SITE INFORMATION

Report Type: Closure Report 1RP-5297

General Site Information:						
Site:	**Corazon State Unit Section 4 Tank Battery**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit C**	**Sec. 04**	**T 21S**	**R 33E**		
Lease Number:	**API No.**					
County:	**Lea County**					
GPS:	**32.519712**			**-103.580101**		
Surface Owner:	**State**					
Mineral Owner:						
Directions:	From the Intersection of HWY 176 and County Rd 27-A go West 3.37 miles and turn South and go .20 miles and location is on East side					

Release Data:	
Date Released:	11/24/2018
Type Release:	Produced Water & Crude Oil
Source of Contamination:	Flowline
Fluid Released:	4 bbls PW 6 bbls Crude Oil
Fluids Recovered:	3 bbls PW, 5 bbls Crude Oil

Official Communication:			
Name:	Ike Tavarez		Clair Gonzales
Company:	COG Operating, LLC		Tetra Tech
Address:	One Concho Center		901 West Wall Street
	600 W. Illinois Ave.		Suite 100
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 687-8110
Fax:	(432) 684-7137		
Email:	itavarez@concho.com		Clair.Gonzales@tetratech.com

Site Characterization	
Depth to Groundwater:	*128'*
Karst Potential:	*Low*

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

TETRA TECH

March 18, 2019

Oil Conservation Division, District 1
1625 North French Drive
Hobbs, New Mexico, 88240

Re: Closure Request for the COG Operating, LLC, Corazon State Unit Section 4 Tank Battery, Unit C, Section 34, Township 21 South, Range 33 East, Lea County, New Mexico. 1RP-5297

To whom it may concern:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating, LLC (COG) to remediate a release that occurred at the Corazon State Unit Section 4 Tank Battery, Unit C, Section 04, Township 21 South, Range 33 East, Lea County, New Mexico (Site). The spill site coordinates are 32.519712°, -103.580101°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on November 24, 2018, and released approximately 4 barrels of produced water and 6 barrels of oil due to the free water knockout filling up and sending fluid out of the flare. A vacuum truck was dispatched to remove all freestanding fluids. Approximately 3 barrels of produced water and 5 barrels of oil was recovered. The release occurred on the pad and impacted an area measuring approximately 67' x 12'. The C-141 Form is included in Appendix A.

Site Characterization

A site characterization was performed for the site and no watercourses, lakebeds, sinkholes, playa lakes, residences, schools, hospitals, institutions, churches, springs, private domestic water wells, springs, wetlands, incorporated municipal boundaries, subsurface mines, or floodplains are located within the specified distances. Additionally, the site is located in a low Karst potential area.

No water wells were listed within Section 04 on the New Mexico Office of the State Engineer's (NMOSE) database. One well is listed in Section 04 on the USGS database, approximately 1.50 miles Southeast of the site, and has a reported depth to groundwater of 128' below surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in the area is 150' below surface. The groundwater data is shown in Appendix B.

Tetra Tech
901 West Wall, Suite 100, Midland, TX 79701
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, updated August 14, 2018. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the site characterization the proposed RRAL for TPH is 2,500 mg/kg (GRO+DRO+MRO) and (GRO+DRO) is 1,000 mg/kg. Additionally, the proposed RRAL for chlorides is 20,000 mg/kg.

Soil Assessment and Analytical Results

COG personnel were onsite on January 14, 2019, to evaluate and sample the release area. A total of two (2) auger holes (AH-1 and AH-2) and three (3) horizontal samples (North, West, and East) were installed in the spill area to a total depth of 2'-2.5' below surface. All the samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0 Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, the area of auger holes (AH-1 and AH-2) showed benzene, total BTEX, and TPH concentrations above the RRALs in the shallow soils which declined with depth to below the RRALs at 1'-1.5' below surface. No significant chlorides were detected. In addition, North, West, and East horizontal samples were taken showing, benzene, total BTEX, TPH, and chloride concentrations below the RRALs.

Remediation Activities

Tetra Tech personnel were onsite on February 26, 2019, to supervise the remediation activities. The spill was excavated to a total depth of 1.5' below surface. A total of four (4) bottom hole confirmation samples and four (4) sidewall confirmation samples were collected every 200 square feet to ensure proper removal of the impacted soils. The samples were submitted to the laboratory to be analyzed for TPH method 8015 extended, BTEX method 8021B, and Chloride by EPA Method SM4500CI-B. The sampling results are summarized in Table 1. The excavation depths and sample locations are shown in Figure 4.

Referring to Table 1, all collected confirmation samples showed benzene, total BTEX, TPH, and chloride concentrations below the RRALs.

Approximately eighty (80) cubic yards of impacted soil was excavated and transported offsite for proper disposal. Once the excavation activities were completed, the areas were backfilled with clean material to surface grade.

TETRA TECH

Conclusion

Based on the soil assessment, laboratory results, and remediation work performed at the site, COG requests closure of this spill. The final C-141 is enclosed in Appendix A. If you have any questions or comments concerning the assessment or the remediation activities for this site, please call at (432) 682-4559.

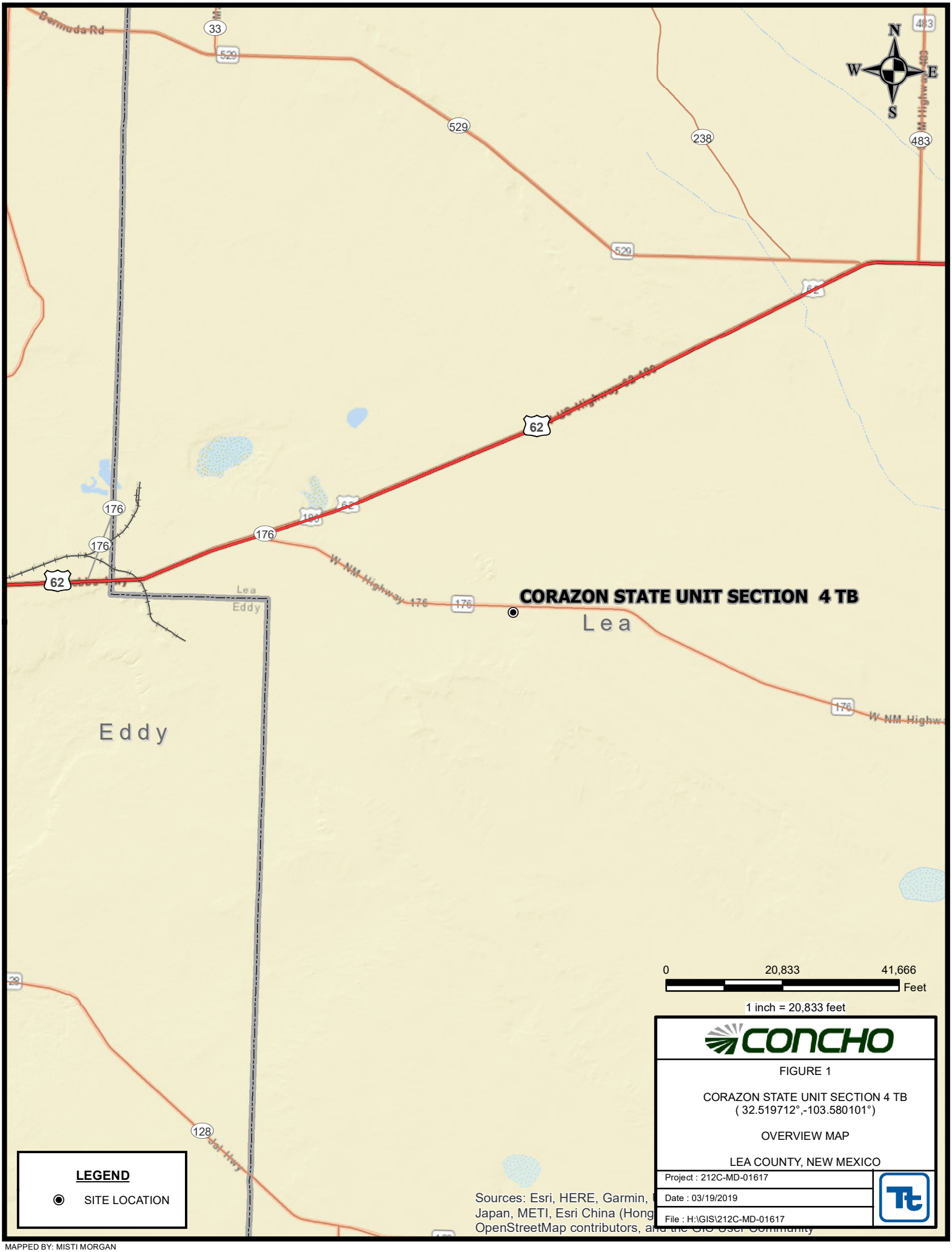
Respectfully submitted,
TETRA TECH

Clair Gonzales,
Project Manager

Mike Carmona,
Geologist

cc: Ike Tavarez - COG
Dakota Neel - COG
Rebecca Haskell - COG
Sheldon Hitchcock - COG
DeAnn Grant - COG

Figures



CONCHO

FIGURE 1

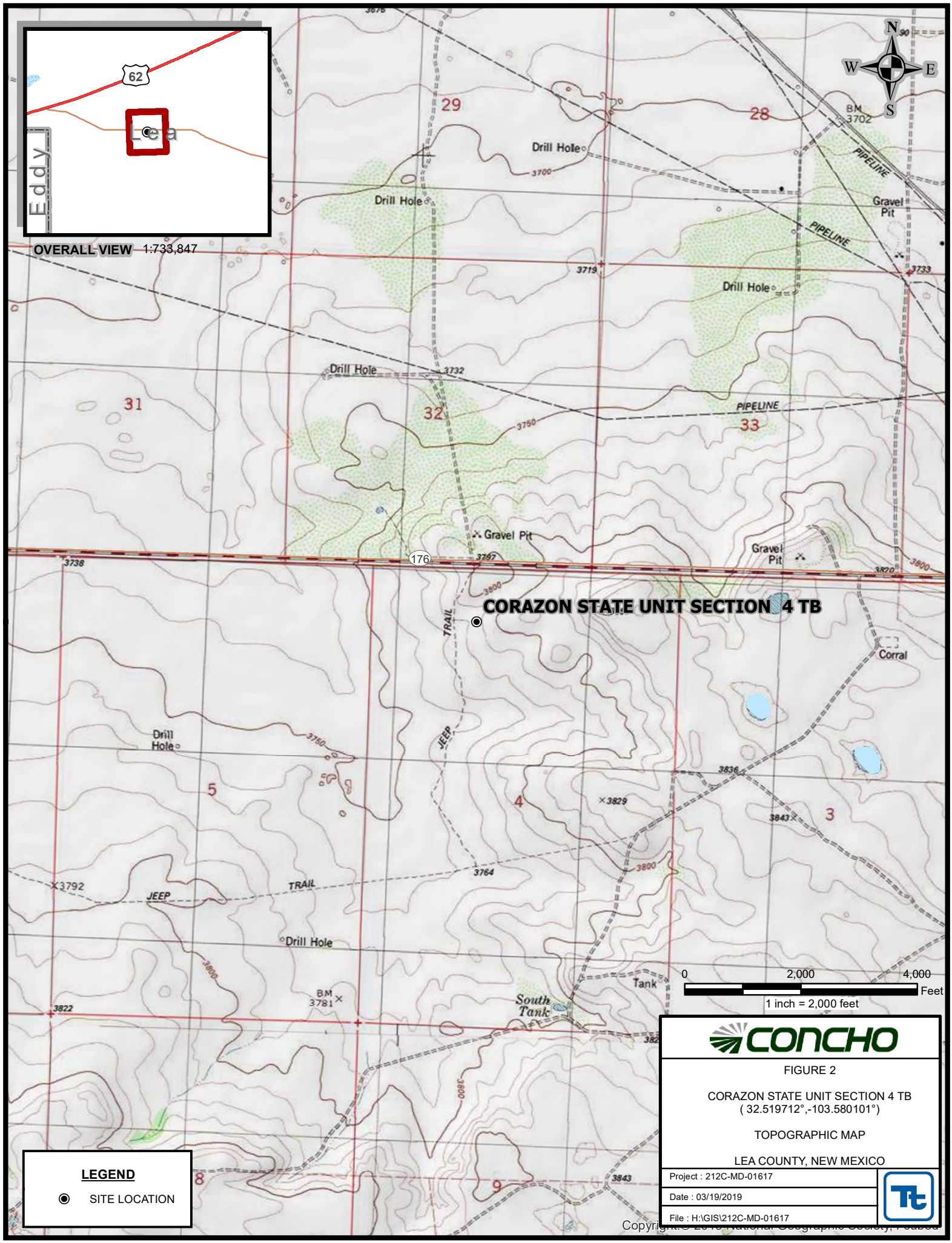
CORAZON STATE UNIT SECTION 4 TB
(32.519712°,-103.580101°)

OVERVIEW MAP

LEA COUNTY, NEW MEXICO

Project : 212C-MD-01617	
Date : 03/19/2019	
File : H:\GIS\212C-MD-01617	

MAPPED BY: MISTI MORGAN



CONCHO

FIGURE 2

CORAZON STATE UNIT SECTION 4 TB
(32.519712°,-103.580101°)

TOPOGRAPHIC MAP

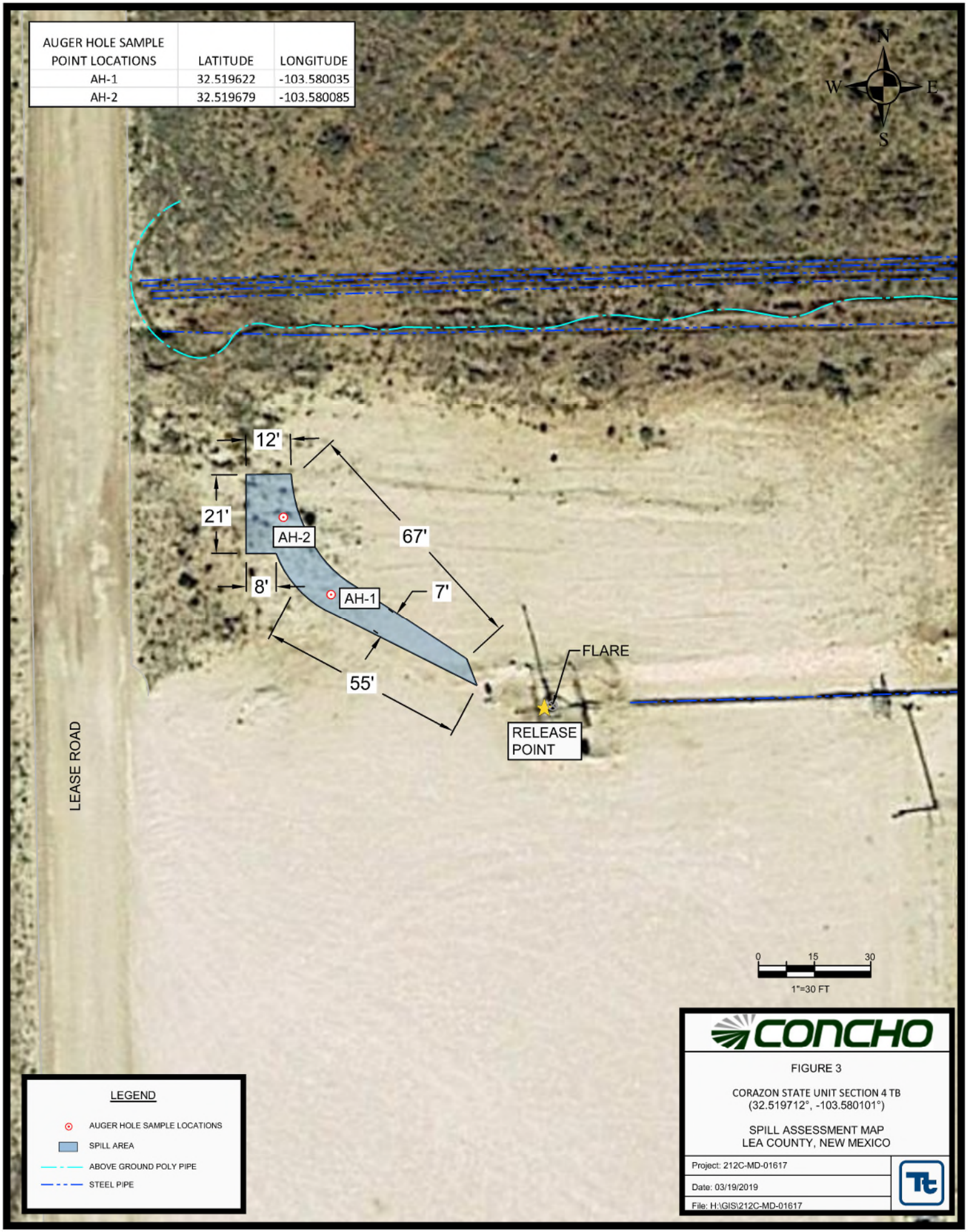
LEA COUNTY, NEW MEXICO

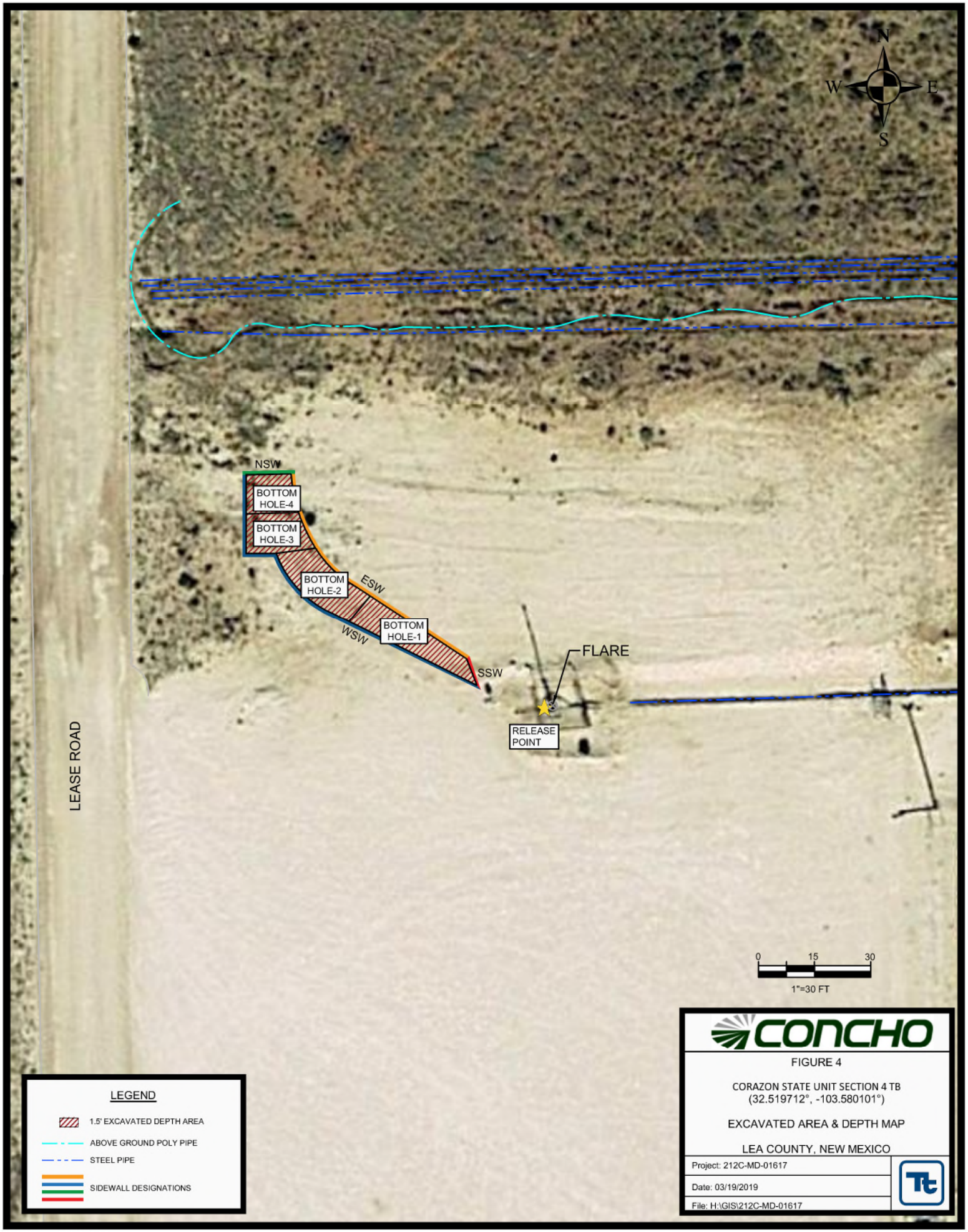
Project : 212C-MD-01617

Date : 03/19/2019

File : H:\GIS\212C-MD-01617

MAPPED BY: MISTI MORGAN


AUGER HOLE SAMPLE POINT LOCATIONS
LATITUDE
LONGITUDE
AH-1
32.519622
-103.580035
AH-2
32.519679
-103.580085
N
W
E
S
12'
21'
8'
AH-2
AH-1
67'
7'
55'
FLARE
RELEASE POINT
LEASE ROAD
0
15
30
1"=30 FT
LEGEND
AUGER HOLE SAMPLE LOCATIONS
SPILL AREA
ABOVE GROUND POLY PIPE
STEEL PIPE
CONCHO
FIGURE 3
CORAZON STATE UNIT SECTION 4 TB
(32.519712°, -103.580101°)
SPILL ASSESSMENT MAP
LEA COUNTY, NEW MEXICO
Project: 212C-MD-01617
Date: 03/19/2019
File: H:\GIS\212C-MD-01617
Drawn By: MISTI MORGAN


N
W
E
S
NSW
BOTTOM HOLE-4
BOTTOM HOLE-3
BOTTOM HOLE-2
BOTTOM HOLE-1
ESW
WSW
SSW
FLARE
RELEASE POINT
LEASE ROAD
0
15
30
1"=30 FT
LEGEND
1.5' EXCAVATED DEPTH AREA
ABOVE GROUND POLY PIPE
STEEL PIPE
SIDEWALL DESIGNATIONS
CONCHO
FIGURE 4
CORAZON STATE UNIT SECTION 4 TB
(32.519712°, -103.580101°)
EXCAVATED AREA & DEPTH MAP
LEA COUNTY, NEW MEXICO
Project: 212C-MD-01617
Date: 03/19/2019
File: H:\GIS\212C-MD-01617
Drawn By: MISTI MORGAN

Tables

Table 1
COG
Corazon Section 4 Tank Battery
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)					Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	GRO+DRO	MRO	Total						
AH-1	1/14/2019	0-1		X	**2,950**	**3,920**	**6,870**	135	**7,010**	2.49	33.0	12.7	59.2	**107**	85.6
	"	1-1.5		X	<15.0	<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<4.99
	"	2-2.5	X		18.8	80.3	99.1	<15.0	99.1	<0.00202	<0.00637	<0.00273	<0.0235	<0.0326	6.43
AH-2	1/14/2019	0-1		X	**4,190**	**9,140**	**13,330**	432	**13,800**	4.62	30.4	11.5	54.6	**101**	74.7
	"	1-1.5		X	<15.0	35.0	35.0	<15.0	35.0	<0.00202	<0.00202	<0.00202	<0.00784	<0.00784	<5.00
North	1/14/2019	0-1	X		<15.0	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<4.97
West	1/14/2019	0-1	X		<15.0	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	11.6
East	1/14/2019	0-1	X		<15.0	20.8	20.8	<15.0	20.8	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	12.8
Bottom Hole 1	2/26/2019	-	X		<10.0	79.0	79.0	29.1	108	<0.050	0.256	0.189	0.961	1.40	80.0
Bottom Hole 2	2/26/2019	-	X		<10.0	107	107	17.4	124	<0.050	<0.050	<0.050	<0.150	<0.300	192
Bottom Hole 3	2/26/2019	-	X		<10.0	279	279	47.7	327	<0.050	<0.050	<0.050	<0.150	<0.300	80.0
Bottom Hole 4	2/26/2019	-	X		<10.0	91.2	91.2	<10.0	91.2	<0.050	<0.050	<0.050	<0.150	<0.300	16.0
North Sidewall	2/26/2019	-	X		<10.0	93.2	93.2	13.1	106	<0.050	<0.050	<0.050	<0.150	<0.300	64.0
East Sidewall	2/26/2019	-	X		<10.0	432	432	51.9	484	<0.050	<0.050	<0.050	0.239	<0.300	320
South Sidewall	2/26/2019	-	X		25.5	637	663	83.7	721	<0.050	<0.050	<0.050	<0.150	<0.300	160
West Sidewall	2/26/2019	-	X		<10.0	14.1	14.1	<10.0	14.1	<0.050	<0.050	<0.050	<0.150	<0.300	144

(-) Not Analyzed

Excavated

Photos

COG
Corazon State Sec. 4 TB
Lea County, New Mexico

View Northwest – Area of AH-1 and AH-2

View North – Excavated Area of Bottom Hole 3 and Bottom Hole 4

COG
Corazon State Sec. 4 TB
Lea County, New Mexico

View East – Excavated Area of Bottom Hole 1 and Bottom Hole 2

View West– Excavated Area of Bottom Hole 1 and Bottom Hole 2

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	NCH1836352690
District RP	1RP-5297
Facility ID	fOY1717452591
Application ID	pCH1836352767

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)*	NCH1836352690 CORAZON STATE UNIT SECTION 4 @ FOY1717452591
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701		

Location of Release Source

Latitude 32.51878 Longitude -103.57949

(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Corazon State Unit Section 4	Site Type	Central Tank Battery
Date Release Discovered	November 24, 2018	API# *(if applicable)*	

Unit Letter	Section	Township	Range	County
C	04	21S	33E	Lea

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)

■ Crude Oil	Volume Released (bbls) 6	Volume Recovered (bbls) 5
■ Produced Water	Volume Released (bbls) 4	Volume Recovered (bbls) 3
	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 the FWKO filling up sending fluid out of the flare. The supply gas to the FWKO was opened. The release was an over-spray 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	NCH1836352690
District RP	1RP-5297
Facility ID	fOY1717452591
Application ID	pCH1836352767

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: 12/4/2018

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

OCD Only

Received by: RECEIVED By CHernandez at 2:45 pm, Dec 29, 2018

State of New Mexico
Oil Conservation Division

Incident ID	NCH1836352690
District RP	1RP-5297
Facility ID	fOY1717452591
Application ID	pCH1836352767

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?	128' (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ■ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ■ 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)?	☐ Yes ■ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ■ 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?	☐ Yes ■ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ■ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ■ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ■ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ■ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ■ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ■ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ■ 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.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

- ■ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ■ Data table of soil contaminant concentration data
- ■ Depth to water determination
- ■ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ■ Photographs including date and GIS information
- ■ Topographic/Aerial maps
- ■ Laboratory data including chain of custody

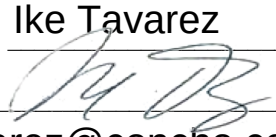
If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, 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.

State of New Mexico
Oil Conservation Division

Incident ID	NCH1836352690
District RP	1RP-5297
Facility ID	fOY1717452591
Application ID	pCH1836352767

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: Ike Tavarez Title: Senior HSE Supervisor

Signature:  Date: 3-21-19

email: itavarez@concho.com Telephone: 432-685-2573

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	NCH1836352690
District RP	1RP-5297
Facility ID	fOY1717452591
Application ID	pCH1836352767

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: 3-21-19

email: itavarez@concho.com Telephone: 432-685-2573

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: _____

****** LIQUID SPILLS - VOLUME CALCULATIONS ******

Location of spill: COG Corazon Section 4 Battery **Date of Spill:** 24-Nov-2018

If the leak/spill is associated with production equipment, i.e. - wellhead, stuffing box, flowline, tank battery, production vessel, transfer pump, or storage tank **place an "X" here:** X

Input Data:

	OIL:	WATER:
If spill volumes from measurement, i.e. metering, tank volumes, etc. are known enter the volumes here:	0.0 BBL	0.0 BBL

If "known" spill volumes are given, input data for the following "Area Calculations" is optional. The above will override the calculated volumes.

Total Area Calculations

Total Surface Area	width		length		wet soil depth	oil (%)
Rectangle Area #1	223 ft		60 ft	X	0.05 in	60%
Rectangle Area #2	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #3	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #4	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #5	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #6	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #7	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #8	0 ft	X	0 ft	X	0 in	0%

Standing Liquid Calculations

Standing Liquid Area	width		length		liquid depth	oil (%)
Rectangle Area #1	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #2	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #3	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #4	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #5	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #6	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #7	0 ft	X	0 ft	X	0 in	0%
Rectangle Area #8	0 ft	X	0 ft	X	0 in	0%

okay

production system leak - DAILY PRODUCTION DATA REQUIRED

Average Daily Production: Oil 0 BBL Water 0 BBL 0 Gas (MCFD)

Total Hydrocarbon Content in gas: 0% (percentage)

Did leak occur before the separator?: YES N/A *(place an "X")*

H2S Content in Produced Gas: 0 PPM

H2S Content in Tank Vapors: 0 PPM

Amount of Free Liquid Recovered: 8 BBL

Percentage of Oil in Free Liquid Recovered: 0% (percentage)

Liquid holding factor *: 0.14 gal per gal

Use the following when the spill wets the grains of the soil.
* Sand = **0.08** gallon (gal.) liquid per gal. volume of soil.
* Gravelly (caliche) loam = **0.14** gal. liquid per gal. volume of soil.
* Sandy clay loam soil = **0.14** gal liquid per gal. volume of soil.
* Clay loam = **0.16** gal. liquid per gal. volume of soil.

Use the following when the liquid completely fills the pore space of the soil:
Occurs when the spill soaked soil is contained by barriers, natural (or not).
* Clay loam = **0.20** gal. liquid per gal. volume of soil.
* Gravelly (caliche) loam = **0.25** gal. liquid per gal. volume of soil.
* Sandy loam = **0.5** gal. liquid per gal. volume of soil.

	sq. ft.	cu. ft.	cu. ft.
Total Solid/Liquid Volume:	13,380	22	33
Total Free Liquid Volume:			

Estimated Volumes Spilled

	H2O	OIL
Liquid in Soil:	0.6 BBL	0.8 BBL
Free Liquid:	0.0 BBL	0.0 BBL
Totals:	**0.6 BBL**	**0.8 BBL**
Total Liquid Spill Liquid:	**0.6 BBL**	**0.8 BBL**

Estimated Production Volumes Lost

	H2O	OIL
Estimated Production Spilled:	0.0 BBL	0.0 BBL

Estimated Surface Damage

Surface Area: 13,380 sq. ft.

Surface Area: .3072 acre

Recovered Volumes

Estimated oil recovered: BBL check - okay

Estimated water recovered: BBL check - okay

Estimated Weights, and Volumes

Saturated Soil =	6,244 lbs	56 cu. ft.	2 cu. yds.
Total Liquid =	1 BBL	58 gallon	486 lbs

Air Emission from flowline leaks:

Volume of oil spill:	-	BBL
Separator gas calculated:	-	MCF
Separator gas released:	-	MCF
Gas released from oil:	-	lb
H2S released:	-	lb
Total HC gas released:	-	lb
Total HC gas released:	-	MCF

Air Emission of Reporting Requirements:

	New Mexico	Texas
HC gas release reportable?	NO	NO
H2S release reportable?	NO	NO

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG-Corazon State Unit Section 4
Lea County, New Mexico

20 South 33 East

6	5 325 278	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24 +300
30	29	28	27	26	25
31	32	33	34	35	36

20 South 34 East

6	5	4 125	3	2	1
7	8	9	10	11	12
18	17 128 140	16	15	14 150	13
19	20	21	22	23	24 270
30	29	28	27	26	25
31	32	33	34 82	35	36

20 South 35 East

6 56 64	5 64	4	3	2	1
7	8	9	10	11	12 49
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31 65	32	33 89	34	35	36

21 South 32 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

21 South 33 East

6	5	4 Site 128	3	2 100	1
7	8	9	10	11 150	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28 179	27 572	26	25
31	32	33 555	34	35	36

21 South 34 East

6	5	4 95	3	2	1
7	8 120	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28 140	27	26	25
31	32	33	34	35	36

22 South 32 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14 382 350	13
19 (S) 280	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

22 South 33 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13 391
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

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)

Geology and Groundwater Resources of Eddy County, NM (Report 3)

34 NMOCD - Groundwater Data

123 Tetra Tech installed temporary wells and field water level

143 NMOCD Groundwater map well location

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**

Search Results -- 1 sites found

Agency code = usgs
site_no list =
- 322955103342801

Minimum number of levels = 1
Save file of selected sites to local disk for future upload

USGS 322955103342801 21S.33E.04.43430

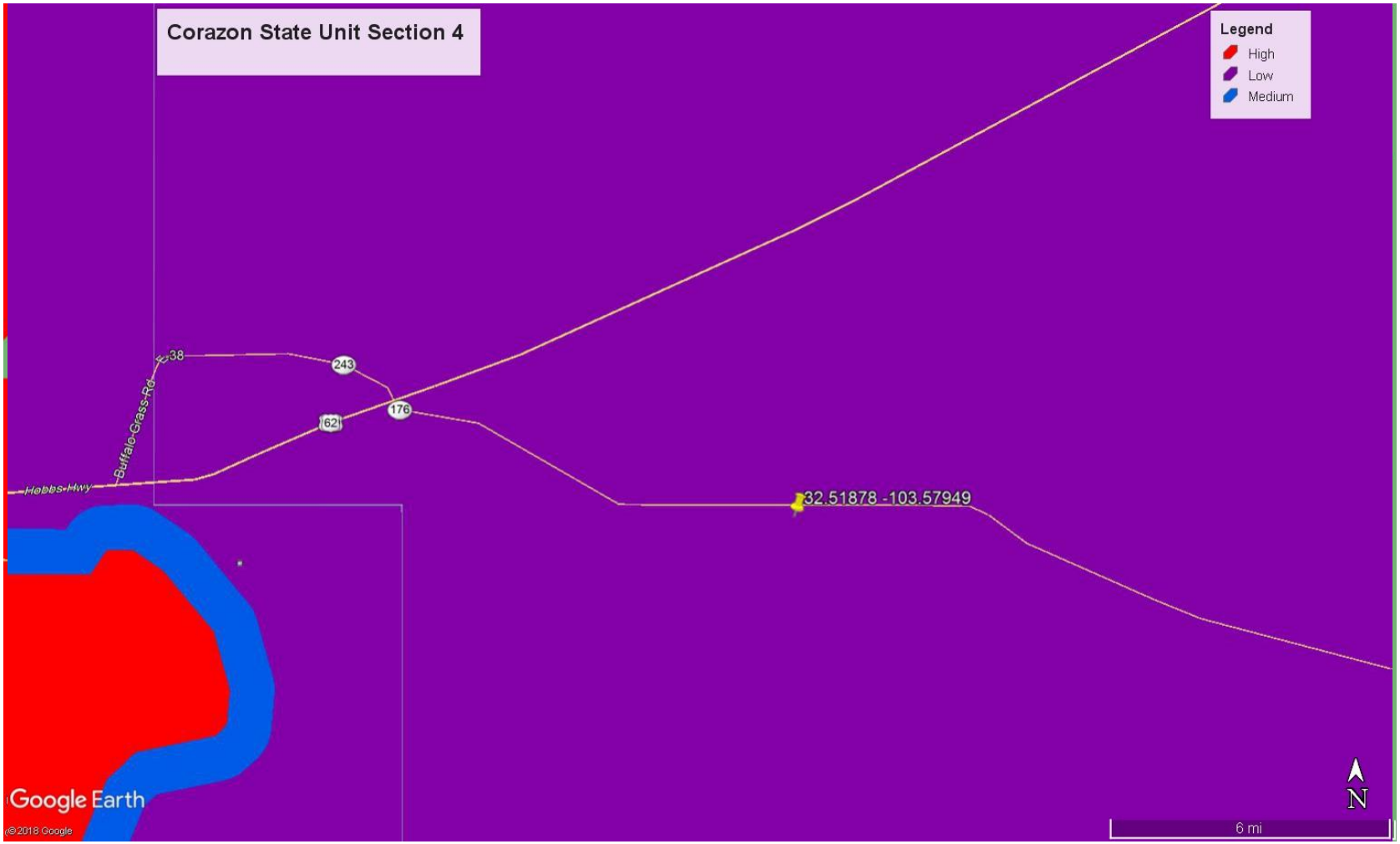
Lea County, New Mexico
Latitude 32°29'55", Longitude 103°34'28" NAD27
Land-surface elevation 3,837 feet above NAVD88
The depth of the well is 147 feet below land surface.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

Output formats

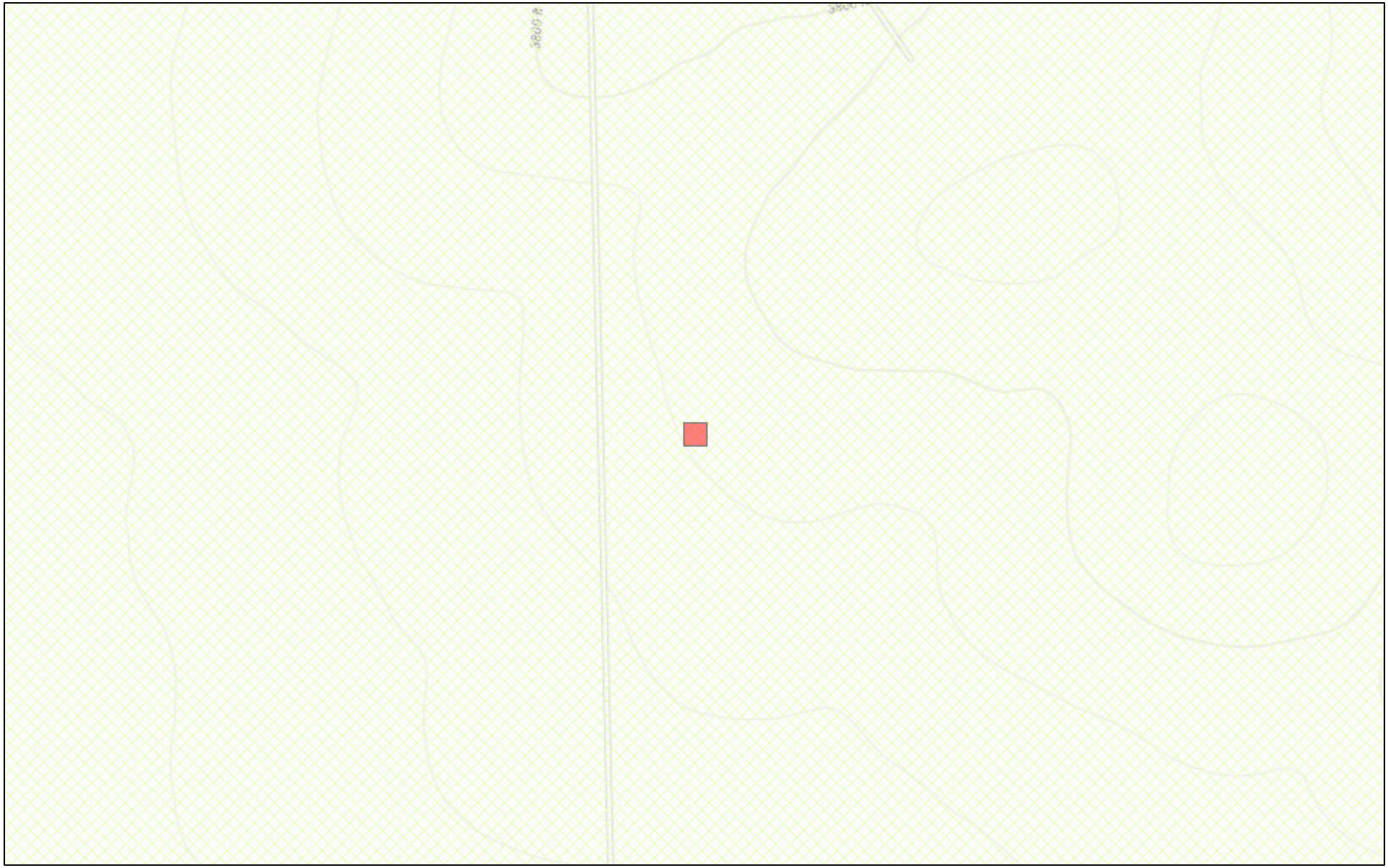
Table of data
Tab-separated data
Graph of data
Reselect period

1976-12-29		D	128.75		2		U		U		A

Water-level accuracy	2	Water level accuracy to nearest hundredth of a foot
Method of measurement	U	Unknown method.
Source of measurement	U	Source is unknown.


Corazon State Unit Section 4
Legend
High
Low
Medium
Buffalo Grass Rd
Hobbs Hwy
38
243
62
176
32.51878 -103.57949
Google Earth
©2018 Google
N
6 mi

New Mexico NFHL Data



February 28, 2019

1:4,514

0 0.0375 0.075 0.15 mi

0 0.05 0.1 0.2 km

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

Appendix C

Analytical Report 611429

for

COG Operating LLC

Project Manager: Ike Tavarez

Corazon See 4 TB (11-24-18

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): **611429**
Corazon See 4 TB (11-24-18
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) 611429. 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. 611429 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 611429

COG Operating LLC, Artesia, NM

Corazon See 4 TB (11-24-18

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH-1 0-1	S	01-14-19 00:00		611429-001
AH-1 1-1.5'	S	01-14-19 00:00		611429-002
AH-1 2-2.5'	S	01-14-19 00:00		611429-003
AH-2 0-1	S	01-14-19 00:00		611429-004
AH-2 1-1.5'	S	01-14-19 00:00		611429-005
North 0-1'	S	01-14-19 00:00		611429-006
West 0-1'	S	01-14-19 00:00		611429-007
East 0-1'	S	01-14-19 00:00		611429-008

Certificate of Analysis Summary 611429

COG Operating LLC, Artesia, NM

Project Name: Corazon See 4 TB (11-24-18

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:	611429-001		611429-002		611429-003		611429-004		611429-005		611429-006	
	Field Id:	AH-1 0-1		AH-1 1-1.5'		AH-1 2-2.5'		AH-2 0-1		AH-2 1-1.5'		North 0-1'	
	Depth:												
	Matrix:	SOIL		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		Jan-14-19 00:00	
BTEX by EPA 8021B	***Extracted:***	Jan-17-19 17:00		Jan-17-19 08:30		Jan-17-19 08:30		Jan-17-19 17:00		Jan-17-19 08:30		Jan-17-19 08:30	
	Analyzed:	Jan-20-19 13:11		Jan-17-19 14:44		Jan-17-19 18:56		Jan-20-19 12:52		Jan-17-19 15:14		Jan-17-19 16:11	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		2.49	0.199	<0.00199	0.00199	<0.00202	0.00202	4.62	0.200	<0.00202	0.00202	<0.00200	0.00200
Toluene		33.0	0.199	<0.00199	0.00199	0.00637	0.00202	30.4	0.200	<0.00202	0.00202	<0.00200	0.00200
Ethylbenzene		12.7	0.199	<0.00199	0.00199	0.00273	0.00202	11.5	0.200	<0.00202	0.00202	<0.00200	0.00200
m,p-Xylenes		44.6	0.398	<0.00398	0.00398	0.0157	0.00403	40.8	0.399	0.00784	0.00403	<0.00400	0.00400
o-Xylene		14.6	0.199	<0.00199	0.00199	0.00782	0.00202	13.8	0.200	<0.00202	0.00202	<0.00200	0.00200
Total Xylenes		59.2	0.199	<0.00199	0.00199	0.0235	0.00202	54.6	0.200	0.00784	0.00202	<0.00200	0.00200
Total BTEX		107	0.199	<0.00199	0.00199	0.0326	0.00202	101	0.200	0.00784	0.00202	<0.00200	0.00200
Chloride by EPA 300	***Extracted:***	Jan-17-19 14:30		Jan-17-19 14:30		Jan-17-19 14:30		Jan-17-19 14:30		Jan-17-19 14:30		Jan-17-19 14:30	
	Analyzed:	Jan-17-19 21:09		Jan-17-19 21:15		Jan-17-19 21:21		Jan-17-19 21:27		Jan-17-19 21:46		Jan-17-19 21:52	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		85.6	4.99	<4.99	4.99	6.43	4.95	74.7	5.00	<5.00	5.00	<4.97	4.97
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-19-19 09:00		Jan-19-19 09:00	
	Analyzed:	Jan-20-19 00:40		Jan-19-19 21:02		Jan-20-19 11:20		Jan-20-19 18:55		Jan-19-19 19:03		Jan-19-19 11:22	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons		2950	15.0	<15.0	15.0	18.8	15.0	4190	75.0	<15.0	15.0	<15.0	15.0
Diesel Range Organics		3920	15.0	<15.0	15.0	80.3	15.0	9140	75.0	35.0	15.0	<15.0	15.0
Motor Oil Range Hydrocarbons (MRO)		135	15.0	<15.0	15.0	<15.0	15.0	432	75.0	<15.0	15.0	<15.0	15.0
Total TPH		7010	15.0	<15.0	15.0	99.1	15.0	13800	75.0	35.0	15.0	<15.0	15.0

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 611429

COG Operating LLC, Artesia, NM

Project Name: Corazon See 4 TB (11-24-18

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:	611429-007		611429-008					
	Field Id:	West 0-1'		East 0-1'					
	Depth:								
	Matrix:	SOIL		SOIL					
	Sampled:	Jan-14-19 00:00		Jan-14-19 00:00					
BTEX by EPA 8021B	***Extracted:***	Jan-17-19 08:30		Jan-17-19 08:30					
	Analyzed:	Jan-17-19 17:02		Jan-17-19 17:21					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Benzene		<0.00200	0.00200	<0.00200	0.00200				
Toluene		<0.00200	0.00200	<0.00200	0.00200				
Ethylbenzene		<0.00200	0.00200	<0.00200	0.00200				
m,p-Xylenes		<0.00399	0.00399	<0.00401	0.00401				
o-Xylene		<0.00200	0.00200	<0.00200	0.00200				
Total Xylenes		<0.00200	0.00200	<0.00200	0.00200				
Total BTEX		<0.00200	0.00200	<0.00200	0.00200				
Chloride by EPA 300	***Extracted:***	Jan-17-19 14:30		Jan-17-19 14:30					
	Analyzed:	Jan-17-19 22:13		Jan-17-19 22:20					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Chloride		11.6	4.99	12.8	4.95				
TPH By SW8015 Mod	***Extracted:***	Jan-19-19 09:00		Jan-19-19 09:00					
	Analyzed:	Jan-19-19 18:43		Jan-19-19 18:23					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons		<15.0	15.0	<15.0	15.0				
Diesel Range Organics		<15.0	15.0	20.8	15.0				
Motor Oil Range Hydrocarbons (MRO)		<15.0	15.0	<15.0	15.0				
Total TPH		<15.0	15.0	20.8	15.0				

Jessica Kramer
Project Assistant

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3076188 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3076351 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected.
Samples affected are: 611429-001,611429-004.

Batch: LBA-3076404 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: 611429-002 S,611429-002 SD,611429-001.

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,611429-004.

Certificate of Analytical Results 611429

COG Operating LLC, Artesia, NM

Corazon See 4 TB (11-24-18

Sample Id:	**AH-1 0-1**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611429-001	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 14.30	Basis:	Wet Weight
Seq Number:	3076277				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**85.6**	4.99	mg/kg	01.17.19 21.09		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:	3076404				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	**2950**	15.0	mg/kg	01.20.19 00.40		1
Diesel Range Organics	C10C28DRO	**3920**	15.0	mg/kg	01.20.19 00.40		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**135**	15.0	mg/kg	01.20.19 00.40		1
Total TPH	PHC635	**7010**	15.0	mg/kg	01.20.19 00.40		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	203	%	70-135	01.20.19 00.40	**
o-Terphenyl	84-15-1	155	%	70-135	01.20.19 00.40	**

Certificate of Analytical Results 611429

COG Operating LLC, Artesia, NM

Corazon See 4 TB (11-24-18

Sample Id:	**AH-1 0-1**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611429-001	Date Collected:	01.14.19 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	01.17.19 17.00	Basis:	Wet Weight
Seq Number:	3076351				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**2.49**	0.199	mg/kg	01.20.19 13.11		100
Toluene	108-88-3	**33.0**	0.199	mg/kg	01.20.19 13.11		100
Ethylbenzene	100-41-4	**12.7**	0.199	mg/kg	01.20.19 13.11		100
m,p-Xylenes	179601-23-1	**44.6**	0.398	mg/kg	01.20.19 13.11		100
o-Xylene	95-47-6	**14.6**	0.199	mg/kg	01.20.19 13.11		100
Total Xylenes	1330-20-7	**59.2**	0.199	mg/kg	01.20.19 13.11		100
Total BTEX		**107**	0.199	mg/kg	01.20.19 13.11		100

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	122	%	70-130	01.20.19 13.11	
4-Bromofluorobenzene	460-00-4	200	%	70-130	01.20.19 13.11	**

Certificate of Analytical Results 611429

COG Operating LLC, Artesia, NM

Corazon See 4 TB (11-24-18

Sample Id:	**AH-1 1-1.5'**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611429-002	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 14.30	Basis:	Wet Weight
Seq Number:	3076277				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	01.17.19 21.15	U	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:	3076404				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	01.19.19 21.02	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	01.19.19 21.02	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	01.19.19 21.02	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	01.19.19 21.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	01.19.19 21.02	
o-Terphenyl	84-15-1	98	%	70-135	01.19.19 21.02	

Certificate of Analytical Results 611429

COG Operating LLC, Artesia, NM

Corazon See 4 TB (11-24-18

Sample Id:	**AH-1 1-1.5'**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611429-002	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 08.30	Basis:	Wet Weight
Seq Number:	3076188				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.17.19 14.44	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.17.19 14.44	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.17.19 14.44	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.17.19 14.44	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.17.19 14.44	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.17.19 14.44	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.17.19 14.44	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	70-130	01.17.19 14.44	
4-Bromofluorobenzene	460-00-4	104	%	70-130	01.17.19 14.44	

Certificate of Analytical Results 611429

COG Operating LLC, Artesia, NM

Corazon See 4 TB (11-24-18

Sample Id:	**AH-1 2-2.5'**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611429-003	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 14.30	Basis:	Wet Weight
Seq Number:	3076277				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**6.43**	4.95	mg/kg	01.17.19 21.21		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	**18.8**	15.0	mg/kg	01.20.19 11.20		1
Diesel Range Organics	C10C28DRO	**80.3**	15.0	mg/kg	01.20.19 11.20		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	01.20.19 11.20	U	1
Total TPH	PHC635	**99.1**	15.0	mg/kg	01.20.19 11.20		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	01.20.19 11.20	
o-Terphenyl	84-15-1	104	%	70-135	01.20.19 11.20	

Certificate of Analytical Results 611429

COG Operating LLC, Artesia, NM

Corazon See 4 TB (11-24-18

Sample Id:	**AH-1 2-2.5'**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611429-003	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 08.30	Basis:	Wet Weight
Seq Number:	3076188				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	01.17.19 18.56	U	1
Toluene	108-88-3	**0.00637**	0.00202	mg/kg	01.17.19 18.56		1
Ethylbenzene	100-41-4	**0.00273**	0.00202	mg/kg	01.17.19 18.56		1
m,p-Xylenes	179601-23-1	**0.0157**	0.00403	mg/kg	01.17.19 18.56		1
o-Xylene	95-47-6	**0.00782**	0.00202	mg/kg	01.17.19 18.56		1
Total Xylenes	1330-20-7	**0.0235**	0.00202	mg/kg	01.17.19 18.56		1
Total BTEX		**0.0326**	0.00202	mg/kg	01.17.19 18.56		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	123	%	70-130	01.17.19 18.56	
1,4-Difluorobenzene	540-36-3	107	%	70-130	01.17.19 18.56	

COG Operating LLC, Artesia, NM

Corazon See 4 TB (11-24-18

Sample Id:	**AH-2 0-1**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611429-004	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 14.30	Basis:	Wet Weight
Seq Number:	3076277				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**74.7**	5.00	mg/kg	01.17.19 21.27		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	**4190**	75.0	mg/kg	01.20.19 18.55		5
Diesel Range Organics	C10C28DRO	**9140**	75.0	mg/kg	01.20.19 18.55		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**432**	75.0	mg/kg	01.20.19 18.55		5
Total TPH	PHC635	**13800**	75.0	mg/kg	01.20.19 18.55		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	272	%	70-135	01.20.19 18.55	**
o-Terphenyl	84-15-1	256	%	70-135	01.20.19 18.55	**

Certificate of Analytical Results 611429

COG Operating LLC, Artesia, NM

Corazon See 4 TB (11-24-18

Sample Id:	**AH-2 0-1**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611429-004	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	**4.62**	0.200	mg/kg	01.20.19 12.52		100
Toluene	108-88-3	**30.4**	0.200	mg/kg	01.20.19 12.52		100
Ethylbenzene	100-41-4	**11.5**	0.200	mg/kg	01.20.19 12.52		100
m,p-Xylenes	179601-23-1	**40.8**	0.399	mg/kg	01.20.19 12.52		100
o-Xylene	95-47-6	**13.8**	0.200	mg/kg	01.20.19 12.52		100
Total Xylenes	1330-20-7	**54.6**	0.200	mg/kg	01.20.19 12.52		100
Total BTEX		**101**	0.200	mg/kg	01.20.19 12.52		100

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	122	%	70-130	01.20.19 12.52	
4-Bromofluorobenzene	460-00-4	195	%	70-130	01.20.19 12.52	**

Certificate of Analytical Results 611429

COG Operating LLC, Artesia, NM

Corazon See 4 TB (11-24-18

Sample Id:	**AH-2 1-1.5'**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611429-005	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 14.30	Basis:	Wet Weight
Seq Number:	3076277				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	01.17.19 21.46	U	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	<15.0	15.0	mg/kg	01.19.19 19.03	U	1
Diesel Range Organics	C10C28DRO	**35.0**	15.0	mg/kg	01.19.19 19.03		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	01.19.19 19.03	U	1
Total TPH	PHC635	**35.0**	15.0	mg/kg	01.19.19 19.03		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	01.19.19 19.03	
o-Terphenyl	84-15-1	94	%	70-135	01.19.19 19.03	

Certificate of Analytical Results 611429

COG Operating LLC, Artesia, NM

Corazon See 4 TB (11-24-18

Sample Id:	**AH-2 1-1.5'**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611429-005	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 08.30	Basis:	Wet Weight
Seq Number:	3076188				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	01.17.19 15.14	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	01.17.19 15.14	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	01.17.19 15.14	U	1
m,p-Xylenes	179601-23-1	**0.00784**	0.00403	mg/kg	01.17.19 15.14		1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	01.17.19 15.14	U	1
Total Xylenes	1330-20-7	**0.00784**	0.00202	mg/kg	01.17.19 15.14		1
Total BTEX		**0.00784**	0.00202	mg/kg	01.17.19 15.14		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	118	%	70-130	01.17.19 15.14	
1,4-Difluorobenzene	540-36-3	97	%	70-130	01.17.19 15.14	

COG Operating LLC, Artesia, NM

Corazon See 4 TB (11-24-18

Sample Id:	**North 0-1'**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611429-006	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 14.30	Basis:	Wet Weight
Seq Number:	3076277				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.97	4.97	mg/kg	01.17.19 21.52	U	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	<15.0	15.0	mg/kg	01.19.19 11.22	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	01.19.19 11.22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	01.19.19 11.22	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	01.19.19 11.22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	01.19.19 11.22	
o-Terphenyl	84-15-1	105	%	70-135	01.19.19 11.22	

Certificate of Analytical Results 611429

COG Operating LLC, Artesia, NM

Corazon See 4 TB (11-24-18

Sample Id:	**North 0-1'**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611429-006	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 08.30	Basis:	Wet Weight
Seq Number:	3076188				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.17.19 16.11	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.17.19 16.11	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.17.19 16.11	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	01.17.19 16.11	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.17.19 16.11	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.17.19 16.11	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.17.19 16.11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	95	%	70-130	01.17.19 16.11	
4-Bromofluorobenzene	460-00-4	111	%	70-130	01.17.19 16.11	

Certificate of Analytical Results 611429

COG Operating LLC, Artesia, NM

Corazon See 4 TB (11-24-18

Sample Id:	**West 0-1'**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611429-007	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 14.30	Basis:	Wet Weight
Seq Number:	3076277				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**11.6**	4.99	mg/kg	01.17.19 22.13		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	<15.0	15.0	mg/kg	01.19.19 18.43	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	01.19.19 18.43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	01.19.19 18.43	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	01.19.19 18.43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	01.19.19 18.43	
o-Terphenyl	84-15-1	100	%	70-135	01.19.19 18.43	

Certificate of Analytical Results 611429

COG Operating LLC, Artesia, NM

Corazon See 4 TB (11-24-18

Sample Id:	**West 0-1'**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611429-007	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 08.30	Basis:	Wet Weight
Seq Number:	3076188				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.17.19 17.02	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.17.19 17.02	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.17.19 17.02	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	01.17.19 17.02	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.17.19 17.02	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.17.19 17.02	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.17.19 17.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	114	%	70-130	01.17.19 17.02	
1,4-Difluorobenzene	540-36-3	115	%	70-130	01.17.19 17.02	

Certificate of Analytical Results 611429

COG Operating LLC, Artesia, NM

Corazon See 4 TB (11-24-18

Sample Id:	**East 0-1'**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611429-008	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 14.30	Basis:	Wet Weight
Seq Number:	3076277				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**12.8**	4.95	mg/kg	01.17.19 22.20		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	<15.0	15.0	mg/kg	01.19.19 18.23	U	1
Diesel Range Organics	C10C28DRO	**20.8**	15.0	mg/kg	01.19.19 18.23		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	01.19.19 18.23	U	1
Total TPH	PHC635	**20.8**	15.0	mg/kg	01.19.19 18.23		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	01.19.19 18.23	
o-Terphenyl	84-15-1	98	%	70-135	01.19.19 18.23	

Certificate of Analytical Results 611429

COG Operating LLC, Artesia, NM

Corazon See 4 TB (11-24-18

Sample Id:	**East 0-1'**	Matrix:	Soil	Date Received:	01.16.19 09.56
Lab Sample Id:	611429-008	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 08.30	Basis:	Wet Weight
Seq Number:	3076188				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.17.19 17.21	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.17.19 17.21	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.17.19 17.21	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	01.17.19 17.21	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.17.19 17.21	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.17.19 17.21	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.17.19 17.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	114	%	70-130	01.17.19 17.21	
4-Bromofluorobenzene	460-00-4	116	%	70-130	01.17.19 17.21	

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 611429

COG Operating LLC

Corazon See 4 TB (11-24-18

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3076277 Matrix: Solid Date Prep: 01.17.19
MB Sample Id: 7669954-1-BLK LCS Sample Id: 7669954-1-BKS LCSD Sample Id: 7669954-1-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	243	97	247	99	90-110	2	20	mg/kg	01.17.19 19:45	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3076277 Matrix: Soil Date Prep: 01.17.19
Parent Sample Id: 611429-004 MS Sample Id: 611429-004 S MSD Sample Id: 611429-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	74.7	250	313	95	320	98	90-110	2	20	mg/kg	01.17.19 21:33	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3076277 Matrix: Soil Date Prep: 01.17.19
Parent Sample Id: 611432-003 MS Sample Id: 611432-003 S MSD Sample Id: 611432-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1010	250	1270	104	1270	104	90-110	0	20	mg/kg	01.17.19 20:04	

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3076404 Matrix: Solid Date Prep: 01.19.19
MB Sample Id: 7670059-1-BLK LCS Sample Id: 7670059-1-BKS LCSD Sample Id: 7670059-1-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	820	82	825	83	70-135	1	20	mg/kg	01.19.19 20:23	
Diesel Range Organics	<8.13	1000	910	91	915	92	70-135	1	20	mg/kg	01.19.19 20:23	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	88		126		124		70-135	%	01.19.19 20:23
o-Terphenyl	89		105		104		70-135	%	01.19.19 20:23

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 611429

COG Operating LLC

Corazon See 4 TB (11-24-18

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

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: 3076404 Matrix: Soil Date Prep: 01.19.19
Parent Sample Id: 611429-002 MS Sample Id: 611429-002 S MSD Sample Id: 611429-002 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	871	87	912	91	70-135	5	20	mg/kg	01.19.19 21:22	
Diesel Range Organics	10.6	1000	958	95	1010	100	70-135	5	20	mg/kg	01.19.19 21:22	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	203	**	209	**	70-135	%	01.19.19 21:22
o-Terphenyl	183	**	198	**	70-135	%	01.19.19 21:22

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 611429

COG Operating LLC

Corazon See 4 TB (11-24-18

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

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3076188 Matrix: Solid Date Prep: 01.17.19
MB Sample Id: 7669967-1-BLK LCS Sample Id: 7669967-1-BKS LCSD Sample Id: 7669967-1-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	0.0897	90	0.0943	94	70-130	5	35	mg/kg	01.17.19 12:52	
Toluene	<0.000457	0.100	0.0883	88	0.0915	92	70-130	4	35	mg/kg	01.17.19 12:52	
Ethylbenzene	<0.000566	0.100	0.0864	86	0.0892	89	70-130	3	35	mg/kg	01.17.19 12:52	
m,p-Xylenes	<0.00102	0.200	0.170	85	0.176	88	70-130	3	35	mg/kg	01.17.19 12:52	
o-Xylene	<0.000345	0.100	0.0857	86	0.0891	89	70-130	4	35	mg/kg	01.17.19 12:52	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		101		102		70-130	%	01.17.19 12:52
4-Bromofluorobenzene	92		102		102		70-130	%	01.17.19 12:52

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 611429

COG Operating LLC

Corazon See 4 TB (11-24-18

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: 3076188 Matrix: Soil Date Prep: 01.17.19

Parent Sample Id: 611429-002 MS Sample Id: 611429-002 S MSD Sample Id: 611429-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	0.000538	0.0994	0.0814	81	0.0831	83	70-130	2	35	mg/kg	01.17.19 13:30	
Toluene	<0.000453	0.0994	0.0813	82	0.0816	82	70-130	0	35	mg/kg	01.17.19 13:30	
Ethylbenzene	<0.000561	0.0994	0.0783	79	0.0779	78	70-130	1	35	mg/kg	01.17.19 13:30	
m,p-Xylenes	0.00118	0.199	0.155	77	0.154	76	70-130	1	35	mg/kg	01.17.19 13:30	
o-Xylene	<0.000342	0.0994	0.0777	78	0.0768	77	70-130	1	35	mg/kg	01.17.19 13:30	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		102		70-130	%	01.17.19 13:30
4-Bromofluorobenzene	106		106		70-130	%	01.17.19 13:30

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

Analysis Request of Chain of Custody Record

611429

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: CORAZON See 4 TB (11-24-18)	
Project Location: (county, state) Lea Co. NM.	**Project #:**
Invoice to: COG - Ike Tavarez	
Receiving Laboratory: Xenco	**Sampler Signature:**
Comments:	

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING YEAR: 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
	AH-1 0-1	1-14-19												X		X												X							
	AH-1 1-1.5'													X		X												X							
	AH-1 2-2.5'													X		X												X							
	AH-2 0-1													X		X												X							
	AH-2 1-1.5'													X		X												X							
	North 0-1													X		X												X							
	West 0-1													X		X												X							
	East 0-1													X		X												X							

Relinquished by:	Date: 1-16-19	Time: 1515	Received by:
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by:

Received by: Date: 1/16/19 Time: 0956

LAB USE ONLY

Sample Temperature

0.3 / 0.2

-0.1 / RB

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 28 of 29

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: COG Operating LLC

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

Work Order #: 611429

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

February 27, 2019

CLAIR GONZALES

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: CORAZON SEC 4 TB (11.24.18)

Enclosed are the results of analyses for samples received by the laboratory on 02/26/19 15:10.

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:

TETRA TECH
CLAIR GONZALES
901 WEST WALL STREET , STE 100
MIDLAND TX, 79701
Fax To: (432) 682-3946

Received:	02/26/2019	Sampling Date:	02/26/2019
Reported:	02/27/2019	Sampling Type:	Soil
Project Name:	CORAZON SEC 4 TB (11.24.18)	Sampling Condition:	** (See Notes)
Project Number:	212C - MD - 01617	Sample Received By:	Tamara Oldaker
Project Location:	COG - LEA CO NM		

Sample ID: BOTTOM HOLE #1 (H900731-01)

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	02/27/2019	ND	2.15	107	2.00	1.27	
Toluene*	**0.256**	0.050	02/27/2019	ND	1.99	99.7	2.00	0.780	
Ethylbenzene*	**0.189**	0.050	02/27/2019	ND	2.10	105	2.00	1.52	
Total Xylenes*	**0.961**	0.150	02/27/2019	ND	6.39	107	6.00	1.05	
Total BTEX	**1.40**	0.300	02/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *106 %* *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	**80.0**	16.0	02/27/2019	ND	416	104	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	02/27/2019	ND	187	93.7	200	4.91	
DRO >C10-C28*	**79.0**	10.0	02/27/2019	ND	180	89.9	200	8.28	
EXT DRO >C28-C36	**29.1**	10.0	02/27/2019	ND					

Surrogate: 1-Chlorooctane *95.3 %* *41-142*

Surrogate: 1-Chlorooctadecane *101 %* *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:

TETRA TECH
CLAIR GONZALES
901 WEST WALL STREET , STE 100
MIDLAND TX, 79701
Fax To: (432) 682-3946

Received:	02/26/2019	Sampling Date:	02/26/2019
Reported:	02/27/2019	Sampling Type:	Soil
Project Name:	CORAZON SEC 4 TB (11.24.18)	Sampling Condition:	** (See Notes)
Project Number:	212C - MD - 01617	Sample Received By:	Tamara Oldaker
Project Location:	COG - LEA CO NM		

Sample ID: BOTTOM HOLE #2 (H900731-02)

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	02/27/2019	ND	2.15	107	2.00	1.27	
Toluene*	<0.050	0.050	02/27/2019	ND	1.99	99.7	2.00	0.780	
Ethylbenzene*	<0.050	0.050	02/27/2019	ND	2.10	105	2.00	1.52	
Total Xylenes*	<0.150	0.150	02/27/2019	ND	6.39	107	6.00	1.05	
Total BTEX	<0.300	0.300	02/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *98.7 %* *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	**192**	16.0	02/27/2019	ND	416	104	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	02/27/2019	ND	187	93.7	200	4.91	
DRO >C10-C28*	**107**	10.0	02/27/2019	ND	180	89.9	200	8.28	
EXT DRO >C28-C36	**17.4**	10.0	02/27/2019	ND					

Surrogate: 1-Chlorooctane *94.5 %* *41-142*

Surrogate: 1-Chlorooctadecane *100 %* *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:

TETRA TECH
CLAIR GONZALES
901 WEST WALL STREET , STE 100
MIDLAND TX, 79701
Fax To: (432) 682-3946

Received:	02/26/2019	Sampling Date:	02/26/2019
Reported:	02/27/2019	Sampling Type:	Soil
Project Name:	CORAZON SEC 4 TB (11.24.18)	Sampling Condition:	** (See Notes)
Project Number:	212C - MD - 01617	Sample Received By:	Tamara Oldaker
Project Location:	COG - LEA CO NM		

Sample ID: BOTTOM HOLE #3 (H900731-03)

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	02/27/2019	ND	2.15	107	2.00	1.27	
Toluene*	<0.050	0.050	02/27/2019	ND	1.99	99.7	2.00	0.780	
Ethylbenzene*	<0.050	0.050	02/27/2019	ND	2.10	105	2.00	1.52	
Total Xylenes*	<0.150	0.150	02/27/2019	ND	6.39	107	6.00	1.05	
Total BTEX	<0.300	0.300	02/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *100 %* *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	**80.0**	16.0	02/27/2019	ND	416	104	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	02/27/2019	ND	187	93.7	200	4.91	
DRO >C10-C28*	**279**	10.0	02/27/2019	ND	180	89.9	200	8.28	
EXT DRO >C28-C36	**47.7**	10.0	02/27/2019	ND					

Surrogate: 1-Chlorooctane *96.9 %* *41-142*

Surrogate: 1-Chlorooctadecane *109 %* *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:

TETRA TECH
CLAIR GONZALES
901 WEST WALL STREET , STE 100
MIDLAND TX, 79701
Fax To: (432) 682-3946

Received:	02/26/2019	Sampling Date:	02/26/2019
Reported:	02/27/2019	Sampling Type:	Soil
Project Name:	CORAZON SEC 4 TB (11.24.18)	Sampling Condition:	** (See Notes)
Project Number:	212C - MD - 01617	Sample Received By:	Tamara Oldaker
Project Location:	COG - LEA CO NM		

Sample ID: BOTTOM HOLE #4 (H900731-04)

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	02/27/2019	ND	2.15	107	2.00	1.27	
Toluene*	<0.050	0.050	02/27/2019	ND	1.99	99.7	2.00	0.780	
Ethylbenzene*	<0.050	0.050	02/27/2019	ND	2.10	105	2.00	1.52	
Total Xylenes*	<0.150	0.150	02/27/2019	ND	6.39	107	6.00	1.05	
Total BTEX	<0.300	0.300	02/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.1 %* *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	**16.0**	16.0	02/27/2019	ND	416	104	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	02/27/2019	ND	187	93.7	200	4.91	
DRO >C10-C28*	**91.2**	10.0	02/27/2019	ND	180	89.9	200	8.28	
EXT DRO >C28-C36	<10.0	10.0	02/27/2019	ND					

Surrogate: 1-Chlorooctane *91.6 %* *41-142*

Surrogate: 1-Chlorooctadecane *98.4 %* *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:

TETRA TECH
CLAIR GONZALES
901 WEST WALL STREET , STE 100
MIDLAND TX, 79701
Fax To: (432) 682-3946

Received:	02/26/2019	Sampling Date:	02/26/2019
Reported:	02/27/2019	Sampling Type:	Soil
Project Name:	CORAZON SEC 4 TB (11.24.18)	Sampling Condition:	** (See Notes)
Project Number:	212C - MD - 01617	Sample Received By:	Tamara Oldaker
Project Location:	COG - LEA CO NM		

Sample ID: NORTH SIDEWALL (H900731-05)

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	02/27/2019	ND	2.15	107	2.00	1.27	
Toluene*	<0.050	0.050	02/27/2019	ND	1.99	99.7	2.00	0.780	
Ethylbenzene*	<0.050	0.050	02/27/2019	ND	2.10	105	2.00	1.52	
Total Xylenes*	<0.150	0.150	02/27/2019	ND	6.39	107	6.00	1.05	
Total BTEX	<0.300	0.300	02/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *100 %* *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	**64.0**	16.0	02/27/2019	ND	416	104	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	02/27/2019	ND	187	93.7	200	4.91	
DRO >C10-C28*	**93.2**	10.0	02/27/2019	ND	180	89.9	200	8.28	
EXT DRO >C28-C36	**13.1**	10.0	02/27/2019	ND					

Surrogate: 1-Chlorooctane *92.5 %* *41-142*

Surrogate: 1-Chlorooctadecane *99.2 %* *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:

TETRA TECH
CLAIR GONZALES
901 WEST WALL STREET , STE 100
MIDLAND TX, 79701
Fax To: (432) 682-3946

Received:	02/26/2019	Sampling Date:	02/26/2019
Reported:	02/27/2019	Sampling Type:	Soil
Project Name:	CORAZON SEC 4 TB (11.24.18)	Sampling Condition:	** (See Notes)
Project Number:	212C - MD - 01617	Sample Received By:	Tamara Oldaker
Project Location:	COG - LEA CO NM		

Sample ID: EAST SIDEWALL (H900731-06)

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	02/27/2019	ND	2.15	107	2.00	1.27	
Toluene*	<0.050	0.050	02/27/2019	ND	1.99	99.7	2.00	0.780	
Ethylbenzene*	<0.050	0.050	02/27/2019	ND	2.10	105	2.00	1.52	
Total Xylenes*	**0.239**	0.150	02/27/2019	ND	6.39	107	6.00	1.05	
Total BTEX	<0.300	0.300	02/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *98.8 %* *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	**320**	16.0	02/27/2019	ND	416	104	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	02/27/2019	ND	187	93.7	200	4.91	
DRO >C10-C28*	**432**	10.0	02/27/2019	ND	180	89.9	200	8.28	
EXT DRO >C28-C36	**51.9**	10.0	02/27/2019	ND					

Surrogate: 1-Chlorooctane *91.0 %* *41-142*

Surrogate: 1-Chlorooctadecane *106 %* *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:

TETRA TECH
CLAIR GONZALES
901 WEST WALL STREET , STE 100
MIDLAND TX, 79701
Fax To: (432) 682-3946

Received:	02/26/2019	Sampling Date:	02/26/2019
Reported:	02/27/2019	Sampling Type:	Soil
Project Name:	CORAZON SEC 4 TB (11.24.18)	Sampling Condition:	** (See Notes)
Project Number:	212C - MD - 01617	Sample Received By:	Tamara Oldaker
Project Location:	COG - LEA CO NM		

Sample ID: SOUTH SIDEWALL (H900731-07)

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	02/27/2019	ND	2.15	107	2.00	1.27	
Toluene*	<0.050	0.050	02/27/2019	ND	1.99	99.7	2.00	0.780	
Ethylbenzene*	<0.050	0.050	02/27/2019	ND	2.10	105	2.00	1.52	
Total Xylenes*	<0.150	0.150	02/27/2019	ND	6.39	107	6.00	1.05	
Total BTEX	<0.300	0.300	02/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.5 %* *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	**160**	16.0	02/27/2019	ND	416	104	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*	**25.5**	10.0	02/27/2019	ND	187	93.7	200	4.91	
DRO >C10-C28*	**637**	10.0	02/27/2019	ND	180	89.9	200	8.28	
EXT DRO >C28-C36	**83.7**	10.0	02/27/2019	ND					

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

Surrogate: 1-Chlorooctadecane *116 %* *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:

TETRA TECH
CLAIR GONZALES
901 WEST WALL STREET , STE 100
MIDLAND TX, 79701
Fax To: (432) 682-3946

Received:	02/26/2019	Sampling Date:	02/26/2019
Reported:	02/27/2019	Sampling Type:	Soil
Project Name:	CORAZON SEC 4 TB (11.24.18)	Sampling Condition:	** (See Notes)
Project Number:	212C - MD - 01617	Sample Received By:	Tamara Oldaker
Project Location:	COG - LEA CO NM		

Sample ID: WEST SIDEWALL (H900731-08)

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	02/27/2019	ND	2.15	107	2.00	1.27	
Toluene*	<0.050	0.050	02/27/2019	ND	1.99	99.7	2.00	0.780	
Ethylbenzene*	<0.050	0.050	02/27/2019	ND	2.10	105	2.00	1.52	
Total Xylenes*	<0.150	0.150	02/27/2019	ND	6.39	107	6.00	1.05	
Total BTEX	<0.300	0.300	02/27/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *100 %* *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	**144**	16.0	02/27/2019	ND	416	104	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	02/27/2019	ND	187	93.7	200	4.91	
DRO >C10-C28*	**14.1**	10.0	02/27/2019	ND	180	89.9	200	8.28	
EXT DRO >C28-C36	<10.0	10.0	02/27/2019	ND					

Surrogate: 1-Chlorooctane *84.3 %* *41-142*

Surrogate: 1-Chlorooctadecane *91.2 %* *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

Notes and Definitions

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

Tetra Tech, Inc.

901W Wall Street, Ste 100
Midland, Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

Client Name: COG

Site Manager: CLAIR GONZALES

Project Name: CORAZON SEC 4 TB (11.24.18)

Project Location (county, state): LEA CO, NM

Project #: 212C-MD-01617

Invoice to: COG - IKE TAVAREZ

Receiving Laboratory: CARDINAL

Sampler Signature: CONNER MOEHRING

Comments: TONY LEGARDA

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE (YEAR: 2019)	SAMPLING TIME	MATRIX: WATER	MATRIX: SOIL	MATRIX:	PRESERVATIVE METHOD: HCL	PRESERVATIVE METHOD: HNO_3	PRESERVATIVE METHOD: ICE	PRESERVATIVE METHOD: None	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B / BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - ORO - 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
H900738 1																																			
1	BH #1 Bottom Hole #1	2/26/19			X				X		1	N	X		X											X									
2	BH #2 Bottom Hole #2	2/26/19			X				X		1	N	X		X											X									
3	BH #3 Bottom Hole #3	2/26/19			X				X		1	N	X		X											X									
4	BH #4 Bottom Hole #4	2/26/19			X				X		1	N	X		X											X									
5	NORTH SIDEWALL	2/26/19			X				X		1	N	X		X											X									
6	EAST SIDEWALL	2/26/19			X				X		1	N	X		X											X									
7	SOUTH SIDEWALL	2/26/19			X				X		1	N	X		X											X									
8	WEST SIDEWALL	2/26/19			X				X		1	N	X		X											X									
																										X									

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Conner Moehring	2/26/19	1508	Tamara Oldaker	2-26-19	15:10
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

LAB USE ONLY

Sample Temperature: 7.3°C #97

REMARKS:

- ☐ STANDARD
- ☒ 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