	%	01.19.19 10:27
o-Terphenyl	88		117		139	**	70-135	%	01.19.19 10:27

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 611434

COG Operating LLC

Boone 16 Com 3H (12-29-18)

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3076435 Matrix: Solid Date Prep: 01.20.19
MB Sample Id: 7670060-1-BLK LCS Sample Id: 7670060-1-BKS LCSD Sample Id: 7670060-1-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	836	84	849	85	70-135	2	20	mg/kg	01.20.19 10:40	
Diesel Range Organics	<8.13	1000	939	94	955	96	70-135	2	20	mg/kg	01.20.19 10:40	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	92		129		129		70-135	%	01.20.19 10:40
o-Terphenyl	94		105		106		70-135	%	01.20.19 10:40

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3076405 Matrix: Soil Date Prep: 01.19.19
Parent Sample Id: 611429-006 MS Sample Id: 611429-006 S MSD Sample Id: 611429-006 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	<8.00	1000	909	91	931	93	70-135	2	20	mg/kg	01.19.19 11:41	
Diesel Range Organics	8.74	1000	998	99	1040	103	70-135	4	20	mg/kg	01.19.19 11:41	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	135		132		70-135	%	01.19.19 11:41
o-Terphenyl	132		116		70-135	%	01.19.19 11:41

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3076435 Matrix: Soil Date Prep: 01.20.19
Parent Sample Id: 611429-003 MS Sample Id: 611429-003 S MSD Sample Id: 611429-003 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	18.8	1000	945	93	930	91	70-135	2	20	mg/kg	01.20.19 11:40	
Diesel Range Organics	80.3	1000	1120	104	1090	101	70-135	3	20	mg/kg	01.20.19 11:40	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	135		138	**	70-135	%	01.20.19 11:40
o-Terphenyl	112		137	**	70-135	%	01.20.19 11:40

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 611434

COG Operating LLC

Boone 16 Com 3H (12-29-18)

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3076351 Matrix: Solid Date Prep: 01.17.19
MB Sample Id: 7670053-1-BLK LCS Sample Id: 7670053-1-BKS LCSD Sample Id: 7670053-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000386	0.100	0.114	114	0.115	115	70-130	1	35	mg/kg	01.18.19 09:42	
Toluene	<0.000457	0.100	0.0992	99	0.0983	98	70-130	1	35	mg/kg	01.18.19 09:42	
Ethylbenzene	<0.000566	0.100	0.0903	90	0.0893	89	70-130	1	35	mg/kg	01.18.19 09:42	
m,p-Xylenes	<0.00102	0.200	0.180	90	0.177	89	70-130	2	35	mg/kg	01.18.19 09:42	
o-Xylene	<0.000345	0.100	0.0909	91	0.0899	90	70-130	1	35	mg/kg	01.18.19 09:42	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		108		110		70-130	%	01.18.19 09:42
4-Bromofluorobenzene	95		108		108		70-130	%	01.18.19 09:42

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3076361 Matrix: Solid Date Prep: 01.18.19
MB Sample Id: 7670055-1-BLK LCS Sample Id: 7670055-1-BKS LCSD Sample Id: 7670055-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000386	0.100	0.119	119	0.125	125	70-130	5	35	mg/kg	01.18.19 19:37	
Toluene	<0.000457	0.100	0.101	101	0.107	107	70-130	6	35	mg/kg	01.18.19 19:37	
Ethylbenzene	<0.000567	0.100	0.0924	92	0.0976	98	70-130	5	35	mg/kg	01.18.19 19:37	
m,p-Xylenes	<0.00102	0.201	0.184	92	0.194	97	70-130	5	35	mg/kg	01.18.19 19:37	
o-Xylene	<0.000346	0.100	0.0915	92	0.0963	96	70-130	5	35	mg/kg	01.18.19 19:37	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	109		111		110		70-130	%	01.18.19 19:37
4-Bromofluorobenzene	93		111		109		70-130	%	01.18.19 19:37

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3076351 Matrix: Soil Date Prep: 01.17.19
Parent Sample Id: 611433-005 MS Sample Id: 611433-005 S MSD Sample Id: 611433-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	0.000719	0.101	0.104	102	0.101	101	70-130	3	35	mg/kg	01.18.19 10:20	
Toluene	0.00219	0.101	0.0909	88	0.0881	86	70-130	3	35	mg/kg	01.18.19 10:20	
Ethylbenzene	0.000579	0.101	0.0734	72	0.0727	73	70-130	1	35	mg/kg	01.18.19 10:20	
m,p-Xylenes	<0.00102	0.202	0.143	71	0.142	71	70-130	1	35	mg/kg	01.18.19 10:20	
o-Xylene	0.00110	0.101	0.0710	69	0.0707	70	70-130	0	35	mg/kg	01.18.19 10:20	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	112		110		70-130	%	01.18.19 10:20
4-Bromofluorobenzene	109		111		70-130	%	01.18.19 10:20

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 611434

COG Operating LLC

Boone 16 Com 3H (12-29-18)

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 3076361 Matrix: Soil Date Prep: 01.18.19

Parent Sample Id: 611308-017 MS Sample Id: 611308-017 S MSD Sample Id: 611308-017 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000383	0.0996	0.110	110	0.114	114	70-130	4	35	mg/kg	01.18.19 20:15	
Toluene	<0.000454	0.0996	0.0877	88	0.0922	92	70-130	5	35	mg/kg	01.18.19 20:15	
Ethylbenzene	<0.000563	0.0996	0.0696	70	0.0758	76	70-130	9	35	mg/kg	01.18.19 20:15	
m,p-Xylenes	<0.00101	0.199	0.133	67	0.142	71	70-130	7	35	mg/kg	01.18.19 20:15	X
o-Xylene	<0.000343	0.0996	0.0685	69	0.0744	74	70-130	8	35	mg/kg	01.18.19 20:15	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	111		111		70-130	%	01.18.19 20:15
4-Bromofluorobenzene	110		110		70-130	%	01.18.19 20:15

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike

Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added

LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec

Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

Analysis Request of Chain of Custody Record

Lab 1434

Page 1 of 1

CONCHO

One Concho Center/600/Illinois Avenue/Midland, Texas Tel (432) 683-7443

Client Name: COG	**Site Manager:** Ike Tavarez
Project Name: Boone 16 Com 3H (12-29-18)	
Project Location: (county, state)	**Project #:**
Invoice to: COG - Ike Tavarez	
Receiving Laboratory: Xenco	**Sampler Signature:** Ike Tavarez
Comments:	

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B / BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C/625	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloride	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance	Hold
	AH-1 (0-1')	1-14-19			✓				1		X		X												X				
	AH-2 (0-1')				✓				1		X		X												X				
	WEST				✓				1		X		X												X				
	EAST				✓				1		X		X												X				
	SOUTH				✓				1		X		X												X				

Relinquished by:	Date: 1-16-19	Time:	Received by:
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by:

Date: 1/16/19 Time: 0956

LAB USE ONLY

Sample Temperature

C: 3/0.2

-0.1 18

REMARKS:

☒ RUSH: Same Day 24 hr 48 hr (72 hr)

☐ Rush Charges Authorized

☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: _____

ORIGINAL COPY

Final 1.000

Page 21 of 22

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

Date/ Time Received: 01/16/2019 09:56:00 AM

Work Order #: 611434

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 Date: 01/16/2019
Brianna Teel

Checklist reviewed by: Jessica Kramer Date: 01/16/2019
Jessica Kramer

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

May 03, 2019

IKE TAVAREZ

COG OPERATING

P. O. BOX 1630

ARTESIA, NM 88210

RE: BOONE 16 STATE COM 3H

Enclosed are the results of analyses for samples received by the laboratory on 05/02/19 7:50.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

COG OPERATING
IKE TAVAREZ
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	05/02/2019	Sampling Date:	05/01/2019
Reported:	05/03/2019	Sampling Type:	Soil
Project Name:	BOONE 16 STATE COM 3H	Sampling Condition:	Cool & Intact
Project Number:	(12-29-18)	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: BOTTOM (1.0') COMP. (H901579-01)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/02/2019	ND	1.92	95.8	2.00	1.20	
Toluene*	<0.050	0.050	05/02/2019	ND	2.02	101	2.00	0.166	
Ethylbenzene*	<0.050	0.050	05/02/2019	ND	1.95	97.5	2.00	1.10	
Total Xylenes*	<0.150	0.150	05/02/2019	ND	6.00	100	6.00	1.79	
Total BTEX	<0.300	0.300	05/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *91.0 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**112**	16.0	05/03/2019	ND	400	100	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/02/2019	ND	199	99.7	200	7.41	
DRO >C10-C28*	<10.0	10.0	05/02/2019	ND	188	93.9	200	3.70	
EXT DRO >C28-C36	<10.0	10.0	05/02/2019	ND					

Surrogate: 1-Chlorooctane *85.1 %* *41-142*

Surrogate: 1-Chlorooctadecane *87.6 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

COG OPERATING
IKE TAVAREZ
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	05/02/2019	Sampling Date:	05/01/2019
Reported:	05/03/2019	Sampling Type:	Soil
Project Name:	BOONE 16 STATE COM 3H	Sampling Condition:	Cool & Intact
Project Number:	(12-29-18)	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: NORTH SIDEWALL COMP. (H901579-02)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/02/2019	ND	1.92	95.8	2.00	1.20	
Toluene*	<0.050	0.050	05/02/2019	ND	2.02	101	2.00	0.166	
Ethylbenzene*	<0.050	0.050	05/02/2019	ND	1.95	97.5	2.00	1.10	
Total Xylenes*	<0.150	0.150	05/02/2019	ND	6.00	100	6.00	1.79	
Total BTEX	<0.300	0.300	05/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *90.6 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**208**	16.0	05/03/2019	ND	400	100	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/02/2019	ND	199	99.7	200	7.41	
DRO >C10-C28*	<10.0	10.0	05/02/2019	ND	188	93.9	200	3.70	
EXT DRO >C28-C36	<10.0	10.0	05/02/2019	ND					

Surrogate: 1-Chlorooctane *77.2 %* *41-142*

Surrogate: 1-Chlorooctadecane *73.7 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

COG OPERATING
IKE TAVAREZ
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	05/02/2019	Sampling Date:	05/01/2019
Reported:	05/03/2019	Sampling Type:	Soil
Project Name:	BOONE 16 STATE COM 3H	Sampling Condition:	Cool & Intact
Project Number:	(12-29-18)	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SOUTH SIDEWALL COMP. (H901579-03)

BTEX 8021B mg/kg **Analyzed By: ms**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/02/2019	ND	1.92	95.8	2.00	1.20	
Toluene*	<0.050	0.050	05/02/2019	ND	2.02	101	2.00	0.166	
Ethylbenzene*	<0.050	0.050	05/02/2019	ND	1.95	97.5	2.00	1.10	
Total Xylenes*	**0.975**	0.150	05/02/2019	ND	6.00	100	6.00	1.79	
Total BTEX	**0.975**	0.300	05/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *121 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**448**	16.0	05/03/2019	ND	400	100	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	**59.9**	10.0	05/02/2019	ND	199	99.7	200	7.41	
DRO >C10-C28*	**744**	10.0	05/02/2019	ND	188	93.9	200	3.70	
EXT DRO >C28-C36	**130**	10.0	05/02/2019	ND					

Surrogate: 1-Chlorooctane *98.6 %* *41-142*

Surrogate: 1-Chlorooctadecane *88.2 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

COG OPERATING
IKE TAVAREZ
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	05/02/2019	Sampling Date:	05/01/2019
Reported:	05/03/2019	Sampling Type:	Soil
Project Name:	BOONE 16 STATE COM 3H	Sampling Condition:	Cool & Intact
Project Number:	(12-29-18)	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: WEST SIDEWALL COMP. (H901579-04)

BTEX 8021B mg/kg **Analyzed By: ms**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/02/2019	ND	1.92	95.8	2.00	1.20	
Toluene*	<0.050	0.050	05/02/2019	ND	2.02	101	2.00	0.166	
Ethylbenzene*	<0.050	0.050	05/02/2019	ND	1.95	97.5	2.00	1.10	
Total Xylenes*	<0.150	0.150	05/02/2019	ND	6.00	100	6.00	1.79	
Total BTEX	<0.300	0.300	05/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *91.0 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**240**	16.0	05/03/2019	ND	400	100	400	0.00	

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/02/2019	ND	199	99.7	200	7.41	
DRO >C10-C28*	<10.0	10.0	05/02/2019	ND	188	93.9	200	3.70	
EXT DRO >C28-C36	<10.0	10.0	05/02/2019	ND					

Surrogate: 1-Chlorooctane *76.3 %* *41-142*

Surrogate: 1-Chlorooctadecane *73.3 %* *37.6-147*

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

COG OPERATING
IKE TAVAREZ
P. O. BOX 1630
ARTESIA NM, 88210
Fax To: NONE

Received:	05/02/2019	Sampling Date:	05/01/2019
Reported:	05/03/2019	Sampling Type:	Soil
Project Name:	BOONE 16 STATE COM 3H	Sampling Condition:	Cool & Intact
Project Number:	(12-29-18)	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: EAST SIDEWALL COMP. (H901579-05)

BTEX 8021B mg/kg **Analyzed By: ms**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	05/02/2019	ND	1.92	95.8	2.00	1.20	
Toluene*	<0.050	0.050	05/02/2019	ND	2.02	101	2.00	0.166	
Ethylbenzene*	<0.050	0.050	05/02/2019	ND	1.95	97.5	2.00	1.10	
Total Xylenes*	<0.150	0.150	05/02/2019	ND	6.00	100	6.00	1.79	
Total BTEX	<0.300	0.300	05/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *91.6 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**784**	16.0	05/03/2019	ND	400	100	400	0.00	QM-07

TPH 8015M mg/kg **Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	05/02/2019	ND	199	99.7	200	7.41	
DRO >C10-C28*	**88.7**	10.0	05/02/2019	ND	188	93.9	200	3.70	
EXT DRO >C28-C36	**18.5**	10.0	05/02/2019	ND					

Surrogate: 1-Chlorooctane *89.8 %* *41-142*

Surrogate: 1-Chlorooctadecane *95.8 %* *37.6-147*

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

Analysis Request of Chain of Custody Record

Page 1 of 1

CONCHO

One Concho Center/600/Illinois Avenue/Midland, Texas Tel (432) 683-7443

Client Name: COG

Site Manager: Ike Tavarez

Project Name: Boone 16 State Com 3H (12-29-18)

Project Location (county, state): Lea County, New Mexico.

Project #:

Invoice to: COG - Ike Tavarez

Receiving Laboratory: ~~Xenco~~

Sampler Signature: Ike Tavarez

Comments: - Rush -

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	MATRIX	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	PRESERVATIVE METHOD	PRESERVATIVE METHOD	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B / BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C/625	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloride	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance				Hold
H901579		YEAR:																																	
					✓																														
1	Bottom (1.0') comp.	5/1/19			✓				✓			1		X		X												X							
2	North side wall Comp.	5/1/19			✓				✓			1		X		X												X							
3	South Side wall Comp.	5/1/19			✓				✓			1		X		X												X							
4	West Side wall Comp.	5/1/19			✓				✓			1		X		X												X							
5	East Side wall Comp.	5/1/19			✓				✓			1		X		X												X							

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	5-2-19		Tamara Oldaker	5-2-19	0750
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

LAB USE ONLY

Sample Temperature

#97

-0.9°C

REMARKS:

☒ RUSH: Same Day (24 hr) 48 hr 72 hr

☐ Rush Charges Authorized

☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: _____

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