



June 14, 2019

Reference No. 11192977

Mr. Mike Bratcher
New Mexico Oil Conservation Division
811 South First Street
Artesia, New Mexico 88210

**Re: Closure and Deferral Request
SRO State Com #003H
Remediation Permit Number 2RP-5329
Eddy County, New Mexico**

Dear Mr. Bratcher:

GHD Services, Inc. (GHD), on behalf of COG Operating, LLC (COG), respectfully submits this Site Closure Report to the New Mexico Oil Conservation Division (NMOCD) District II office for the Remediation Permit Number 2RP-5329. This Site Closure Report provides documentation detailing delineation, soil sampling, remediation and restoration activities at the SRO State Com #003H (Site) located in NE/NE quarter (Unit Letter A) of Section 18, T-26-S, R-38E on surface lands owned by the State of New Mexico. The Site is located in Eddy County, approximately 26 miles south/southeast of Carlsbad, New Mexico and GPS coordinates for the Site are 32.04797 N, -104.11910 W (Figure 1).

1. Release Information and Response Activities

On March 18, 2019, a release of approximately five barrels total [2 barrels (bbls) of crude oil and 3 barrels (bbls) of produced water] was discovered at the Site. The release occurred in the unlined berm of the heater treater facility and was caused by a hole in the fire tube. A vacuum truck was dispatched to remove the free-standing fluid. COG reported the release to the NMOCD on a Release Notification and Corrective Active C-141 form on March 19, 2019. The release was assigned a Remediation Permit (RP) Number 2RP-5329. A copy of the C-141 Release Notification is included in Appendix A.

2. Regulatory Framework

GHD characterized the Site according to Table 1, *Closure Criteria for Soils Impacted by a Release*, of Title 19, Chapter, 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC). Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest water well data collected from the New Mexico Office of the State Engineer (NMOSE) database (Appendix B). The nearest permitted water well C 02160 with depth to groundwater information is located approximately 3 miles southeast of the Site, with a depth of 120 feet bgs. The nearest continuously flowing watercourse or significant watercourse is an unnamed dry wash located 1.25 miles southwest of the Site. The lateral extents of the release are greater than 200 feet of any lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is located in a medium karst area. GHD understands this determination



places the Site into the most stringent closure criteria category (<50 feet to groundwater). An aerial image of the general area with Bureau of Land Management (BLM) karst data is presented in Appendix C.

Based on these criteria, the following numerical limits on Table 1 to 19.15.29.12 NMAC closure criteria apply:

Medium Karst Area and/or depth to groundwater <50 feet bgs	Chloride	600 mg/kg
	TPH (GRO/DRO/MRO)	100 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

3. Soil Assessment and Remediation

Soil Assessment and remediation activities were conducted on-site over the period from March 29 through May 15, 2019. Prior to initiating any subsurface activities, a Utility Locate (One-Call) was submitted 48 hours in advance to notify companies with subsurface utilities in the area of the proposed intrusive assessment. A total of forty-five (45) soil samples were analyzed to assess the horizontal and vertical extent from the approximate five-barrel release.

3.1 Soil Excavation and Confirmation Sampling

Under the direction of COG, GHD and COG's contractor Culberson Construction Energy Services (CCI) mobilized to the Site on March 29, 2019 to assess the nature and extent of the release. Surface staining was observed in the release area within the berm. Test pits were excavated in the direct vicinity of the release to depths of approximately two to four feet. Using visual and Hach® chloride QuanTab® test strips field-screening methods, soil conditions indicated that the depth of impacts varied in depth.

Between March 29 and April 10, 2019, soil excavation activities were performed with the purpose of excavating impacted soils (where accessible) and the collecting horizontal and vertical delineation soil samples for comparison to the closure criteria established for the release site. Impacted soils were removed systematically to the extent possible using shovels with a GHD site supervisor directing the soil removal operations. The depth of excavation was approximately two foot below ground surface (bgs). The limits of the excavation are shown in Figure 2.

3.1.A Delineation Sampling within Bermed/Excavation Limits

In efforts to horizontally and vertically delineate the impacts within the bermed/excavation limits area; sidewall samples (COG -1, COG-5, COG-8, COG-9, COG-11, COG-15, COG-16, COG-17 and COG-20) from nine locations were collected at 1 foot and 2 foot intervals. A GHD representative also collected excavation floor samples from eight locations (COG-2, COG-3, COG-4, COG-6, COG-7, COG-10, COG-12 and COG-13) at varying depths on March 29, 2019, April 1, 2019, April 10, 2019 and April 11, 2019. The samples were then transported under chain-of-custody to Xenco Laboratories (Xenco) in Midland, Texas and were analyzed for total petroleum hydrocarbons (TPH) by EPA Method 8015 modified, benzene,



toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B and chloride by EPA Method 300.0. Five (COG-1, COG-15, COG-16, COG-17, and COG-20) of the nine sidewall sample results (at the 2 foot depth) exhibited TPH, BTEX and chloride concentrations below the determined the closure criteria for this Site. The other four (COG-5, COG-8, COG-9 and COG-11) sidewall sample results (at the 2 foot depth) exhibited at least one BTEX, TPH or Chloride concentration above the closure criteria for this Site.

Of the eight locations of the excavation floor samples, three sample (COG-2, COG-10, and COG-13) results (at the 2 foot depth) exhibited TPH, BTEX and chloride concentrations below the determined closure criteria for this Site. The remaining five floor sample locations (COG-4 at 2 foot, COG-3 at 2 foot, COG-6 at 2 foot, COG-7 at 2 foot and COG-12 at 4 foot) results exhibited chloride concentrations above the closure criteria for this Site. Additional soil samples were collected via hand augering techniques from three floor sample locations (COG-6 at a 4 foot depth, COG-7 at 4 foot, 6 foot and 10 foot depths, COG-12 at 7 foot and 9 foot depths) to further vertically delineate the area within the excavation limits. All sample results (at all depths) were below the determined closure criteria for the Site.

3.1.B Delineation Sampling Outside of Bermed/Excavation Limits

In efforts to horizontally and vertically delineate the impacts outside the bermed/excavation limits area, borings via hand augering were advanced at six locations (COG-14, COG-18, COG-19, COG-21, COG-22 and COG-23) and soil samples were collected (from depths of 1 foot to 4 foot bgs) by a GHD representative on April 11, 2019, April 18, 2019 and May 6, 2019. The samples were transported under chain-of-custody to Xenco Laboratories (Xenco) in Midland, Texas and were analyzed for total petroleum hydrocarbons (TPH) by EPA Method 8015 modified, benzene, toluene, ethylbenzene, and xylenes (BTEX) by EPA Method 8021B and chloride by EPA Method 300.0. All sample results from these six locations outside the bermed/excavation limits exhibited TPH, BTEX and chloride concentrations below the determined the closure criteria for this Site.

The horizontal and vertical excavation extent limits, sample locations and analytical results are presented in Figure 2 – Site Detail and Analytical Results Map and are summarized on Table 1- Soil Analytical Data Summary – Sampling Results. Laboratory analytical reports are included in Appendix D.

3.2 Site Remediation, Waste Management and Restoration Activities

On May 10, 2019, Baeza trucking completed the offsite hauling and transportation of the impacted materials for disposal to the R360 facility in Orla Texas. A total of nine truckloads (18 cubic yards per load) or 162 cubic yards total were loaded onto haul trucks and transported to the R360 facility for disposal.

Baeza trucking from an offsite COG borrow pit located near the Site trucked approximately 162 cubic yards of clean soils into the Site. Between May 14 through 15, 2019, backfilling activities were performed by hand. Soils were placed within the berm/excavation area by CCI and the new ground surface was graded to match the surrounding berm elevation.

A photographic log documenting Site conditions before excavation, during excavation, and backfilling and remediation activities is provided in Appendix E.



4. Deferral Request-2RP-5329

Residual impacted soil was left in place to avoid jeopardizing the integrity of existing surface appurtenances (i.e. pipelines, valves, heater treater, earthened berm etc.) within small, separate areas of the bermed/excavation limits. Laboratory analytical results for sample locations (COG 3-2', COG 4-2', COG 5-2', COG 6-2', COG 8-2', COG 11-2', COG-12 @ 4', and COG-22-1) indicated that soil with BTEX, TPH and/or Chloride concentrations exceeded the Table 1 closure criteria was left in place. An estimated 19 cubic yards of impacted soil remain in place in these sample location areas assuming a maximum depth of 4 foot based on soil sample results with the exception of the COG-12 sample location area. An estimated 11 cubic yards of impact soil remains in place in the COG-12 sample location area assuming a maximum depth of 7 foot based on soil sample results. Areas with impacted soils to be left in place are presented on Figure 3 - Deferral Area Map.

Horizontal and vertical delineation of the release was defined by the five sidewall sample locations (COG-1, COG-15, COG-16, COG-17, and COG-20) at the 2 foot depths and by five hand auger sample locations (COG-14, COG-18, COG-19, COG-21, and COG-23) at the 1 and 2 foot intervals.

Based on the removal of 162 cubic yards of impacted soils, analyses of 45 soil samples, and other information provided in this report, COG requests to postpone additional remediation efforts in the Deferral Areas until any future Site alteration or final abandonment activities. GHD and/or COG do not believe deferment will result in imminent risk to human health, the environment or the groundwater. The majority of the impacted soil material has been excavated and transported off-site for disposal.

At this time, COG requests a no further action for release number 2RP-5329.

Sincerely,

GHD

Thomas C. Larson
Midland Operations Manager

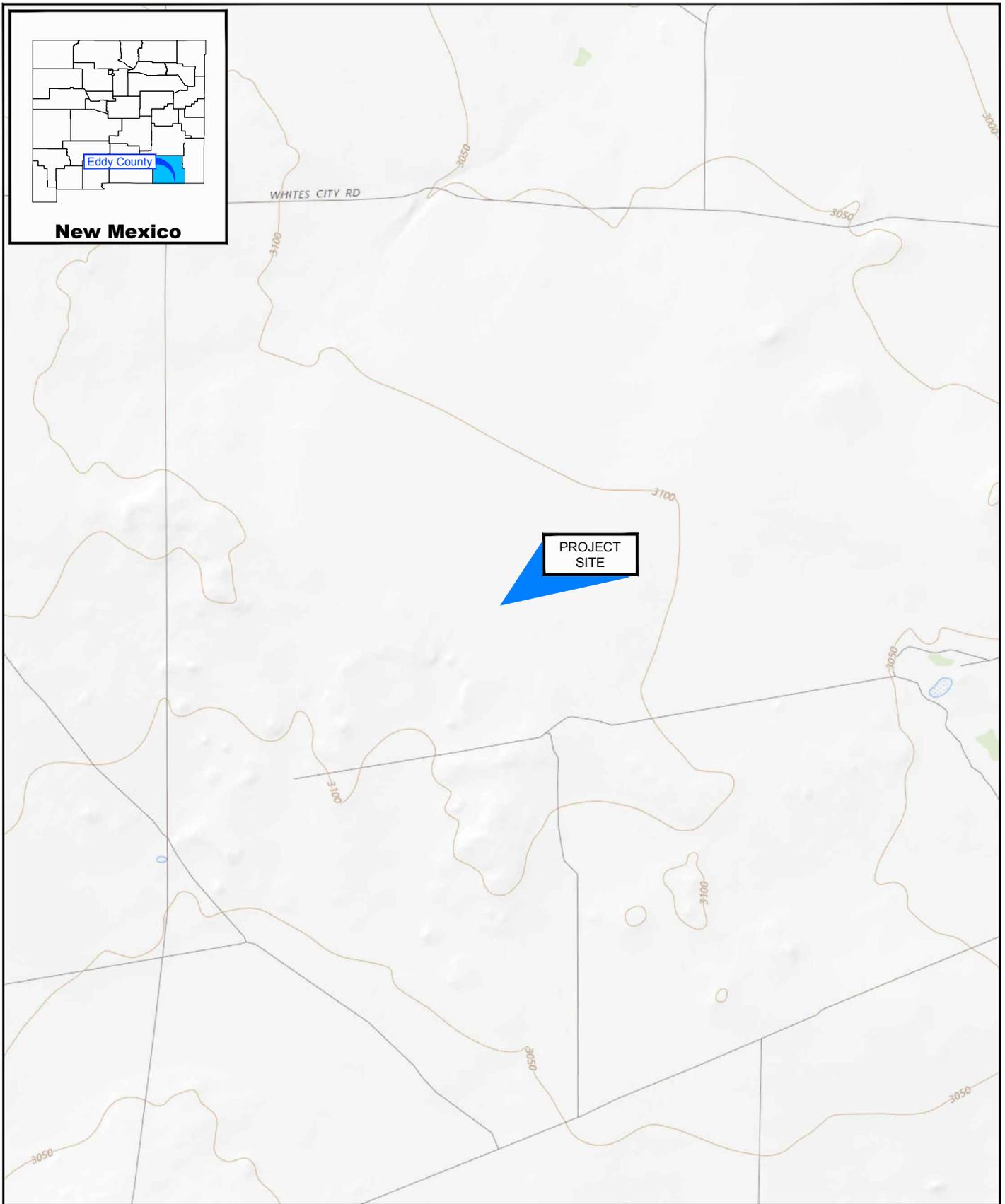
James Ornelas
Project Manager

TL/1

Attachments:

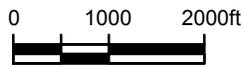
- Figure 1 – Site Location Map
- Figure 2 – Site Detail and Analytical Results Map
- Figure 3 – Deferral Area Map
- Table 1 – Soil Analytical Data Summary – Confirmation Sampling
- Appendix A - Initial/Final NMOCD C-141 Forms (2RP-5362)
- Appendix B - NMOSE Water Data
- Appendix C – BLM Karst Potential Map
- Appendix D - Analytical Laboratory Reports
- Appendix E - Photographic Log

Figures



Source: USGS 7.5 Minute Quad "Red Bluff and Cottonwood Hills, New Mexico"

Lat/Long: 32.04797° North, 104.11910° West



Coordinate System:
NAD 1983 (2011) StatePlane-
New Mexico East (US Feet)



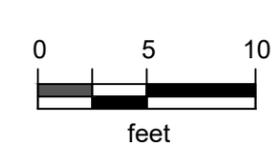
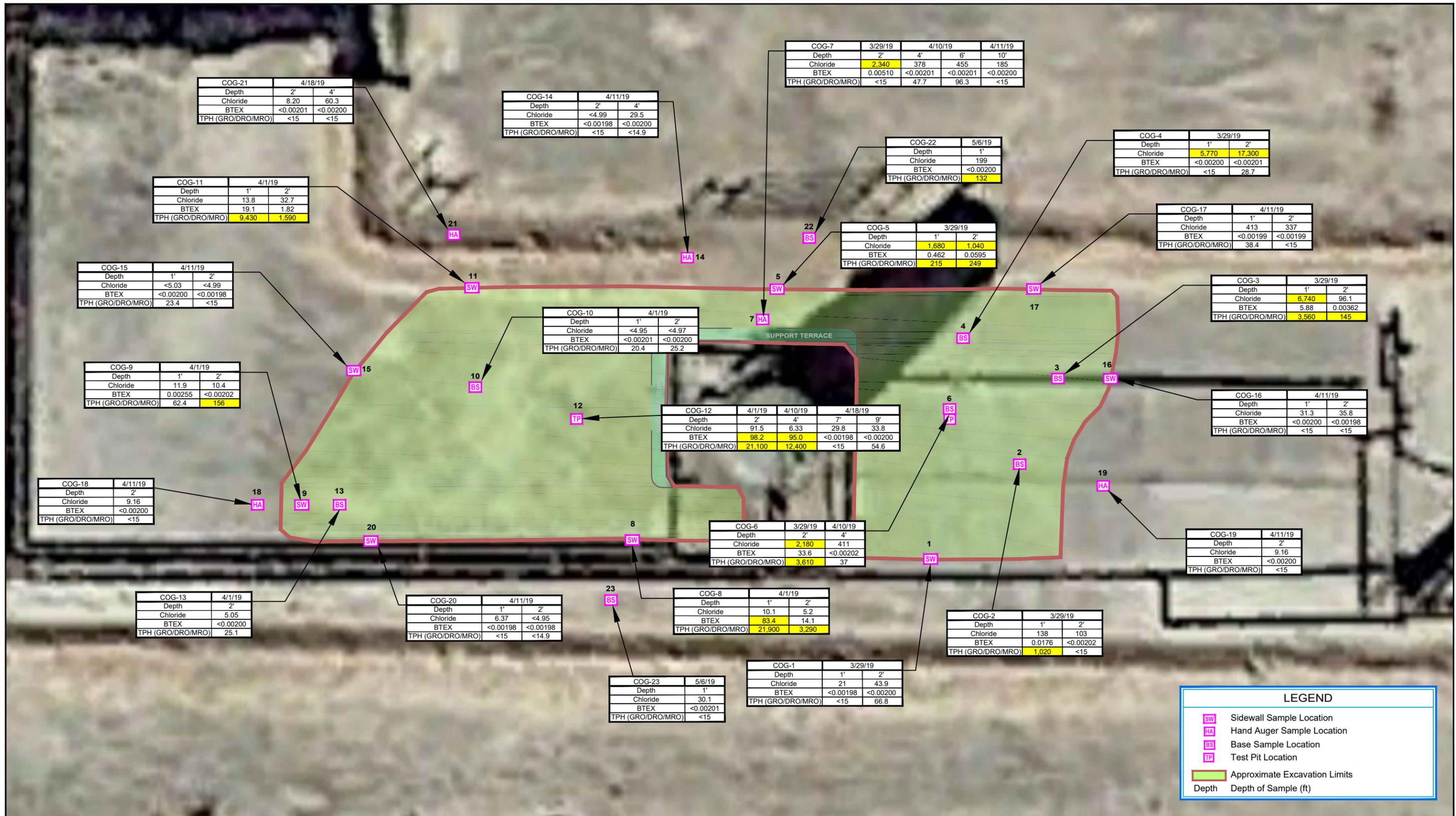
CONCHO OIL & GAS
EDDY COUNTY, NEW MEXICO
SRO STATE COM. #3-H

SITE LOCATION MAP

11192977-00

May 7, 2019

FIGURE 1



NOTES:

- Sample results are in milligram per kilogram (mg/kg).
- Locations are approximate.
- Yellow shaded cells indicate analytical samples that exceed the NMOCD 19.15.29.12 Table 1 Closure Criteria for the site.
- See table 1 for full analytical results.
- GRO/DRO/MRO = Gasoline Range Organics/ Diesel Range Organics/Motor Oil Range Organics.

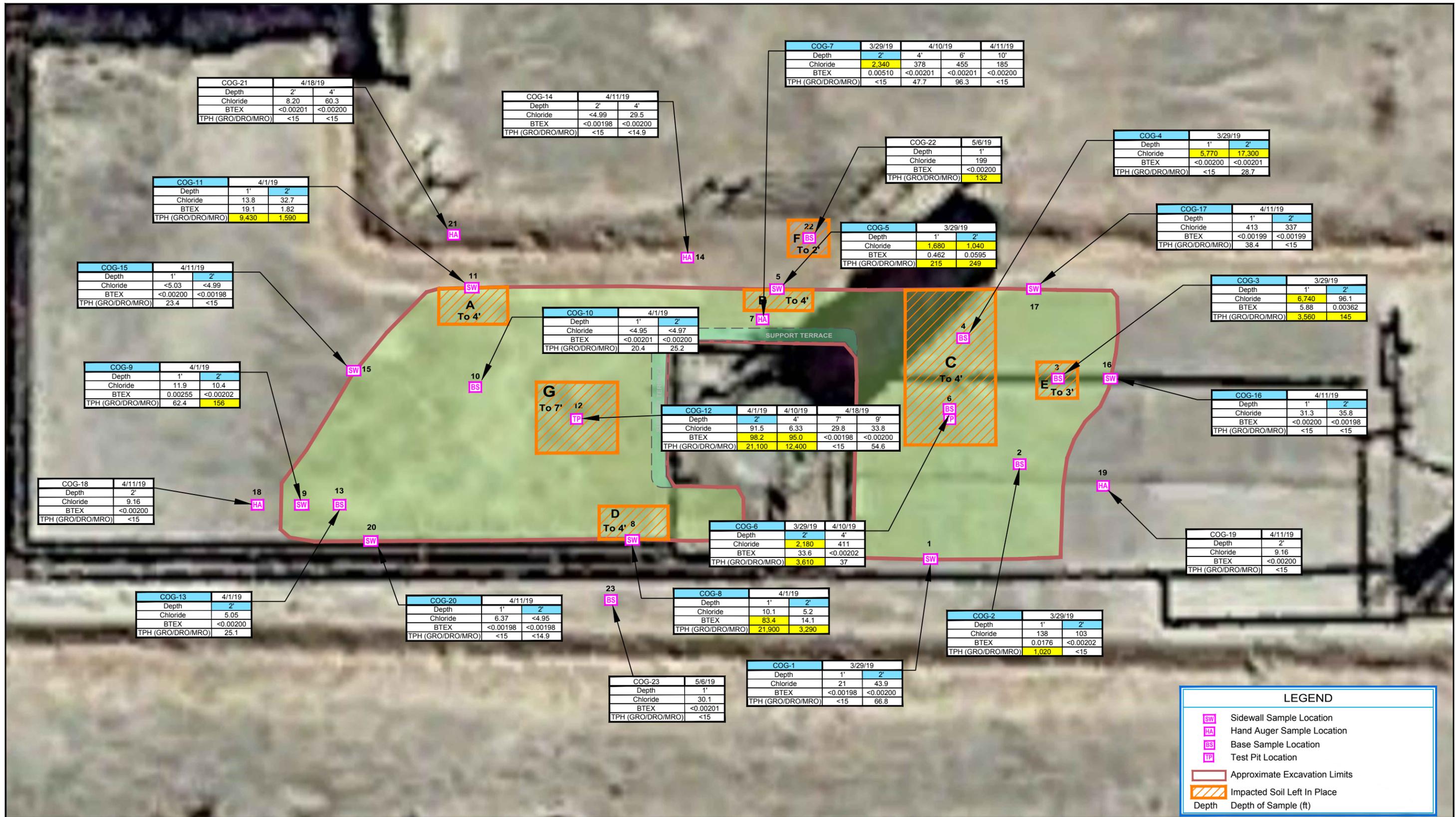


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 EDDY COUNTY, NEW MEXICO
 SRO STATE COM. #003-H

SITE DETAIL & ANALYTICAL RESULTS MAP

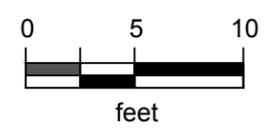
11192977
 Jun 4, 2019

FIGURE 2



NOTES:

1. Sample results are in milligram per kilogram (mg/kg).
2. Locations are approximate.
3. Yellow shaded cells indicate analytical samples that exceed the NMOCD 19.15.29.12 Table 1 Closure Criteria for the site. See table 1 for full analytical results.
4. GRO/DRO/MRO = Gasoline Range Organics/ Diesel Range Organics/Motor Oil Range Organics.
5. Areas A,B,C,D,E and F have soil impacts left in place to approximate depths as shown. Estimated total soils left in place for these areas is 19 cubic yards.
6. Area G's estimated soils left in place is 11 cubic yards.
7. Blue shaded locations depict where soils were excavated and removed to 2 feet bgs within the excavation limits.



CONCHO OIL & GAS
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 SRO STATE COM. #003-H
 DEFERRAL AREA MAP

11192977
 Jun 13, 2019

FIGURE 3

Tables

Table 1
Soil Analytical Data Summary - Sampling Results
SRO State Comm #003H Heater Treater Release Site
Concho Oil Gas
Eddy County, New Mexico

Sample ID	Sample Date	Depth (feet bgs)	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	TPH				Chloride
			(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	GRO(C6-C10)	DRO(C10-C28)	MRO (C28-C35)	Total (GRO/DRO/MRO)	(mg/Kg)
			Table I Closure Criteria for Soils <50 feet to Groundwater 19.15.29 NMAC									
			10 mg/Kg	---	---	---	50 mg/Kg	---	---	---	100 mg/Kg	600 mg/Kg
SIDEWALL AND BOTTOM⁸ CONFIRMATION SAMPLE RESULTS												
COG 1-1	3/29/19	1'	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<15	<15	<15	<15	21
COG 1-2	3/29/19	2'	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<14.9	66.8	<14.9	66.8	43.9
COG 2-1	3/29/19	1'	<0.00200	<0.00200	<0.00200	0.0176	0.0176	77	837	110	1020	138
COG 2-2	3/29/19	2'	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15	<15	<15	<15	103
COG 3-1	3/29/19	1'	0.0886	0.409	0.0653	4.73	5.88	523	2690	348	3560	6740
COG 3-2	3/29/19	2'	<0.00199	<0.00199	<0.00199	0.00362	0.00362	<15	127	18	145	96.1
COG 4-1	3/29/19	1'	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15	<15	<15	<15.0	5770
COG 4-2	3/29/19	2'	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15	28.7	<15	28.7	17300
COG 5-1	3/29/19	1'	0.0904	<0.0199	0.0399	0.332	0.462	35.2	160	20.2	215	1680
COG 5-2	3/29/19	2'	<0.00200	<0.00200	0.00724	0.0523	0.0595	45.5	181	22.1	249	1040
COG 6-2 ⁸	3/29/19	2'	<0.100	2	4.94	26.7	33.6	1150	2170	287	3610	2180
COG-6 (TP)	4/10/2019	4'	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<24.9	37	<24.9	37	411
COG 7-2 ⁸	3/29/19	2'	<0.00199	<0.00199	<0.00199	0.00510	0.00510	<15	<15	<15	<15	2340
COG-7 (BS)	4/10/2019	4'	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<24.9	47.7	<24.9	47.7	378
COG-7 (TP)	4/10/2019	6'	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<25	96.3	<25	96.3	455
COG-7 (HA)	4/11/2019	10'	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<15	<15	<15	<15	185
COG 8-1	4/1/19	1'	<2.0	13.8	9.81	59.8	83.4	7030	13300	1560	21900	10.1
COG 8-2	4/1/19	2'	<0.199	1.33	1.58	11.2	14.1	919	2160	212	3290	5.2
COG 9-1	4/1/19	1'	<0.00198	<0.00198	<0.00198	0.00255	0.00255	<14.9	62.4	<14.9	62.4	11.9
COG 9-2	4/1/19	2'	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<14.9	140	15.9	156	10.4
COG 10-1	4/1/19	1'	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.9	20.4	<15.0	20.4	<4.95
COG 10-2	4/1/19	2'	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	25.2	<15.0	25.2	<4.97
COG 11-1	4/1/19	1'	<0.499	1.6	2.02	15.5	19.1	2,480	6,170	778	9430	13.8
COG 11-2	4/1/19	2'	0.0818	0.0621	0.166	1.51	1.82	310	1,160	122	1590	32.7
COG -12 ⁸	4/1/19	2'	<2.0	19.5	11.6	67.1	98.2	7,680	11,900	1490	21100	91.5
COG-12 (TP)	4/10/2019	4'	2.91	21.9	10.4	59.8	95	5,420	6,480	480	12400	6.33
COG-12 (HA)	4/18/2019	7'	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<15	<15	<15	<15	29.8
COG-12 (HA)	4/18/2019	9'	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15	54.6	<15	54.6	33.8
COG-13 ⁸	4/1/19	2'	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15	25.1	<15	25.1	5.05
COG-14 (HA)	4/11/2019	2'	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<15	<15	<15	<15	<4.99
COG-14 (HA)	4/11/2019	4'	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	29.5

Table 1
Soil Analytical Data Summary - Sampling Results
SRO State Comm #003H Heater Treater Release Site
Concho Oil Gas
Eddy County, New Mexico

Sample ID	Sample Date	Depth (feet bgs)	Benzene	Toluene	Ethylbenzene	Xylenes	BTEX	TPH				Chloride
			(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	GRO(C6-C10)	DRO(C10-C28)	MRO (C28-C35)	Total (GRO/DRO/MRO)	(mg/Kg)
			Table 1 Closure Criteria for Soils <50 feet to Groundwater 19.15.29 NMAC									
			10 mg/Kg	---	---	---	50 mg/Kg	---	---	---	100 mg/Kg	600 mg/Kg
COG-15 (SW)	4/11/2019	1'	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15	23.4	<15	23.4	<5.03
COG-15 (SW)	4/11/2019	2'	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<15	<15	<15	<15	<4.99
COG-16 (SW)	4/11/2019	1'	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15	<15	<15	<15	31.3
COG-16 (SW)	4/11/2019	2'	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<15	<15	<15	<15	35.8
COG-17 (SW)	4/11/2019	1'	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15	38.4	<15	38.4	413
COG-17 (SW)	4/11/2019	2'	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15	<15	<15	<15	337
COG-18 (HA)	4/11/2019	2'	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15	<15	<15	<15	9.16
COG-19 (HA)	4/11/2019	2'	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15	<15	<15	<15	<4.95
COG-20 (SW)	4/11/2019	1'	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<15	<15	<15	<15	6.37
COG-20 (SW)	4/11/2019	2'	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<14.9	<14.9	<14.9	<14.9	<4.95
COG-21 (HA)	4/18/2019	2'	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15	<15	<15	<15	8.20
COG-21 (HA)	4/18/2019	4'	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15	<15	<15	<15	60.3
COG-22-1	5/6/2019	1'	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15	90.4	41.8	132	199
COG-23-1	5/6/2019	1'	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15	<15	<15	<15	30.1

1. Values reported in mg/kg
2. < = Value Less than Reporting Limit (RL)
3. Bold Indicates Analyte Detected
4. BTEX analyses by EPA Method SW 8021B.

5. TPH analyses by EPA Method SW 8015 Mod.
6. GRO/DRO/MRO = Gasoline/Diesel/Motor Oil
7. Chloride analysis by EPA Method 300/300.1
8. Excavation Bottom Sample

9. Yellow shaded cells indicate analytical samples that exceeded the NMOC 19.15.29.12 Table 1 Closure Criteria for the site.
10. Blue shaded cells depict where soils were excavated and removed to 2 feet bgs within the excavation limits.

Appendices

Appendix **A**
C-141 Form

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

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

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

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

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

Location of Release Source

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

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

Unit Letter	Section	Township	Range	County

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

Nature and Volume of Release

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

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

Cause of Release

Incident ID	
District RP	
Facility ID	
Application ID	

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

Initial Response

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

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

Incident ID	
District RP	2RP-5329
Facility ID	
Application ID	

Site Assessment/Characterization

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

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

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

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.

Incident ID	
District RP	2RP-5329
Facility ID	
Application ID	

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

Printed Name: Ike Tavarez _____ Title: _____ Senior HSE Supervisor _____

Signature:  _____ Date: 6/12/2019 _____

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

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	2RP-5329
Facility ID	
Application ID	

Remediation Plan

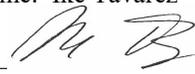
Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- Detailed description of proposed remediation technique
- Scaled sitemap with GPS coordinates showing delineation points
- Estimated volume of material to be remediated
- Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- Extents of contamination must be fully delineated.
- Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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: 6/12/19 _____
 email: itavarez@concho.com _____ Telephone: 432-685-2573 _____

OCD Only

Received by: _____ Date: _____

- Approved
 Approved with Attached Conditions of Approval
 Denied
 Deferral Approved

Signature: _____ Date: _____

Incident ID	
District RP	2RP-5329
Facility ID	
Application ID	

Closure

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

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

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

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

Printed Name: Ike Tavarez _____ Title: Senior HSE Supervisor _____

Signature:  _____ Date: 6/12/19 _____

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: _____

Appendix **B**
NMOSE Water Data



New Mexico Office of the State Engineer

Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	C 02160	4	1	2	14	26S	28E	589243	3546044* 

Driller License:		Driller Company:	
Driller Name:	HEMLER		
Drill Start Date:		Drill Finish Date:	12/01/1959
Log File Date:		PCW Rcv Date:	
Pump Type:	JOHNSO	Pipe Discharge Size:	
Casing Size:		Depth Well:	300 feet
		Plug Date:	
		Source:	Shallow
		Estimated Yield:	
		Depth Water:	120 feet

*UTM location was derived from PLSS - see Help

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



285

C-02480

C-02160-S

C-024

C-04022-POD1

Appendix **C**
BLM Karst Map

Karst Potential Map

Data from BLM

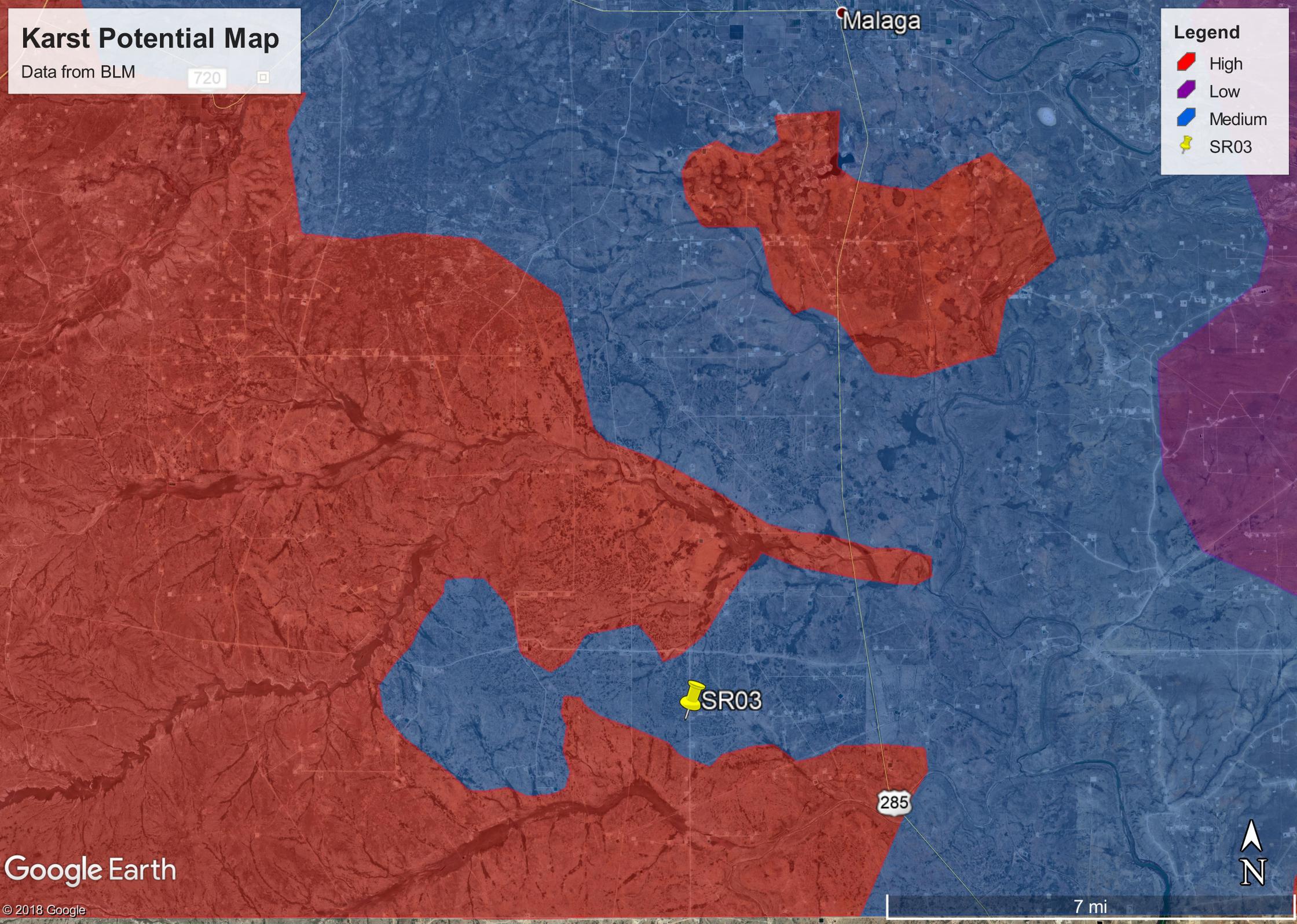
720



Malaga

Legend

- High
- Low
- Medium
- SR03



Google Earth

© 2018 Google

285



7 mi

Appendix **D**
Analytical Lap Reports



Analytical Report 619699

for

GHD Services, INC- Midland

Project Manager: Tom Larson

SRO St Com

11192977

04.05.2019

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), North Carolina (483)
Xenco-Lakeland: Florida (E84098)



04.05.2019

Project Manager: **Tom Larson**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **619699**
SRO St Com
Project Address:

Tom Larson:

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) 619699. 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. 619699 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

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

Debbie Simmons
Project Manager

A Small Business and Minority Company

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



Sample Cross Reference 619699

GHD Services, INC- Midland, Midland, TX

SRO St Com

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
COG-8-1	S	04.01.2019 10:00	1 ft	619699-001
COG-8-2	S	04.01.2019 10:20	2 ft	619699-002
COG-9-1	S	04.01.2019 10:30	1 ft	619699-003
COG-9-2	S	04.01.2019 10:40	2 ft	619699-004
COG-10-1	S	04.01.2019 10:50	1 ft	619699-005
COG-10-2	S	04.01.2019 11:00	2 ft	619699-006
COG-11-1	S	04.01.2019 11:15	1 ft	619699-007
COG-11-2	S	04.01.2019 11:25	2 ft	619699-008
COG-12	S	04.01.2019 11:40	2 ft	619699-009
COG-13	S	04.01.2019 11:30	2 ft	619699-010



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: SRO St Com

Project ID: 11192977
Work Order Number(s): 619699

Report Date: 04.05.2019
Date Received: 04.02.2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3084425 TPH by SW8015 Mod

Surrogate o-Terphenyl recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 619699-007.

Batch: LBA-3084509 BTEX by EPA 8021B

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



Certificate of Analysis Summary 619699

GHD Services, INC- Midland, Midland, TX

Project Name: SRO St Com

Project Id: 11192977
Contact: Tom Larson
Project Location:

Date Received in Lab: Tue 04.02.2019 09:45
Report Date: 04.05.2019 14:33
Project Manager: Debbie Simmons

<i>Analysis Requested</i>	<i>Lab Id:</i>	619699-001		619699-002		619699-003		619699-004		619699-005		619699-006	
	<i>Field Id:</i>	COG-8-1		COG-8-2		COG-9-1		COG-9-2		COG-10-1		COG-10-2	
	<i>Depth:</i>	1- ft		2- ft		1- ft		2- ft		1- ft		2- ft	
	<i>Matrix:</i>	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	<i>Sampled:</i>	04.01.2019 10:00		04.01.2019 10:20		04.01.2019 10:30		04.01.2019 10:40		04.01.2019 10:50		04.01.2019 11:00	
BTEX by EPA 8021B	<i>Extracted:</i>	04.03.2019 16:00		04.03.2019 16:00		04.03.2019 16:00		04.03.2019 16:00		04.03.2019 16:00		04.03.2019 16:00	
	<i>Analyzed:</i>	04.04.2019 04:06		04.04.2019 05:03		04.04.2019 02:31		04.04.2019 02:50		04.04.2019 03:09		04.04.2019 03:28	
	<i>Units/RL:</i>	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<2.00	2.00	<0.199	0.199	<0.00198	0.00198	<0.00202	0.00202	<0.00201	0.00201	<0.00200	0.00200
Toluene		13.8	2.00	1.33	0.199	<0.00198	0.00198	<0.00202	0.00202	<0.00201	0.00201	<0.00200	0.00200
Ethylbenzene		9.81	2.00	1.58	0.199	<0.00198	0.00198	<0.00202	0.00202	<0.00201	0.00201	<0.00200	0.00200
m,p-Xylenes		42.7	4.00	7.86	0.398	<0.00396	0.00396	<0.00403	0.00403	<0.00402	0.00402	<0.00401	0.00401
o-Xylene		17.1	2.00	3.35	0.199	0.00255	0.00198	<0.00202	0.00202	<0.00201	0.00201	<0.00200	0.00200
Total Xylenes		59.8	2.00	11.2	0.199	0.00255	0.00198	<0.00202	0.00202	<0.00201	0.00201	<0.00200	0.00200
Total BTEX		83.4	2.00	14.1	0.199	0.00255	0.00198	<0.00202	0.00202	<0.00201	0.00201	<0.00200	0.00200
Chloride by EPA 300	<i>Extracted:</i>	04.02.2019 11:40		04.02.2019 11:40		04.02.2019 11:40		04.02.2019 11:40		04.02.2019 11:40		04.02.2019 11:40	
	<i>Analyzed:</i>	04.03.2019 18:14		04.02.2019 14:58		04.02.2019 15:08		04.03.2019 18:24		04.03.2019 18:34		04.03.2019 18:43	
	<i>Units/RL:</i>	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		10.1	5.00	5.20	5.01	11.9	4.98	10.4	5.02	<4.95	4.95	<4.97	4.97
TPH by SW8015 Mod	<i>Extracted:</i>	04.02.2019 16:00		04.02.2019 16:00		04.02.2019 16:00		04.02.2019 16:00		04.02.2019 16:00		04.02.2019 16:00	
	<i>Analyzed:</i>	04.03.2019 07:09		04.03.2019 01:57		04.03.2019 02:17		04.03.2019 02:36		04.03.2019 03:34		04.03.2019 03:54	
	<i>Units/RL:</i>	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		7030	74.9	919	15.0	<14.9	14.9	<14.9	14.9	<15.0	15.0	<15.0	15.0
Diesel Range Organics (DRO)		13300	74.9	2160	15.0	62.4	14.9	140	14.9	20.4	15.0	25.2	15.0
Motor Oil Range Hydrocarbons (MRO)		1560	74.9	212	15.0	<14.9	14.9	15.9	14.9	<15.0	15.0	<15.0	15.0
Total TPH		21900	74.9	3290	15.0	62.4	14.9	156	14.9	20.4	15.0	25.2	15.0

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

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

Debbie Simmons
Project Manager



Certificate of Analysis Summary 619699

GHD Services, INC- Midland, Midland, TX

Project Name: SRO St Com

Project Id: 11192977
Contact: Tom Larson
Project Location:

Date Received in Lab: Tue 04.02.2019 09:45
Report Date: 04.05.2019 14:33
Project Manager: Debbie Simmons

<i>Analysis Requested</i>	<i>Lab Id:</i>	619699-007	619699-008	619699-009	619699-010		
	<i>Field Id:</i>	COG-11-1	COG-11-2	COG-12	COG-13		
	<i>Depth:</i>	1- ft	2- ft	2- ft	2- ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	04.01.2019 11:15	04.01.2019 11:25	04.01.2019 11:40	04.01.2019 11:30		
BTEX by EPA 8021B	<i>Extracted:</i>	04.03.2019 16:00	04.03.2019 16:00	04.03.2019 16:00	04.03.2019 16:00		
	<i>Analyzed:</i>	04.04.2019 04:44	04.04.2019 05:22	04.04.2019 04:25	04.04.2019 03:47		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.499 0.499	0.0818 0.0499	<2.00 2.00	<0.00200 0.00200		
Toluene		1.60 0.499	0.0621 0.0499	19.5 2.00	<0.00200 0.00200		
Ethylbenzene		2.02 0.499	0.166 0.0499	11.6 2.00	<0.00200 0.00200		
m,p-Xylenes		10.8 0.998	1.01 0.0998	47.4 4.00	<0.00400 0.00400		
o-Xylene		4.67 0.499	0.503 0.0499	19.7 2.00	<0.00200 0.00200		
Total Xylenes		15.5 0.499	1.51 0.0499	67.1 2.00	<0.00200 0.00200		
Total BTEX		19.1 0.499	1.82 0.0499	98.2 2.00	<0.00200 0.00200		
Chloride by EPA 300	<i>Extracted:</i>	04.02.2019 11:40	04.02.2019 11:40	04.02.2019 11:40	04.02.2019 11:40		
	<i>Analyzed:</i>	04.03.2019 18:53	04.02.2019 16:36	04.02.2019 16:46	04.03.2019 19:13		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		13.8 4.95	32.7 25.0	91.5 50.0	5.05 4.99		
TPH by SW8015 Mod	<i>Extracted:</i>	04.02.2019 16:00	04.02.2019 16:00	04.02.2019 16:00	04.02.2019 16:00		
	<i>Analyzed:</i>	04.03.2019 07:29	04.03.2019 04:33	04.03.2019 07:48	04.03.2019 05:12		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons (GRO)		2480 74.9	310 15.0	7680 74.9	<15.0 15.0		
Diesel Range Organics (DRO)		6170 74.9	1160 15.0	11900 74.9	25.1 15.0		
Motor Oil Range Hydrocarbons (MRO)		778 74.9	122 15.0	1490 74.9	<15.0 15.0		
Total TPH		9430 74.9	1590 15.0	21100 74.9	25.1 15.0		

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

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

Debbie Simmons
Project Manager



Form 2 - Surrogate Recoveries

Project Name: SRO St Com

Work Orders: 619699

Project ID: 11192977

Lab Batch #: 3084425

Sample: 619699-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.03.2019 01:57

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	124	99.8	124	70-135	
o-Terphenyl	63.4	49.9	127	70-135	

Lab Batch #: 3084425

Sample: 619699-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.03.2019 02:17

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.9	99.6	89	70-135	
o-Terphenyl	45.1	49.8	91	70-135	

Lab Batch #: 3084425

Sample: 619699-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.03.2019 02:36

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	89.8	99.6	90	70-135	
o-Terphenyl	46.4	49.8	93	70-135	

Lab Batch #: 3084425

Sample: 619699-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.03.2019 03:34

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.9	99.9	88	70-135	
o-Terphenyl	44.2	50.0	88	70-135	

Lab Batch #: 3084425

Sample: 619699-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.03.2019 03:54

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	89.0	99.7	89	70-135	
o-Terphenyl	45.0	49.9	90	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: SRO St Com

Work Orders: 619699

Project ID: 11192977

Lab Batch #: 3084425

Sample: 619699-008 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.03.2019 04:33

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	118	99.8	118	70-135	
o-Terphenyl	63.3	49.9	127	70-135	

Lab Batch #: 3084425

Sample: 619699-010 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.03.2019 05:12

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	99.7	101	70-135	
o-Terphenyl	51.2	49.9	103	70-135	

Lab Batch #: 3084425

Sample: 619699-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.03.2019 07:09

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	121	99.9	121	70-135	
o-Terphenyl	42.0	50.0	84	70-135	

Lab Batch #: 3084425

Sample: 619699-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.03.2019 07:29

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	123	99.8	123	70-135	
o-Terphenyl	97.2	49.9	195	70-135	**

Lab Batch #: 3084425

Sample: 619699-009 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.03.2019 07:48

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	113	99.9	113	70-135	
o-Terphenyl	43.3	50.0	87	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: SRO St Com

Work Orders: 619699

Project ID: 11192977

Lab Batch #: 3084509

Sample: 619699-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.04.2019 02:31

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0288	0.0300	96	70-130	
4-Bromofluorobenzene	0.0301	0.0300	100	70-130	

Lab Batch #: 3084509

Sample: 619699-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.04.2019 02:50

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0283	0.0300	94	70-130	
4-Bromofluorobenzene	0.0292	0.0300	97	70-130	

Lab Batch #: 3084509

Sample: 619699-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.04.2019 03:09

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0291	0.0300	97	70-130	
4-Bromofluorobenzene	0.0312	0.0300	104	70-130	

Lab Batch #: 3084509

Sample: 619699-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.04.2019 03:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0291	0.0300	97	70-130	
4-Bromofluorobenzene	0.0308	0.0300	103	70-130	

Lab Batch #: 3084509

Sample: 619699-010 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.04.2019 03:47

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0260	0.0300	87	70-130	
4-Bromofluorobenzene	0.0273	0.0300	91	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: SRO St Com

Work Orders: 619699

Project ID: 11192977

Lab Batch #: 3084509

Sample: 619699-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.04.2019 04:06

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0290	0.0300	97	70-130	
4-Bromofluorobenzene	0.0344	0.0300	115	70-130	

Lab Batch #: 3084509

Sample: 619699-009 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.04.2019 04:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0289	0.0300	96	70-130	
4-Bromofluorobenzene	0.0348	0.0300	116	70-130	

Lab Batch #: 3084509

Sample: 619699-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.04.2019 04:44

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0287	0.0300	96	70-130	
4-Bromofluorobenzene	0.0371	0.0300	124	70-130	

Lab Batch #: 3084509

Sample: 619699-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.04.2019 05:03

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0293	0.0300	98	70-130	
4-Bromofluorobenzene	0.0370	0.0300	123	70-130	

Lab Batch #: 3084509

Sample: 619699-008 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.04.2019 05:22

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0286	0.0300	95	70-130	
4-Bromofluorobenzene	0.0376	0.0300	125	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: SRO St Com

Work Orders: 619699

Project ID: 11192977

Lab Batch #: 3084425

Sample: 7674881-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 04.02.2019 22:02

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.9	100	93	70-135	
o-Terphenyl	47.7	50.0	95	70-135	

Lab Batch #: 3084509

Sample: 7674977-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 04.03.2019 22:07

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0273	0.0300	91	70-130	
4-Bromofluorobenzene	0.0264	0.0300	88	70-130	

Lab Batch #: 3084425

Sample: 7674881-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 04.02.2019 22:22

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	118	100	118	70-135	
o-Terphenyl	55.9	50.0	112	70-135	

Lab Batch #: 3084509

Sample: 7674977-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 04.03.2019 20:33

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0290	0.0300	97	70-130	
4-Bromofluorobenzene	0.0280	0.0300	93	70-130	

Lab Batch #: 3084425

Sample: 7674881-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 04.02.2019 22:41

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.5	100	98	70-135	
o-Terphenyl	64.0	50.0	128	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: SRO St Com

Work Orders: 619699

Project ID: 11192977

Lab Batch #: 3084509

Sample: 7674977-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 04.03.2019 20:52

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0297	0.0300	99	70-130	
4-Bromofluorobenzene	0.0305	0.0300	102	70-130	

Lab Batch #: 3084425

Sample: 619640-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.02.2019 23:21

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	116	99.6	116	70-135	
o-Terphenyl	54.3	49.8	109	70-135	

Lab Batch #: 3084509

Sample: 619711-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.03.2019 21:11

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0287	0.0300	96	70-130	
4-Bromofluorobenzene	0.0301	0.0300	100	70-130	

Lab Batch #: 3084425

Sample: 619640-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.02.2019 23:40

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	129	99.9	129	70-135	
o-Terphenyl	53.3	50.0	107	70-135	

Lab Batch #: 3084509

Sample: 619711-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.03.2019 21:30

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0250	0.0300	83	70-130	
4-Bromofluorobenzene	0.0257	0.0300	86	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



BS / BSD Recoveries

Project Name: SRO St Com

Work Order #: 619699

Project ID: 11192977

Analyst: SCM

Date Prepared: 04.03.2019

Date Analyzed: 04.03.2019

Lab Batch ID: 3084509

Sample: 7674977-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Benzene	<0.000385	0.100	0.0934	93	0.0992	0.0953	96	2	70-130	35	
Toluene	<0.000456	0.100	0.0981	98	0.0992	0.100	101	2	70-130	35	
Ethylbenzene	<0.000565	0.100	0.0928	93	0.0992	0.0940	95	1	70-130	35	
m,p-Xylenes	<0.00101	0.200	0.185	93	0.198	0.188	95	2	70-130	35	
o-Xylene	<0.000344	0.100	0.0934	93	0.0992	0.0972	98	4	70-130	35	

Analyst: SPC

Date Prepared: 04.02.2019

Date Analyzed: 04.02.2019

Lab Batch ID: 3084449

Sample: 7674956-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<0.858	250	241	96	250	241	96	0	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Blank Spike Recovery [D] = 100*(C)/[B]

Blank Spike Duplicate Recovery [G] = 100*(F)/[E]

All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries

Project Name: SRO St Com

Work Order #: 619699

Project ID: 11192977

Analyst: ARM

Date Prepared: 04.02.2019

Date Analyzed: 04.02.2019

Lab Batch ID: 3084425

Sample: 7674881-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	1020	102	1000	1150	115	12	70-135	20	
Diesel Range Organics (DRO)	<8.13	1000	1130	113	1000	1210	121	7	70-135	20	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$

Blank Spike Recovery [D] = $100 * (C)/[B]$

Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries

Project Name: SRO St Com

Work Order #: 619699
 Lab Batch ID: 3084509
 Date Analyzed: 04.03.2019
 Reporting Units: mg/kg

Project ID: 11192977
 QC- Sample ID: 619711-001 S
 Date Prepared: 04.03.2019
 Batch #: 1 Matrix: Soil
 Analyst: SCM

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.000411	0.107	0.0636	59	0.107	0.0466	44	31	70-130	35	X
Toluene	0.000685	0.107	0.0638	59	0.107	0.0543	50	16	70-130	35	X
Ethylbenzene	0.000621	0.107	0.0525	48	0.107	0.0470	43	11	70-130	35	X
m,p-Xylenes	0.00226	0.214	0.106	48	0.214	0.0902	41	16	70-130	35	X
o-Xylene	0.00139	0.107	0.0578	53	0.107	0.0483	44	18	70-130	35	X

Lab Batch ID: 3084449
 Date Analyzed: 04.02.2019
 Reporting Units: mg/kg

QC- Sample ID: 619699-003 S
 Date Prepared: 04.02.2019
 Batch #: 1 Matrix: Soil
 Analyst: SPC

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	11.9	249	286	110	249	260	100	10	90-110	20	

Lab Batch ID: 3084449
 Date Analyzed: 04.02.2019
 Reporting Units: mg/kg

QC- Sample ID: 619701-002 S
 Date Prepared: 04.02.2019
 Batch #: 1 Matrix: Soil
 Analyst: SPC

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	71.9	250	345	109	250	313	96	10	90-110	20	

Matrix Spike Percent Recovery $[D] = 100 \times (C-A)/B$
 Relative Percent Difference $RPD = 200 \times |(C-F)/(C+F)|$

Matrix Spike Duplicate Percent Recovery $[G] = 100 \times (F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries

Project Name: SRO St Com

Work Order #: 619699
 Lab Batch ID: 3084425
 Date Analyzed: 04.02.2019
 Reporting Units: mg/kg

Project ID: 11192977
 QC- Sample ID: 619640-001 S
 Date Prepared: 04.02.2019
 Batch #: 1 Matrix: Soil
 Analyst: ARM

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	8.61	996	990	99	999	1120	111	12	70-135	20	
Diesel Range Organics (DRO)	10.7	996	1070	106	999	1140	113	6	70-135	20	

Matrix Spike Percent Recovery $[D] = 100*(C-A)/B$
 Relative Percent Difference $RPD = 200*(C-F)/(C+F)$

Matrix Spike Duplicate Percent Recovery $[G] = 100*(F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: GHD Services, INC- Midland

Date/ Time Received: 04.02.2019 09.45.00 AM

Work Order #: 619699

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)?	2.5	
#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	BTEX and TPH received in bulk containers
#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: 04.02.2019

Checklist reviewed by:



Debbie Simmons

Date: 04.04.2019



Analytical Report 620725

for

Concho Resources Inc.

Project Manager: Dakota Neel

Concho SRO St Com 3

11192977

04.15.2019

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), North Carolina (483)
Xenco-Lakeland: Florida (E84098)



04.15.2019

Project Manager: **Dakota Neel**

Concho Resources Inc.

1 Concho Center
600 West Illinois Ave
Midland, TX 79701

Reference: XENCO Report No(s): **620725**

Concho SRO St Com 3

Project Address:

Dakota Neel:

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) 620725. 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. 620725 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in cursive script that reads 'Debbie Simmons'. The signature is written in black ink and is positioned above a horizontal line.

Debbie Simmons

Project Manager

A Small Business and Minority Company

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



Sample Cross Reference 620725

Concho Resources Inc., Midland, TX

Concho SRO St Com 3

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
TP-7-4'	S	04.10.2019 10:15	4 ft	620725-001
TP-6-4'	S	04.10.2019 10:10	4 ft	620725-002
HA-7-6'	S	04.10.2019 13:00	6 ft	620725-003
TP-12-4'	S	04.10.2019 12:45	4 ft	620725-004



CASE NARRATIVE

Client Name: Concho Resources Inc.

Project Name: Concho SRO St Com 3

Project ID: 11192977
Work Order Number(s): 620725

Report Date: 04.15.2019
Date Received: 04.11.2019

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3085434 TPH by Texas1005

Surrogate 1-Chlorooctane recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 620725-004.

Batch: LBA-3085485 BTEX by EPA 8021B

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



Certificate of Analysis Summary 620725

Concho Resources Inc., Midland, TX

Project Name: Concho SRO St Com 3

Project Id: 11192977
Contact: Dakota Neel
Project Location:

Date Received in Lab: Thu 04.11.2019 08:03
Report Date: 04.15.2019 16:21
Project Manager: Debbie Simmons

<i>Analysis Requested</i>	<i>Lab Id:</i>	620725-001	620725-002	620725-003	620725-004		
	<i>Field Id:</i>	TP-7-4'	TP-6-4'	HA-7-6'	TP-12-4'		
	<i>Depth:</i>	4- ft	4- ft	6- ft	4- ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	04.10.2019 10:15	04.10.2019 10:10	04.10.2019 13:00	04.10.2019 12:45		
BTEX by EPA 8021B	<i>Extracted:</i>	04.11.2019 08:15	04.11.2019 08:15	04.11.2019 08:15	04.11.2019 08:15		
	<i>Analyzed:</i>	04.11.2019 17:14	04.11.2019 17:33	04.11.2019 17:52	04.11.2019 21:38		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
	Benzene	<0.00201 0.00201	<0.00202 0.00202	<0.00201 0.00201	2.91 0.501		
	Toluene	<0.00201 0.00201	<0.00202 0.00202	<0.00201 0.00201	21.9 0.501		
	Ethylbenzene	<0.00201 0.00201	<0.00202 0.00202	<0.00201 0.00201	10.4 0.501		
	m,p-Xylenes	<0.00402 0.00402	<0.00403 0.00403	<0.00402 0.00402	43.6 1.00		
o-Xylene	<0.00201 0.00201	<0.00202 0.00202	<0.00201 0.00201	16.2 0.501			
Total Xylenes	<0.00201 0.00201	<0.00202 0.00202	<0.00201 0.00201	59.8 0.501			
Total BTEX	<0.00201 0.00201	<0.00202 0.00202	<0.00201 0.00201	95.0 0.501			
Chloride by EPA 300	<i>Extracted:</i>	04.11.2019 17:00	04.11.2019 17:00	04.11.2019 17:00	04.11.2019 17:00		
	<i>Analyzed:</i>	04.12.2019 18:11	04.12.2019 18:18	04.12.2019 18:25	04.12.2019 18:32		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		378 24.8	411 25.0	455 4.98	6.33 4.97		
TPH by Texas1005	<i>Extracted:</i>	04.11.2019 15:00	04.11.2019 15:00	04.11.2019 15:00	04.11.2019 15:00		
	<i>Analyzed:</i>	04.12.2019 00:17	04.12.2019 00:33	04.12.2019 00:49	04.12.2019 09:35		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
	C6-C12 Range Hydrocarbons	<24.9 24.9	<24.9 24.9	<25.0 25.0	5420 125		
	C12-C28 Range Hydrocarbons	47.7 24.9	37.0 24.9	96.3 25.0	6480 125		
C28-C35 Range Hydrocarbons	<24.9 24.9	<24.9 24.9	<25.0 25.0	480 125			
Total TPH		47.7 24.9	37.0 24.9	96.3 25.0	12400 125		

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

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

Debbie Simmons
Project Manager



Form 2 - Surrogate Recoveries

Project Name: Concho SRO St Com 3

Work Orders: 620725

Project ID: 11192977

Lab Batch #: 3085485

Sample: 620725-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.11.2019 17:14

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0294	0.0300	98	70-130	
4-Bromofluorobenzene	0.0293	0.0300	98	70-130	

Lab Batch #: 3085485

Sample: 620725-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.11.2019 17:33

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0298	0.0300	99	70-130	
4-Bromofluorobenzene	0.0303	0.0300	101	70-130	

Lab Batch #: 3085485

Sample: 620725-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.11.2019 17:52

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0303	0.0300	101	70-130	
4-Bromofluorobenzene	0.0311	0.0300	104	70-130	

Lab Batch #: 3085485

Sample: 620725-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.11.2019 21:38

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0302	0.0300	101	70-130	
4-Bromofluorobenzene	0.0382	0.0300	127	70-130	

Lab Batch #: 3085434

Sample: 620725-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.12.2019 00:17

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	51.8	49.9	104	70-130	
1-Chlorooctane	104	99.7	104	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Concho SRO St Com 3

Work Orders: 620725

Project ID: 11192977

Lab Batch #: 3085434

Sample: 620725-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.12.2019 00:33

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	46.4	49.8	93	70-130	
1-Chlorooctane	95.1	99.6	95	70-130	

Lab Batch #: 3085434

Sample: 620725-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.12.2019 00:49

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	52.8	49.9	106	70-130	
1-Chlorooctane	106	99.8	106	70-130	

Lab Batch #: 3085434

Sample: 620725-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.12.2019 09:35

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	41.0	49.9	82	70-130	
1-Chlorooctane	162	99.8	162	70-130	**

Lab Batch #: 3085485

Sample: 7675643-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 04.11.2019 15:39

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0271	0.0300	90	70-130	
4-Bromofluorobenzene	0.0257	0.0300	86	70-130	

Lab Batch #: 3085434

Sample: 7675575-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 04.11.2019 18:32

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	55.4	50.0	111	70-130	
1-Chlorooctane	110	100	110	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Concho SRO St Com 3

Work Orders: 620725

Project ID: 11192977

Lab Batch #: 3085485

Sample: 7675643-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 04.11.2019 13:01

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0296	0.0300	99	70-130	
4-Bromofluorobenzene	0.0273	0.0300	91	70-130	

Lab Batch #: 3085434

Sample: 7675575-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 04.11.2019 18:47

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	51.9	50.0	104	70-130	
1-Chlorooctane	101	100	101	70-130	

Lab Batch #: 3085485

Sample: 7675643-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 04.11.2019 13:20

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0299	0.0300	100	70-130	
4-Bromofluorobenzene	0.0295	0.0300	98	70-130	

Lab Batch #: 3085434

Sample: 7675575-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 04.11.2019 19:03

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	53.0	50.0	106	70-130	
1-Chlorooctane	112	100	112	70-130	

Lab Batch #: 3085485

Sample: 620635-004 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.11.2019 14:43

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0291	0.0300	97	70-130	
4-Bromofluorobenzene	0.0279	0.0300	93	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Concho SRO St Com 3

Work Orders: 620725

Project ID: 11192977

Lab Batch #: 3085434

Sample: 620560-021 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.11.2019 19:35

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	58.1	50.0	116	70-130	
1-Chlorooctane	116	100	116	70-130	

Lab Batch #: 3085485

Sample: 620635-004 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.11.2019 15:02

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0300	0.0300	100	70-130	
4-Bromofluorobenzene	0.0292	0.0300	97	70-130	

Lab Batch #: 3085434

Sample: 620560-021 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.11.2019 19:50

SURROGATE RECOVERY STUDY

TPH by Texas1005 Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
o-Terphenyl	54.7	49.9	110	70-130	
1-Chlorooctane	119	99.8	119	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



BS / BSD Recoveries

Project Name: Concho SRO St Com 3

Work Order #: 620725

Project ID: 11192977

Analyst: SCM

Date Prepared: 04.11.2019

Date Analyzed: 04.11.2019

Lab Batch ID: 3085485

Sample: 7675643-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Benzene	<0.000382	0.0992	0.0969	98	0.100	0.0971	97	0	70-130	35	
Toluene	<0.000452	0.0992	0.0985	99	0.100	0.0983	98	0	70-130	35	
Ethylbenzene	<0.000560	0.0992	0.0926	93	0.100	0.0924	92	0	70-130	35	
m,p-Xylenes	<0.00101	0.198	0.185	93	0.200	0.184	92	1	70-130	35	
o-Xylene	<0.000342	0.0992	0.0923	93	0.100	0.0925	93	0	70-130	35	

Analyst: CHE

Date Prepared: 04.11.2019

Date Analyzed: 04.12.2019

Lab Batch ID: 3085626

Sample: 7675684-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<0.858	250	257	103	250	255	102	1	90-110	20	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$

Blank Spike Recovery [D] = $100 * (C)/[B]$

Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries

Project Name: Concho SRO St Com 3

Work Order #: 620725

Analyst: ARM

Lab Batch ID: 3085434

Units: mg/kg

Date Prepared: 04.11.2019

Sample: 7675575-1-BKS

Batch #: 1

Project ID: 11192977

Date Analyzed: 04.11.2019

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Range Hydrocarbons	<25.0	1000	939	94	1000	1070	107	13	75-125	20	
C12-C28 Range Hydrocarbons	<8.13	1000	994	99	1000	1090	109	9	75-125	20	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$

Blank Spike Recovery [D] = $100 * (C)/[B]$

Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries

Project Name: Concho SRO St Com 3

Work Order #: 620725
 Lab Batch ID: 3085485
 Date Analyzed: 04.11.2019
 Reporting Units: mg/kg

Project ID: 11192977
 QC- Sample ID: 620635-004 S
 Date Prepared: 04.11.2019
 Batch #: 1 Matrix: Soil
 Analyst: SCM

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.000383	0.0996	0.0785	79	0.0994	0.0827	83	5	70-130	35	
Toluene	<0.000454	0.0996	0.0784	79	0.0994	0.0836	84	6	70-130	35	
Ethylbenzene	0.000756	0.0996	0.0747	74	0.0994	0.0788	79	5	70-130	35	
m,p-Xylenes	<0.00101	0.199	0.150	75	0.199	0.158	79	5	70-130	35	
o-Xylene	0.000353	0.0996	0.0735	73	0.0994	0.0786	79	7	70-130	35	

Lab Batch ID: 3085626
 Date Analyzed: 04.12.2019
 Reporting Units: mg/kg

QC- Sample ID: 620725-004 S
 Date Prepared: 04.11.2019
 Batch #: 1 Matrix: Soil
 Analyst: CHE

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	6.33	249	256	100	249	257	101	0	90-110	20	

Lab Batch ID: 3085626
 Date Analyzed: 04.12.2019
 Reporting Units: mg/kg

QC- Sample ID: 620779-001 S
 Date Prepared: 04.11.2019
 Batch #: 1 Matrix: Soil
 Analyst: CHE

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	48.6	252	310	104	252	313	105	1	90-110	20	

Matrix Spike Percent Recovery $[D] = 100 * (C - A) / B$
 Relative Percent Difference $RPD = 200 * |(C - F) / (C + F)|$

Matrix Spike Duplicate Percent Recovery $[G] = 100 * (F - A) / E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries

Project Name: Concho SRO St Com 3

Work Order #: 620725
 Lab Batch ID: 3085434
 Date Analyzed: 04.11.2019
 Reporting Units: mg/kg

Project ID: 11192977
 QC- Sample ID: 620560-021 S
 Date Prepared: 04.11.2019
 Batch #: 1 Matrix: Soil
 Analyst: ARM

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by Texas1005 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C12 Range Hydrocarbons	<8.00	1000	991	99	998	1030	103	4	75-125	20	
C12-C28 Range Hydrocarbons	13.8	1000	1010	100	998	1030	102	2	75-125	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
 Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Concho Resources Inc.

Date/ Time Received: 04.11.2019 08.03.00 AM

Work Order #: 620725

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)?	1.2
#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

btex and tph in bulk container

*** 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: 04.11.2019
 Brianna Teel

Checklist reviewed by: Debbie Simmons Date: 04.11.2019
 Debbie Simmons



Analytical Report 621017

for

Concho Resources Inc.

Project Manager: Dakota Neel

Concho SRO St. Com 3

11192977

04.15.2019

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), North Carolina (483)
Xenco-Lakeland: Florida (E84098)



04.15.2019

Project Manager: **Dakota Neel**

Concho Resources Inc.

1 Concho Center
600 West Illinois Ave
Midland, TX 79701

Reference: XENCO Report No(s): **621017**

Concho SRO St. Com 3

Project Address: NM

Dakota Neel:

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) 621017. 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. 621017 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in cursive script that reads 'Debbie Simmons'.

Debbie Simmons

Project Manager

A Small Business and Minority Company

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Sample Cross Reference 621017

Concho Resources Inc., Midland, TX

Concho SRO St. Com 3

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
HA-14-4'	S	04.11.2019 11:58	4 ft	621017-001
HA-14-2'	S	04.11.2019 11:53	2 ft	621017-002
SW-15-2'	S	04.11.2019 13:35	2 ft	621017-003
SW-15-1'	S	04.11.2019 13:30	1 ft	621017-004
SW-16-1'	S	04.11.2019 14:00	1 ft	621017-005
SW-16-2'	S	04.11.2019 14:10	2 ft	621017-006
SW-17-1'	S	04.11.2019 14:25	1 ft	621017-007
SW-17-2'	S	04.11.2019 14:35	2 ft	621017-008
HA-18-2'	S	04.11.2019 10:00	2 ft	621017-009
HA-19-2'	S	04.11.2019 11:15	2 ft	621017-010
SW-20-1'	S	04.11.2019 10:20	1 ft	621017-011
SW-20-2'	S	04.11.2019 10:25	2 ft	621017-012
HA-7-10'	S	04.11.2019 12:35	10 ft	621017-013



CASE NARRATIVE

Client Name: Concho Resources Inc.

Project Name: Concho SRO St. Com 3

Project ID: 11192977
Work Order Number(s): 621017

Report Date: 04.15.2019
Date Received: 04.12.2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3085684 Chloride by EPA 300

Lab Sample ID 621017-001 and 621017-011 were randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).

Chloride recovered above QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference.

Samples in the analytical batch are: 621017-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013.

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

Batch: LBA-3085721 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 620366-010 SD,621017-002,621017-008,621017-004,621017-005,621017-006,621017-001,621017-003.

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



Certificate of Analysis Summary 621017

Concho Resources Inc., Midland, TX

Project Name: Concho SRO St. Com 3

Project Id: 11192977
Contact: Dakota Neel
Project Location: NM

Date Received in Lab: Fri 04.12.2019 16:35
Report Date: 04.15.2019 18:22
Project Manager: Debbie Simmons

<i>Analysis Requested</i>	<i>Lab Id:</i>	621017-001	621017-002	621017-003	621017-004	621017-005	621017-006
	<i>Field Id:</i>	HA-14-4'	HA-14-2'	SW-15-2'	SW-15-1'	SW-16-1'	SW-16-2'
	<i>Depth:</i>	4- ft	2- ft	2- ft	1- ft	1- ft	2- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	04.11.2019 11:58	04.11.2019 11:53	04.11.2019 13:35	04.11.2019 13:30	04.11.2019 14:00	04.11.2019 14:10
BTEX by EPA 8021B	<i>Extracted:</i>	04.14.2019 16:19	04.14.2019 16:19	04.14.2019 16:19	04.14.2019 16:19	04.14.2019 16:19	04.14.2019 16:19
	<i>Analyzed:</i>	04.15.2019 06:59	04.15.2019 07:18	04.15.2019 07:37	04.15.2019 07:56	04.15.2019 08:15	04.15.2019 08:34
	<i>Units/RL:</i>	mg/kg RL					
	Benzene	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198
Toluene	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	
Ethylbenzene	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	
m,p-Xylenes	<0.00399 0.00399	<0.00396 0.00396	<0.00397 0.00397	<0.00399 0.00399	<0.00400 0.00400	<0.00396 0.00396	
o-Xylene	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	
Total Xylenes	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	
Total BTEX	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	
Chloride by EPA 300	<i>Extracted:</i>	04.14.2019 12:30	04.14.2019 12:30	04.14.2019 12:30	04.14.2019 12:30	04.14.2019 12:30	04.14.2019 12:30
	<i>Analyzed:</i>	04.15.2019 11:45	04.15.2019 11:51	04.14.2019 13:10	04.14.2019 13:43	04.14.2019 13:49	04.14.2019 14:09
	<i>Units/RL:</i>	mg/kg RL					
	Chloride	29.5 5.03	<4.99 4.99	<4.99 4.99	<5.03 5.03	31.3 4.96	35.8 5.00
TPH by SW8015 Mod	<i>Extracted:</i>	04.13.2019 11:00	04.13.2019 11:00	04.13.2019 11:00	04.13.2019 11:00	04.13.2019 11:00	04.13.2019 11:00
	<i>Analyzed:</i>	04.13.2019 19:58	04.13.2019 20:57	04.13.2019 21:16	04.13.2019 21:36	04.13.2019 21:56	04.13.2019 22:15
	<i>Units/RL:</i>	mg/kg RL					
	Gasoline Range Hydrocarbons (GRO)	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)	<14.9 14.9	<15.0 15.0	<15.0 15.0	23.4 15.0	<15.0 15.0	<15.0 15.0	
Motor Oil Range Hydrocarbons (MRO)	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	
Total TPH	<14.9 14.9	<15.0 15.0	<15.0 15.0	23.4 15.0	<15.0 15.0	<15.0 15.0	

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 621017

Concho Resources Inc., Midland, TX

Project Name: Concho SRO St. Com 3

Project Id: 11192977
Contact: Dakota Neel
Project Location: NM

Date Received in Lab: Fri 04.12.2019 16:35
Report Date: 04.15.2019 18:22
Project Manager: Debbie Simmons

<i>Analysis Requested</i>	<i>Lab Id:</i>	621017-007	621017-008	621017-009	621017-010	621017-011	621017-012
	<i>Field Id:</i>	SW-17-1'	SW-17-2'	HA-18-2'	HA-19-2'	SW-20-1'	SW-20-2'
	<i>Depth:</i>	1- ft	2- ft	2- ft	2- ft	1- ft	2- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	04.11.2019 14:25	04.11.2019 14:35	04.11.2019 10:00	04.11.2019 11:15	04.11.2019 10:20	04.11.2019 10:25
BTEX by EPA 8021B	<i>Extracted:</i>	04.14.2019 16:19	04.14.2019 16:19	04.14.2019 16:19	04.14.2019 16:19	04.14.2019 16:19	04.14.2019 16:19
	<i>Analyzed:</i>	04.15.2019 09:48	04.15.2019 10:20	04.15.2019 10:39	04.15.2019 10:58	04.15.2019 11:17	04.15.2019 11:36
	<i>Units/RL:</i>	mg/kg RL					
Benzene		<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198
Toluene		<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198
Ethylbenzene		<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198
m,p-Xylenes		<0.00398 0.00398	<0.00398 0.00398	<0.00399 0.00399	<0.00399 0.00399	<0.00396 0.00396	<0.00396 0.00396
o-Xylene		<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198
Total Xylenes		<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198
Total BTEX		<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00198 0.00198	<0.00198 0.00198
Chloride by EPA 300	<i>Extracted:</i>	04.14.2019 12:30	04.14.2019 12:30	04.14.2019 12:30	04.14.2019 12:30	04.14.2019 12:30	04.14.2019 12:30
	<i>Analyzed:</i>	04.14.2019 14:15	04.14.2019 14:22	04.14.2019 14:28	04.14.2019 14:35	04.14.2019 14:42	04.14.2019 15:01
	<i>Units/RL:</i>	mg/kg RL					
Chloride		413 25.1	337 4.98	9.16 4.95	<4.95 4.95	6.37 4.95	<4.95 4.95
TPH by SW8015 Mod	<i>Extracted:</i>	04.13.2019 11:00	04.13.2019 11:00	04.13.2019 11:00	04.13.2019 11:00	04.13.2019 11:00	04.13.2019 11:00
	<i>Analyzed:</i>	04.13.2019 22:35	04.13.2019 22:55	04.14.2019 23:14	04.14.2019 23:34	04.14.2019 00:33	04.14.2019 00:52
	<i>Units/RL:</i>	mg/kg RL					
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9
Diesel Range Organics (DRO)		38.4 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9
Total TPH		38.4 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9

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Debbie Simmons
Project Manager



Certificate of Analysis Summary 621017

Concho Resources Inc., Midland, TX

Project Name: Concho SRO St. Com 3

Project Id: 11192977
Contact: Dakota Neel
Project Location: NM

Date Received in Lab: Fri 04.12.2019 16:35
Report Date: 04.15.2019 18:22
Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	621017-013				
	Field Id:	HA-7-10'				
	Depth:	10- ft				
	Matrix:	SOIL				
	Sampled:	04.11.2019 12:35				
BTEX by EPA 8021B	Extracted:	04.14.2019 16:19				
	Analyzed:	04.15.2019 11:55				
	Units/RL:	mg/kg RL				
	Benzene	<0.00200 0.00200				
	Toluene	<0.00200 0.00200				
	Ethylbenzene	<0.00200 0.00200				
	m,p-Xylenes	<0.00399 0.00399				
	o-Xylene	<0.00200 0.00200				
Total Xylenes	<0.00200 0.00200					
Total BTEX	<0.00200 0.00200					
Chloride by EPA 300	Extracted:	04.14.2019 12:30				
	Analyzed:	04.14.2019 15:08				
	Units/RL:	mg/kg RL				
Chloride	185 5.00					
TPH by SW8015 Mod	Extracted:	04.13.2019 11:00				
	Analyzed:	04.14.2019 01:12				
	Units/RL:	mg/kg RL				
	Gasoline Range Hydrocarbons (GRO)	<15.0 15.0				
	Diesel Range Organics (DRO)	<15.0 15.0				
Motor Oil Range Hydrocarbons (MRO)	<15.0 15.0					
Total TPH	<15.0 15.0					

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Debbie Simmons
Project Manager



Form 2 - Surrogate Recoveries

Project Name: Concho SRO St. Com 3

Work Orders: 621017

Project ID: 11192977

Lab Batch #: 3085702

Sample: 621017-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.13.2019 19:58

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.1	99.6	94	70-135	
o-Terphenyl	47.2	49.8	95	70-135	

Lab Batch #: 3085702

Sample: 621017-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.13.2019 20:57

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	99.0	99.7	99	70-135	
o-Terphenyl	49.2	49.9	99	70-135	

Lab Batch #: 3085702

Sample: 621017-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.13.2019 21:16

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	96.9	99.9	97	70-135	
o-Terphenyl	48.3	50.0	97	70-135	

Lab Batch #: 3085702

Sample: 621017-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.13.2019 21:36

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.7	99.9	95	70-135	
o-Terphenyl	47.3	50.0	95	70-135	

Lab Batch #: 3085702

Sample: 621017-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.13.2019 21:56

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	93.8	99.8	94	70-135	
o-Terphenyl	46.7	49.9	94	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Concho SRO St. Com 3

Work Orders: 621017

Project ID: 11192977

Lab Batch #: 3085702

Sample: 621017-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.13.2019 22:15

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.3	100	94	70-135	
o-Terphenyl	47.1	50.0	94	70-135	

Lab Batch #: 3085702

Sample: 621017-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.13.2019 22:35

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	91.8	99.7	92	70-135	
o-Terphenyl	45.9	49.9	92	70-135	

Lab Batch #: 3085702

Sample: 621017-008 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.13.2019 22:55

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	92.2	100	92	70-135	
o-Terphenyl	46.2	50.0	92	70-135	

Lab Batch #: 3085702

Sample: 621017-011 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.14.2019 00:33

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.8	99.7	89	70-135	
o-Terphenyl	43.0	49.9	86	70-135	

Lab Batch #: 3085702

Sample: 621017-012 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.14.2019 00:52

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	94.5	99.6	95	70-135	
o-Terphenyl	47.2	49.8	95	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Concho SRO St. Com 3

Work Orders: 621017

Project ID: 11192977

Lab Batch #: 3085702

Sample: 621017-013 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.14.2019 01:12

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	95.7	99.9	96	70-135	
o-Terphenyl	47.6	50.0	95	70-135	

Lab Batch #: 3085702

Sample: 621017-009 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.14.2019 23:14

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	93.1	99.8	93	70-135	
o-Terphenyl	46.4	49.9	93	70-135	

Lab Batch #: 3085702

Sample: 621017-010 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.14.2019 23:34

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	102	99.9	102	70-135	
o-Terphenyl	50.7	50.0	101	70-135	

Lab Batch #: 3085721

Sample: 621017-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.15.2019 06:59

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0302	0.0300	101	70-130	
4-Bromofluorobenzene	0.0446	0.0300	149	70-130	**

Lab Batch #: 3085721

Sample: 621017-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.15.2019 07:18

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0298	0.0300	99	70-130	
4-Bromofluorobenzene	0.0392	0.0300	131	70-130	**

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Concho SRO St. Com 3

Work Orders: 621017

Project ID: 11192977

Lab Batch #: 3085721

Sample: 621017-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.15.2019 07:37

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0285	0.0300	95	70-130	
4-Bromofluorobenzene	0.0431	0.0300	144	70-130	**

Lab Batch #: 3085721

Sample: 621017-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.15.2019 07:56

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0294	0.0300	98	70-130	
4-Bromofluorobenzene	0.0443	0.0300	148	70-130	**

Lab Batch #: 3085721

Sample: 621017-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.15.2019 08:15

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0287	0.0300	96	70-130	
4-Bromofluorobenzene	0.0416	0.0300	139	70-130	**

Lab Batch #: 3085721

Sample: 621017-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.15.2019 08:34

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0291	0.0300	97	70-130	
4-Bromofluorobenzene	0.0407	0.0300	136	70-130	**

Lab Batch #: 3085721

Sample: 621017-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.15.2019 09:48

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0290	0.0300	97	70-130	
4-Bromofluorobenzene	0.0381	0.0300	127	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Concho SRO St. Com 3

Work Orders: 621017

Project ID: 11192977

Lab Batch #: 3085721

Sample: 621017-008 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.15.2019 10:20

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0279	0.0300	93	70-130	
4-Bromofluorobenzene	0.0412	0.0300	137	70-130	**

Lab Batch #: 3085721

Sample: 621017-009 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.15.2019 10:39

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0297	0.0300	99	70-130	
4-Bromofluorobenzene	0.0383	0.0300	128	70-130	

Lab Batch #: 3085721

Sample: 621017-010 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.15.2019 10:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0307	0.0300	102	70-130	
4-Bromofluorobenzene	0.0370	0.0300	123	70-130	

Lab Batch #: 3085721

Sample: 621017-011 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.15.2019 11:17

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0312	0.0300	104	70-130	
4-Bromofluorobenzene	0.0363	0.0300	121	70-130	

Lab Batch #: 3085721

Sample: 621017-012 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.15.2019 11:36

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0307	0.0300	102	70-130	
4-Bromofluorobenzene	0.0376	0.0300	125	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Concho SRO St. Com 3

Work Orders: 621017

Project ID: 11192977

Lab Batch #: 3085721

Sample: 621017-013 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.15.2019 11:55

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0310	0.0300	103	70-130	
4-Bromofluorobenzene	0.0357	0.0300	119	70-130	

Lab Batch #: 3085702

Sample: 7675751-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 04.13.2019 18:59

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	107	100	107	70-135	
o-Terphenyl	53.9	50.0	108	70-135	

Lab Batch #: 3085721

Sample: 7675776-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 04.15.2019 05:24

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0318	0.0300	106	70-130	
4-Bromofluorobenzene	0.0303	0.0300	101	70-130	

Lab Batch #: 3085702

Sample: 7675751-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 04.13.2019 19:19

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	123	100	123	70-135	
o-Terphenyl	59.5	50.0	119	70-135	

Lab Batch #: 3085721

Sample: 7675776-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 04.15.2019 03:51

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0299	0.0300	100	70-130	
4-Bromofluorobenzene	0.0307	0.0300	102	70-130	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Concho SRO St. Com 3

Work Orders: 621017

Project ID: 11192977

Lab Batch #: 3085702

Sample: 7675751-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 04.13.2019 19:38

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	120	100	120	70-135	
o-Terphenyl	57.3	50.0	115	70-135	

Lab Batch #: 3085721

Sample: 7675776-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 04.15.2019 04:10

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	70-130	
4-Bromofluorobenzene	0.0307	0.0300	102	70-130	

Lab Batch #: 3085702

Sample: 621017-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.13.2019 20:18

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	118	99.8	118	70-135	
o-Terphenyl	56.8	49.9	114	70-135	

Lab Batch #: 3085721

Sample: 620366-010 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.15.2019 04:29

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0297	0.0300	99	70-130	
4-Bromofluorobenzene	0.0325	0.0300	108	70-130	

Lab Batch #: 3085702

Sample: 621017-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.13.2019 20:37

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	117	99.8	117	70-135	
o-Terphenyl	55.1	49.9	110	70-135	

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries

Project Name: Concho SRO St. Com 3

Work Orders: 621017

Project ID: 11192977

Lab Batch #: 3085721

Sample: 620366-010 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 04.15.2019 04:48

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0273	0.0300	91	70-130	
4-Bromofluorobenzene	0.0445	0.0300	148	70-130	**

* Surrogate outside of Laboratory QC limits

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = $100 * A / B$

All results are based on MDL and validated for QC purposes.



BS / BSD Recoveries

Project Name: Concho SRO St. Com 3

Work Order #: 621017

Project ID: 11192977

Analyst: SCM

Date Prepared: 04.14.2019

Date Analyzed: 04.15.2019

Lab Batch ID: 3085721

Sample: 7675776-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Benzene	<0.00200	0.0998	0.0945	95	0.100	0.0923	92	2	70-130	35	
Toluene	<0.00200	0.0998	0.0908	91	0.100	0.0898	90	1	70-130	35	
Ethylbenzene	<0.00200	0.0998	0.0937	94	0.100	0.0933	93	0	70-130	35	
m,p-Xylenes	<0.00399	0.200	0.185	93	0.200	0.184	92	1	70-130	35	
o-Xylene	<0.00200	0.0998	0.0951	95	0.100	0.0946	95	1	70-130	35	

Analyst: CHE

Date Prepared: 04.14.2019

Date Analyzed: 04.14.2019

Lab Batch ID: 3085684

Sample: 7675705-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
Chloride	<5.00	250	267	107	250	267	107	0	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

Blank Spike Recovery [D] = 100*(C)/[B]

Blank Spike Duplicate Recovery [G] = 100*(F)/[E]

All results are based on MDL and Validated for QC Purposes



BS / BSD Recoveries

Project Name: Concho SRO St. Com 3

Work Order #: 621017

Project ID: 11192977

Analyst: ARM

Date Prepared: 04.13.2019

Date Analyzed: 04.13.2019

Lab Batch ID: 3085702

Sample: 7675751-1-BKS

Batch #: 1

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	960	96	1000	936	94	3	70-135	20	
Diesel Range Organics (DRO)	<8.13	1000	978	98	1000	969	97	1	70-135	20	

Relative Percent Difference RPD = $200 * |(C-F)/(C+F)|$

Blank Spike Recovery [D] = $100 * (C)/[B]$

Blank Spike Duplicate Recovery [G] = $100 * (F)/[E]$

All results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries

Project Name: Concho SRO St. Com 3

Work Order #: 621017
 Lab Batch ID: 3085721
 Date Analyzed: 04.15.2019
 Reporting Units: mg/kg

Project ID: 11192977
 QC- Sample ID: 620366-010 S
 Date Prepared: 04.14.2019
 Batch #: 1 Matrix: Soil
 Analyst: SCM

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.000386	0.100	0.0806	81	0.101	0.0292	29	94	70-130	35	XF
Toluene	<0.000457	0.100	0.0774	77	0.101	0.0422	42	59	70-130	35	XF
Ethylbenzene	<0.000567	0.100	0.0767	77	0.101	0.0487	48	45	70-130	35	XF
m,p-Xylenes	0.00120	0.201	0.153	76	0.201	0.0932	46	49	70-130	35	XF
o-Xylene	0.000651	0.100	0.0787	78	0.101	0.0497	49	45	70-130	35	XF

Lab Batch ID: 3085684
 Date Analyzed: 04.14.2019
 Reporting Units: mg/kg

QC- Sample ID: 621017-003 S
 Date Prepared: 04.14.2019
 Batch #: 1 Matrix: Soil
 Analyst: CHE

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	1.38	250	296	118	250	270	107	9	90-110	20	X

Lab Batch ID: 3085684
 Date Analyzed: 04.14.2019
 Reporting Units: mg/kg

QC- Sample ID: 621017-011 S
 Date Prepared: 04.14.2019
 Batch #: 1 Matrix: Soil
 Analyst: CHE

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	6.37	248	302	119	248	267	105	12	90-110	20	X

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
 Relative Percent Difference RPD = 200*(C-F)/(C+F)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Form 3 - MS / MSD Recoveries

Project Name: Concho SRO St. Com 3

Work Order #: 621017
 Lab Batch ID: 3085702
 Date Analyzed: 04.13.2019
 Reporting Units: mg/kg

Project ID: 11192977

QC- Sample ID: 621017-001 S
 Date Prepared: 04.13.2019

Batch #: 1 Matrix: Soil
 Analyst: ARM

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<7.99	998	911	91	998	887	89	3	70-135	20	
Diesel Range Organics (DRO)	<8.11	998	920	92	998	937	94	2	70-135	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
 Relative Percent Difference RPD = 200*(C-F)/(C+F)

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable
 N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.



Certificate of Analysis Summary 621928

GHD Services, INC- Midland, Midland, TX

Project Name: SRO State Com #3



Project Id: 11192977
Contact: Tom Larson
Project Location:

Date Received in Lab: Tue Apr-23-19 11:15 am
Report Date: 24-APR-19
Project Manager: Kalei Stout

<i>Analysis Requested</i>	<i>Lab Id:</i>	621928-001	621928-002	621928-003	621928-004		
	<i>Field Id:</i>	HA-21-2'	HA-21-4'	HA-12-7'	HA-12-9'		
	<i>Depth:</i>	2- ft	4- ft	7- ft	9- ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	Apr-18-19 14:25	Apr-18-19 14:35	Apr-18-19 15:20	Apr-18-19 15:30		
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-23-19 11:30	Apr-23-19 11:30	Apr-23-19 11:30	Apr-23-19 11:30		
	<i>Analyzed:</i>	Apr-23-19 19:34	Apr-23-19 19:53	Apr-23-19 20:12	Apr-23-19 20:31		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00201 0.00201	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200		
Toluene		<0.00201 0.00201	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200		
Ethylbenzene		<0.00201 0.00201	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200		
m,p-Xylenes		<0.00402 0.00402	<0.00400 0.00400	<0.00397 0.00397	<0.00401 0.00401		
o-Xylene		<0.00201 0.00201	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200		
Total Xylenes		<0.00201 0.00201	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200		
Total BTEX		<0.00201 0.00201	<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200		
Chloride by EPA 300	<i>Extracted:</i>	Apr-23-19 16:00					
	<i>Analyzed:</i>	Apr-23-19 22:17					
	<i>Units/RL:</i>	mg/kg RL					
Chloride		<50.0 50.0					
Chloride by EPA 300	<i>Extracted:</i>	Apr-23-19 16:00		Apr-23-19 16:00	Apr-23-19 16:00		
	<i>Analyzed:</i>	Apr-24-19 09:32		Apr-23-19 22:46	Apr-23-19 22:54	Apr-23-19 23:15	
	<i>Units/RL:</i>	mg/kg RL		mg/kg RL	mg/kg RL	mg/kg RL	
Chloride		8.20 5.00	60.3 49.9	29.8 4.97	33.8 5.01		
TPH By SW8015 Mod	<i>Extracted:</i>	Apr-23-19 14:00		Apr-23-19 14:00	Apr-23-19 14:00	Apr-23-19 14:00	
	<i>Analyzed:</i>	Apr-24-19 03:25		Apr-24-19 03:45	Apr-24-19 04:05	Apr-24-19 04:25	
	<i>Units/RL:</i>	mg/kg RL		mg/kg RL	mg/kg RL	mg/kg RL	
Gasoline Range Hydrocarbons		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	
Diesel Range Organics		<15.0 15.0	<15.0 15.0	<15.0 15.0	54.6 15.0	15.0	
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	15.0	
Total TPH		<15.0 15.0	<15.0 15.0	<15.0 15.0	54.6 15.0	15.0	

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

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

Kalei Stout
Midland Laboratory Director

Analytical Report 621928

for GHD Services, INC- Midland

Project Manager: Tom Larson

SRO State Com #3

11192977

24-APR-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), North Carolina (483)
Xenco-Lakeland: Florida (E84098)



24-APR-19

Project Manager: **Tom Larson**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **621928**
SRO State Com #3
Project Address:

Tom Larson:

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) 621928. 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. 621928 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,

Kalei Stout

Midland Laboratory Director

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Sample Cross Reference 621928



GHD Services, INC- Midland, Midland, TX

SRO State Com #3

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
HA-21-2'	S	04-18-19 14:25	2 ft	621928-001
HA-21-4'	S	04-18-19 14:35	4 ft	621928-002
HA-12-7'	S	04-18-19 15:20	7 ft	621928-003
HA-12-9'	S	04-18-19 15:30	9 ft	621928-004



CASE NARRATIVE

Client Name: GHD Services, INC- Midland

Project Name: SRO State Com #3

Project ID: 11192977
Work Order Number(s): 621928

Report Date: 24-APR-19
Date Received: 04/23/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3086724 BTEX by EPA 8021B

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



Certificate of Analytical Results 621928



GHD Services, INC- Midland, Midland, TX SRO State Com #3

Sample Id: **HA-21-2'** Matrix: Soil Date Received: 04.23.19 11.15
 Lab Sample Id: 621928-001 Date Collected: 04.18.19 14.25 Sample Depth: 2 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 04.23.19 16.00 Basis: Wet Weight
 Seq Number: 3086701

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8.20	5.00	mg/kg	04.24.19 09.32		1
Chloride	16887-00-6	<50.0	50.0	mg/kg	04.23.19 22.17	U	10

Analytical Method: TPH By SW8015 Mod Prep Method: TX1005P
 Tech: ARM % Moisture:
 Analyst: ARM Date Prep: 04.23.19 14.00 Basis: Wet Weight
 Seq Number: 3086660

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	04.24.19 03.25	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	04.24.19 03.25	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.24.19 03.25	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.24.19 03.25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	04.24.19 03.25	
o-Terphenyl	84-15-1	99	%	70-135	04.24.19 03.25	



Certificate of Analytical Results 621928



GHD Services, INC- Midland, Midland, TX SRO State Com #3

Sample Id: HA-21-2'	Matrix: Soil	Date Received: 04.23.19 11.15
Lab Sample Id: 621928-001	Date Collected: 04.18.19 14.25	Sample Depth: 2 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: SCM		% Moisture:
Analyst: SCM	Date Prep: 04.23.19 11.30	Basis: Wet Weight
Seq Number: 3086724		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.23.19 19.34	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.23.19 19.34	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.23.19 19.34	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.23.19 19.34	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.23.19 19.34	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.23.19 19.34	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.23.19 19.34	U	1
		%					
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	107	%	70-130	04.23.19 19.34		
1,4-Difluorobenzene	540-36-3	101	%	70-130	04.23.19 19.34		

GHD Services, INC- Midland, Midland, TX

SRO State Com #3

Sample Id: HA-21-4'	Matrix: Soil	Date Received: 04.23.19 11.15
Lab Sample Id: 621928-002	Date Collected: 04.18.19 14.35	Sample Depth: 4 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: CHE		% Moisture:
Analyst: CHE	Date Prep: 04.23.19 16.00	Basis: Wet Weight
Seq Number: 3086701		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	60.3	49.9	mg/kg	04.23.19 22.46		10

Analytical Method: TPH By SW8015 Mod	Prep Method: TX1005P
Tech: ARM	% Moisture:
Analyst: ARM	Date Prep: 04.23.19 14.00
Seq Number: 3086660	Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	04.24.19 03.45	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	04.24.19 03.45	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.24.19 03.45	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.24.19 03.45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	04.24.19 03.45	
o-Terphenyl	84-15-1	98	%	70-135	04.24.19 03.45	



Certificate of Analytical Results 621928



GHD Services, INC- Midland, Midland, TX

SRO State Com #3

Sample Id: **HA-21-4'**
Lab Sample Id: 621928-002

Matrix: Soil
Date Collected: 04.18.19 14.35

Date Received: 04.23.19 11.15
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3086724

Date Prep: 04.23.19 11.30

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.23.19 19.53	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.23.19 19.53	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.23.19 19.53	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	04.23.19 19.53	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.23.19 19.53	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.23.19 19.53	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.23.19 19.53	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	103	%	70-130	04.23.19 19.53		
1,4-Difluorobenzene	540-36-3	101	%	70-130	04.23.19 19.53		

GHD Services, INC- Midland, Midland, TX

SRO State Com #3

Sample Id: HA-12-7'	Matrix: Soil	Date Received: 04.23.19 11.15
Lab Sample Id: 621928-003	Date Collected: 04.18.19 15.20	Sample Depth: 7 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: CHE		% Moisture:
Analyst: CHE	Date Prep: 04.23.19 16.00	Basis: Wet Weight
Seq Number: 3086701		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	29.8	4.97	mg/kg	04.23.19 22.54		1

Analytical Method: TPH By SW8015 Mod	Prep Method: TX1005P
Tech: ARM	% Moisture:
Analyst: ARM	Date Prep: 04.23.19 14.00
Seq Number: 3086660	Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	04.24.19 04.05	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	04.24.19 04.05	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.24.19 04.05	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.24.19 04.05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	04.24.19 04.05	
o-Terphenyl	84-15-1	93	%	70-135	04.24.19 04.05	



Certificate of Analytical Results 621928



GHD Services, INC- Midland, Midland, TX SRO State Com #3

Sample Id: HA-12-7'	Matrix: Soil	Date Received: 04.23.19 11.15
Lab Sample Id: 621928-003	Date Collected: 04.18.19 15.20	Sample Depth: 7 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: SCM		% Moisture:
Analyst: SCM	Date Prep: 04.23.19 11.30	Basis: Wet Weight
Seq Number: 3086724		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.23.19 20.12	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.23.19 20.12	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.23.19 20.12	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.23.19 20.12	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.23.19 20.12	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.23.19 20.12	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.23.19 20.12	U	1
			%				
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	101	%	70-130	04.23.19 20.12		
4-Bromofluorobenzene	460-00-4	102	%	70-130	04.23.19 20.12		



Certificate of Analytical Results 621928



GHD Services, INC- Midland, Midland, TX SRO State Com #3

Sample Id: HA-12-9'	Matrix: Soil	Date Received: 04.23.19 11.15
Lab Sample Id: 621928-004	Date Collected: 04.18.19 15.30	Sample Depth: 9 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: CHE		% Moisture:
Analyst: CHE	Date Prep: 04.23.19 16.00	Basis: Wet Weight
Seq Number: 3086701		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	33.8	5.01	mg/kg	04.23.19 23.15		1

Analytical Method: TPH By SW8015 Mod	Prep Method: TX1005P
Tech: ARM	% Moisture:
Analyst: ARM	Date Prep: 04.23.19 14.00
Seq Number: 3086660	Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	04.24.19 04.25	U	1
Diesel Range Organics	C10C28DRO	54.6	15.0	mg/kg	04.24.19 04.25		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.24.19 04.25	U	1
Total TPH	PHC635	54.6	15.0	mg/kg	04.24.19 04.25		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	04.24.19 04.25	
o-Terphenyl	84-15-1	95	%	70-135	04.24.19 04.25	



Certificate of Analytical Results 621928



GHD Services, INC- Midland, Midland, TX

SRO State Com #3

Sample Id: HA-12-9'	Matrix: Soil	Date Received: 04.23.19 11.15
Lab Sample Id: 621928-004	Date Collected: 04.18.19 15.30	Sample Depth: 9 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: SCM		% Moisture:
Analyst: SCM	Date Prep: 04.23.19 11.30	Basis: Wet Weight
Seq Number: 3086724		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.23.19 20.31	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.23.19 20.31	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.23.19 20.31	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	04.23.19 20.31	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.23.19 20.31	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.23.19 20.31	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.23.19 20.31	U	1
			%				
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	102	%	70-130	04.23.19 20.31		
1,4-Difluorobenzene	540-36-3	101	%	70-130	04.23.19 20.31		



QC Summary 621928

GHD Services, INC- Midland SRO State Com #3

Analytical Method: Chloride by EPA 300

Seq Number: 3086701

MB Sample Id: 7676388-1-BLK

Matrix: Solid

LCS Sample Id: 7676388-1-BKS

Prep Method: E300P

Date Prep: 04.23.19

LCSD Sample Id: 7676388-1-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	246	98	249	100	90-110	1	20	mg/kg	04.23.19 20:29	

Analytical Method: Chloride by EPA 300

Seq Number: 3086701

Parent Sample Id: 619598-024

Matrix: Soil

MS Sample Id: 619598-024 S

Prep Method: E300P

Date Prep: 04.23.19

MSD Sample Id: 619598-024 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	338	250	578	96	565	91	90-110	2	20	mg/kg	04.24.19 08:44	

Analytical Method: Chloride by EPA 300

Seq Number: 3086701

Parent Sample Id: 620657-024

Matrix: Soil

MS Sample Id: 620657-024 S

Prep Method: E300P

Date Prep: 04.23.19

MSD Sample Id: 620657-024 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	7800	248	10100	927	10100	927	90-110	0	20	mg/kg	04.24.19 09:58	X

Analytical Method: TPH By SW8015 Mod

Seq Number: 3086660

MB Sample Id: 7676381-1-BLK

Matrix: Solid

LCS Sample Id: 7676381-1-BKS

Prep Method: TX1005P

Date Prep: 04.23.19

LCSD Sample Id: 7676381-1-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	945	95	932	93	70-135	1	20	mg/kg	04.23.19 19:55	
Diesel Range Organics	<8.13	1000	967	97	956	96	70-135	1	20	mg/kg	04.23.19 19:55	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	103		119		121		70-135	%	04.23.19 19:55
o-Terphenyl	105		117		117		70-135	%	04.23.19 19:55

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

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

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

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



QC Summary 621928

GHD Services, INC- Midland SRO State Com #3

Analytical Method: TPH By SW8015 Mod

Seq Number: 3086660

Parent Sample Id: 621698-021

Matrix: Soil

MS Sample Id: 621698-021 S

Prep Method: TX1005P

Date Prep: 04.23.19

MSD Sample Id: 621698-021 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD	Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<7.99	999	889	89	882	88	70-135	1	20		mg/kg	04.23.19 20:58	
Diesel Range Organics	<8.12	999	897	90	906	91	70-135	1	20		mg/kg	04.23.19 20:58	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	109		106		70-135	%	04.23.19 20:58
o-Terphenyl	105		86		70-135	%	04.23.19 20:58

Analytical Method: BTEX by EPA 8021B

Seq Number: 3086724

MB Sample Id: 7676422-1-BLK

Matrix: Solid

LCS Sample Id: 7676422-1-BKS

Prep Method: SW5030B

Date Prep: 04.23.19

LCSD Sample Id: 7676422-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD	Limit	Units	Analysis Date	Flag
Benzene	<0.000387	0.101	0.0894	89	0.0922	91	70-130	3	35		mg/kg	04.23.19 23:04	
Toluene	<0.000458	0.101	0.0928	92	0.0951	94	70-130	2	35		mg/kg	04.23.19 23:04	
Ethylbenzene	<0.000568	0.101	0.0848	84	0.0881	87	70-130	4	35		mg/kg	04.23.19 23:04	
m,p-Xylenes	<0.00102	0.201	0.170	85	0.176	87	70-130	3	35		mg/kg	04.23.19 23:04	
o-Xylene	<0.000346	0.101	0.0866	86	0.0898	89	70-130	4	35		mg/kg	04.23.19 23:04	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	91		100		100		70-130	%	04.23.19 23:04
4-Bromofluorobenzene	86		94		94		70-130	%	04.23.19 23:04

Analytical Method: BTEX by EPA 8021B

Seq Number: 3086724

Parent Sample Id: 621698-027

Matrix: Soil

MS Sample Id: 621698-027 S

Prep Method: SW5030B

Date Prep: 04.23.19

MSD Sample Id: 621698-027 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD	Limit	Units	Analysis Date	Flag
Benzene	<0.000382	0.0992	0.0656	66	0.0810	81	70-130	21	35		mg/kg	04.23.19 23:46	X
Toluene	<0.000452	0.0992	0.0668	67	0.0838	84	70-130	23	35		mg/kg	04.23.19 23:46	X
Ethylbenzene	<0.000560	0.0992	0.0595	60	0.0758	76	70-130	24	35		mg/kg	04.23.19 23:46	X
m,p-Xylenes	<0.00101	0.198	0.118	60	0.151	75	70-130	25	35		mg/kg	04.23.19 23:46	X
o-Xylene	<0.000342	0.0992	0.0606	61	0.0773	77	70-130	24	35		mg/kg	04.23.19 23:46	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		101		70-130	%	04.23.19 23:46
4-Bromofluorobenzene	97		99		70-130	%	04.23.19 23:46

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

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

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

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

ORIGIN ID: CACOA (281) 240-4200
SAMPLE CUSTODY
XENCO LABORATORIES NM
1089 N CANAL ST
CARLSBAD, NM 88220
UNITED STATES US

SHIP DATE: 22APR19
ACTWT: 9.00 LB
CAD: 114488676/NET4100
DIMS: 13x9x11 IN
BILL SENDER

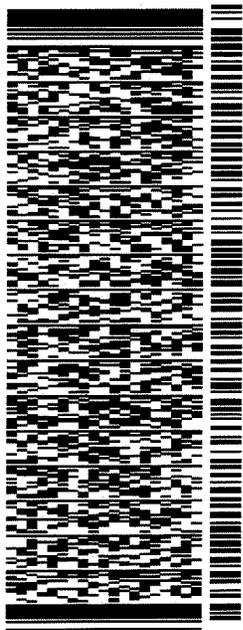
TO SAMPLE RECEIVING

3600 S COUNTY ROAD 1276

MIDLAND TX 79706

(432) 704-5440 REF:

PO. DEPT.



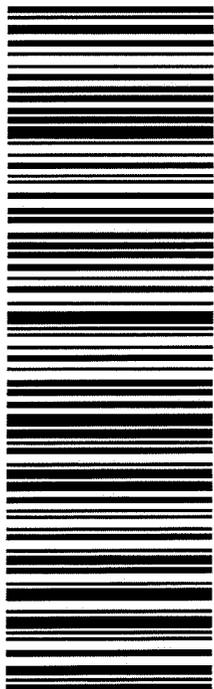
565J1/D7E5/23AD

TRK# 7750 2934 4596
0201

TUE - 23 APR HOLD
PRIORITY OVERNIGHT

41 MAFA

HLD 79706
TX-US LBB



After printing this label:

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XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: GHD Services, INC- Midland

Date/ Time Received: 04/23/2019 11:15:00 AM

Work Order #: 621928

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
#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)?	No
#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: *Katie Lowe*
Katie Lowe

Date: 04/23/2019

Checklist reviewed by: *Kalei Stout*
Kalei Stout

Date: 04/24/2019



Certificate of Analysis Summary 623390

COG Operating LLC, Artesia, NM

Project Name: SRO State Comm #3



Project Id: 11192977
Contact: Tom Larson
Project Location: New Mexico

Date Received in Lab: Tue May-07-19 09:35 am
Report Date: 10-MAY-19
Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	623390-001	623390-002				
	<i>Field Id:</i>	COG-22-1	COG-23-1				
	<i>Depth:</i>	1- ft	1- ft				
	<i>Matrix:</i>	SOIL	SOIL				
	<i>Sampled:</i>	May-06-19 13:40	May-06-19 13:30				
BTEX by EPA 8021B	<i>Extracted:</i>	May-07-19 09:45	May-07-19 09:45				
	<i>Analyzed:</i>	May-07-19 21:21	May-07-19 21:40				
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				
Benzene		<0.00200 0.00200	<0.00201 0.00201				
Toluene		<0.00200 0.00200	<0.00201 0.00201				
Ethylbenzene		<0.00200 0.00200	<0.00201 0.00201				
m,p-Xylenes		<0.00400 0.00400	<0.00402 0.00402				
o-Xylene		<0.00200 0.00200	<0.00201 0.00201				
Total Xylenes		<0.00200 0.00200	<0.00201 0.00201				
Total BTEX		<0.00200 0.00200	<0.00201 0.00201				
Chloride by EPA 300	<i>Extracted:</i>	May-07-19 12:00	May-07-19 12:00				
	<i>Analyzed:</i>	May-07-19 22:34	May-07-19 22:42				
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				
Chloride		199 25.2	30.1 24.9				
TPH By SW8015 Mod	<i>Extracted:</i>	May-07-19 10:00	May-07-19 10:00				
	<i>Analyzed:</i>	May-07-19 19:15	May-07-19 19:35				
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons		<15.0 15.0	<15.0 15.0				
Diesel Range Organics		90.4 15.0	<15.0 15.0				
Motor Oil Range Hydrocarbons (MRO)		41.8 15.0	<15.0 15.0				
Total TPH		132 15.0	<15.0 15.0				

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

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

Jessica Kramer
Project Assistant

Analytical Report 623390

for
COG Operating LLC

Project Manager: Tom Larson

SRO State Comm #3

11192977

10-MAY-19

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-29), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-19-19), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-20)
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-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)



10-MAY-19

Project Manager: **Tom Larson**
COG Operating LLC
2407 Pecos Avenue
Artesia, NM 88210

Reference: XENCO Report No(s): **623390**
SRO State Comm #3
Project Address: New Mexico

Tom Larson:

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) 623390. 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. 623390 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Kramer
Project Assistant

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



Sample Cross Reference 623390



COG Operating LLC, Artesia, NM

SRO State Comm #3

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
COG-22-1	S	05-06-19 13:40	1 ft	623390-001
COG-23-1	S	05-06-19 13:30	1 ft	623390-002



CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: SRO State Comm #3

Project ID: 11192977
Work Order Number(s): 623390

Report Date: 10-MAY-19
Date Received: 05/07/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3088271 BTEX by EPA 8021B

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

COG Operating LLC, Artesia, NM SRO State Comm #3

Sample Id: COG-22-1	Matrix: Soil	Date Received: 05.07.19 09.35
Lab Sample Id: 623390-001	Date Collected: 05.06.19 13.40	Sample Depth: 1 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: CHE		% Moisture:
Analyst: CHE	Date Prep: 05.07.19 12.00	Basis: Wet Weight
Seq Number: 3088251		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	199	25.2	mg/kg	05.07.19 22.34		5

Analytical Method: TPH By SW8015 Mod		Prep Method: TX1005P
Tech: ARM		% Moisture:
Analyst: ARM	Date Prep: 05.07.19 10.00	Basis: Wet Weight
Seq Number: 3088339		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.07.19 19.15	U	1
Diesel Range Organics	C10C28DRO	90.4	15.0	mg/kg	05.07.19 19.15		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	41.8	15.0	mg/kg	05.07.19 19.15		1
Total TPH	PHC635	132	15.0	mg/kg	05.07.19 19.15		1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
	1-Chlorooctane	111-85-3	104	%	70-135	05.07.19 19.15	
	o-Terphenyl	84-15-1	99	%	70-135	05.07.19 19.15	

COG Operating LLC, Artesia, NM SRO State Comm #3

Sample Id: **COG-22-1**
Lab Sample Id: 623390-001

Matrix: Soil
Date Collected: 05.06.19 13.40

Date Received: 05.07.19 09.35
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Tech: SCM

Analyst: SCM

Seq Number: 3088271

Date Prep: 05.07.19 09.45

Prep Method: SW5030B

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.07.19 21.21	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.07.19 21.21	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.07.19 21.21	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	05.07.19 21.21	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.07.19 21.21	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.07.19 21.21	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.07.19 21.21	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	71		%	70-130	05.07.19 21.21	
1,4-Difluorobenzene	540-36-3	88		%	70-130	05.07.19 21.21	

COG Operating LLC, Artesia, NM SRO State Comm #3

Sample Id: COG-23-1	Matrix: Soil	Date Received: 05.07.19 09.35
Lab Sample Id: 623390-002	Date Collected: 05.06.19 13.30	Sample Depth: 1 ft
Analytical Method: Chloride by EPA 300		Prep Method: E300P
Tech: CHE		% Moisture:
Analyst: CHE	Date Prep: 05.07.19 12.00	Basis: Wet Weight
Seq Number: 3088251		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	30.1	24.9	mg/kg	05.07.19 22.42		5

Analytical Method: TPH By SW8015 Mod	Prep Method: TX1005P
Tech: ARM	% Moisture:
Analyst: ARM	Date Prep: 05.07.19 10.00
Seq Number: 3088339	Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	05.07.19 19.35	U	1
Diesel Range Organics	C10C28DRO	<15.0	15.0	mg/kg	05.07.19 19.35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	05.07.19 19.35	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	05.07.19 19.35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	05.07.19 19.35	
o-Terphenyl	84-15-1	92	%	70-135	05.07.19 19.35	

COG Operating LLC, Artesia, NM SRO State Comm #3

Sample Id: COG-23-1	Matrix: Soil	Date Received: 05.07.19 09.35
Lab Sample Id: 623390-002	Date Collected: 05.06.19 13.30	Sample Depth: 1 ft
Analytical Method: BTEX by EPA 8021B		Prep Method: SW5030B
Tech: SCM		% Moisture:
Analyst: SCM	Date Prep: 05.07.19 09.45	Basis: Wet Weight
Seq Number: 3088271		

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	05.07.19 21.40	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	05.07.19 21.40	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	05.07.19 21.40	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	05.07.19 21.40	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	05.07.19 21.40	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	05.07.19 21.40	U	1
Total BTEX		<0.00201	0.00201	mg/kg	05.07.19 21.40	U	1
			%				
Surrogate	Cas Number	Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	91	%	70-130	05.07.19 21.40		
1,4-Difluorobenzene	540-36-3	105	%	70-130	05.07.19 21.40		



COG Operating LLC
SRO State Comm #3

Analytical Method: Chloride by EPA 300

Seq Number: 3088251

MB Sample Id: 7677316-1-BLK

Matrix: Solid

LCS Sample Id: 7677316-1-BKS

Prep Method: E300P

Date Prep: 05.07.19

LCSD Sample Id: 7677316-1-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	262	105	265	106	90-110	1	20	mg/kg	05.07.19 20:17	

Analytical Method: Chloride by EPA 300

Seq Number: 3088251

Parent Sample Id: 623342-007

Matrix: Soil

MS Sample Id: 623342-007 S

Prep Method: E300P

Date Prep: 05.07.19

MSD Sample Id: 623342-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1360	248	4070	1093	4180	1137	90-110	3	20	mg/kg	05.07.19 22:20	X

Analytical Method: Chloride by EPA 300

Seq Number: 3088251

Parent Sample Id: 623369-001

Matrix: Soil

MS Sample Id: 623369-001 S

Prep Method: E300P

Date Prep: 05.07.19

MSD Sample Id: 623369-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	81.8	250	345	105	342	104	90-110	1	20	mg/kg	05.07.19 20:38	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3088339

MB Sample Id: 7677418-1-BLK

Matrix: Solid

LCS Sample Id: 7677418-1-BKS

Prep Method: TX1005P

Date Prep: 05.07.19

LCSD Sample Id: 7677418-1-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	1100	110	1080	108	70-135	2	20	mg/kg	05.07.19 12:12	
Diesel Range Organics	<8.13	1000	1130	113	1130	113	70-135	0	20	mg/kg	05.07.19 12:12	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	111		130		129		70-135	%	05.07.19 12:12
o-Terphenyl	114		116		115		70-135	%	05.07.19 12:12

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

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

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

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



COG Operating LLC

SRO State Comm #3

Analytical Method: TPH By SW8015 Mod

Seq Number: 3088339

Parent Sample Id: 623388-001

Matrix: Soil

MS Sample Id: 623388-001 S

Prep Method: TX1005P

Date Prep: 05.07.19

MSD Sample Id: 623388-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	9.41	997	980	97	1000	99	70-135	2	20	mg/kg	05.07.19 13:11	
Diesel Range Organics	<8.10	997	1030	103	1050	105	70-135	2	20	mg/kg	05.07.19 13:11	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	120		122		70-135	%	05.07.19 13:11
o-Terphenyl	106		111		70-135	%	05.07.19 13:11

Analytical Method: BTEX by EPA 8021B

Seq Number: 3088271

MB Sample Id: 7677375-1-BLK

Matrix: Solid

LCS Sample Id: 7677375-1-BKS

Prep Method: SW5030B

Date Prep: 05.07.19

LCSD Sample Id: 7677375-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000388	0.101	0.0936	93	0.0925	93	70-130	1	35	mg/kg	05.07.19 23:44	
Toluene	<0.000459	0.101	0.0895	89	0.0891	89	70-130	0	35	mg/kg	05.07.19 23:44	
Ethylbenzene	<0.000569	0.101	0.0992	98	0.0996	100	70-130	0	35	mg/kg	05.07.19 23:44	
m,p-Xylenes	<0.00102	0.202	0.205	101	0.208	105	70-130	1	35	mg/kg	05.07.19 23:44	
o-Xylene	<0.000347	0.101	0.102	101	0.104	104	70-130	2	35	mg/kg	05.07.19 23:44	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	91		101		102		70-130	%	05.07.19 23:44
4-Bromofluorobenzene	79		81		84		70-130	%	05.07.19 23:44

Analytical Method: BTEX by EPA 8021B

Seq Number: 3088271

Parent Sample Id: 623278-001

Matrix: Soil

MS Sample Id: 623278-001 S

Prep Method: SW5030B

Date Prep: 05.07.19

MSD Sample Id: 623278-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.0737	74	0.0757	75	70-130	3	35	mg/kg	05.07.19 12:24	
Toluene	0.00957	0.0998	0.0686	59	0.0704	60	70-130	3	35	mg/kg	05.07.19 12:24	X
Ethylbenzene	0.00716	0.0998	0.0722	65	0.0735	66	70-130	2	35	mg/kg	05.07.19 12:24	X
m,p-Xylenes	0.0117	0.200	0.149	69	0.151	69	70-130	1	35	mg/kg	05.07.19 12:24	X
o-Xylene	0.00745	0.0998	0.0742	67	0.0758	68	70-130	2	35	mg/kg	05.07.19 12:24	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		103		70-130	%	05.07.19 12:24
4-Bromofluorobenzene	84		82		70-130	%	05.07.19 12:24

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

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

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

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



CHAIN OF CUSTODY

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Stafford, Texas (281-240-4200)

Dallas Texas (214-902-0300)

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Lakeland, Florida (863-646-8526)

Norcross, Georgia (770-449-8800)

Tampa, Florida (813-620-2000)

Xenco Quote # _____ Xenco Job # **1023390**

Client / Reporting Information		Project Information														Analytical Information				Matrix Codes			
Company Name / Branch: Concho		Project Name/Number: SR0 State Comm #3 / 11192977																		S = Soil/Sed/Solid GW = Ground Water DW = Drinking Water P = Product SW = Surface water SL = Sludge OW = Ocean/Sea Water W = Wipe O = Oil WW = Waste Water A = Air			
Company Address: 2208 West Main Street, Atresia, NM 88210		Project Location: New Mexico																					
Email: dneel2@concho.com itavarez@concho.com tom.larson@croworld.com		Phone No: (432)215-2783 432-701-8630 432-686-0086		Invoice To: Concho																			
Project Contact: Tom Larson		PO Number:																					
Samplers Name Glenn Guinney																							
No.	Field ID / Point of Collection	Collection			Matrix	# of bottles	Number of preserved bottles										TPH By SW8015 Mod	BTEX by EPA 8021B	Chloride by EPA 300	Field Comments			
		Sample Depth	Date	Time			HCl	NaOH/Zn Acetate	HNO3	H2SO4	NaOH	NaHSO4	MEOH	NONE									
1	COG-22-1	1ft	5/6/2019	1340	S	1												X	X	X	X		
2	COG-23-1	1ft	5/6/2019	1330	S	1												X	X	X	X		
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
Turnaround Time (Business days)		Data Deliverable Information														Notes:							
<input type="checkbox"/> Same Day TAT		<input type="checkbox"/> 5 Day TAT		<input type="checkbox"/> Level II Std QC				<input type="checkbox"/> Level IV (Full Data Pkg /raw data)															
<input type="checkbox"/> Next Day EMERGENCY		<input type="checkbox"/> 7 Day TAT		<input type="checkbox"/> Level III Std QC+ Forms				<input type="checkbox"/> TRRP Level IV															
<input type="checkbox"/> 2 Day EMERGENCY		<input checked="" type="checkbox"/> Contract TAT		<input type="checkbox"/> Level 3 (CLP Forms)				<input type="checkbox"/> UST / RG -411															
<input type="checkbox"/> 3 Day EMERGENCY		<input type="checkbox"/> TRRP Checklist																					
TAT Starts Day received by Lab, if received by 5:00 pm																FED-EX / UPS: Tracking #							
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION, INCLUDING COURIER DELIVERY																							
Relinquished by Sampler:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:							
1 Glenn Guinney		5/7/2019		<i>[Signature]</i>		2				2													
Relinquished by:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:		Relinquished By:		Date Time:		Received By:							
3				3		4				4													
Relinquished by:		Date Time:		Received By:		Custody Seal #		Preserved where applicable				On Ice		Cooler Temp.		Thermo. Corr. Factor							
5				5								<i>[Signature]</i>											

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to XENCO Laboratories and its affiliates, subcontractors and assigns XENCO's standard terms and conditions of service unless previously negotiated under a fully executed client contract.



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: COG Operating LLC

Date/ Time Received: 05/07/2019 09:35:00 AM

Work Order #: 623390

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)?	5.2
#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: *Katie Lowe* Date: 05/07/2019
 Katie Lowe

Checklist reviewed by: *Jessica Kramer* Date: 05/07/2019
 Jessica Kramer

Appendix E

Photographic Log



Photo 1 – Southwest view of release area dated March 28, 2019.



Photo 2 – Southeast view of release area dated March 28, 2019.



Site Photographs



Photo 3 – South view of hand excavation activities east of heater treater dated March 29, 2019.



Photo 4 – South view of excavation east of heater treater dated April 11, 2019.



Site Photographs



Photo 5 – Southwest view of excavation west of heater treater dated April 11, 2019.



Photo 6 – West view of excavation backfilled with clean material dated May 15, 2019.



Site Photographs



Photo 7 – East view of excavation backfilled with clean material dated May 15, 2019.



Site Photographs