SITE INFORMATION

Report Type: Deferment Report 2RP-5127

General Site Information:						
Site:	**McIntyre B #10 Tank Battery**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit N**	**Sec. 20**	**T 17S**	**R 30E**		
Lease Number:	**NA**					
County:	**Eddy County**					
GPS:	**32.81505**			**-103.99522**		
Surface Owner:	**Federal**					
Directions:	From the intersection of Goat Ropers Road and Lovington Hwy in Loco Hills, NM, go west approximately 0.80 miles to the pad entrance. Turn left (south) onto pad and travel approximately 378 feet to lease road. Travel approximately 560 feet to fork, turn left (south) onto lease road. Travel approximately 0.21 miles to the McIntyre Battery.					

Release Data:	
Date Released:	12/6/2018
Type Release:	Oil
Source of Contamination:	Release from corroded pipe
Fluid Released:	16 bbls
Fluids Recovered:	15 bbls

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

Site Characterization	
Depth to Groundwater:	*80' below surface*
Karst Potential:	*Low*

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

TETRA TECH

June 3, 2019

Mr. Mike Bratcher
Oil Conservation Division, District 2
811 S. First St.
Artesia, New Mexico 88210

Re: Deferment Report for the COG Operating, LLC, McIntyre B #10 Tank Battery, Unit N, Section 20, Township 17 South, Range 30 East, Eddy County, New Mexico. 2RP-5127

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating, LLC (COG) to remediate a release that occurred at the McIntyre B #10 Tank Battery, Unit N, Section 20, Township 17 South, Range 30 East, Eddy County, New Mexico (Site). The spill site coordinates are 32.81505°, -103.99522°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report the release was discovered on December 6, 2018. Approximately 16 barrels of crude oil were released due to a corroded pipe. A vacuum truck was dispatched to remove all freestanding fluids, recovering approximately 15 barrels. The release remained on location and impacted an area measuring approximately 22' x 43'. A copy of the C-141 Form is included in Appendix A.

Site Characterization

A site characterization was performed for the site and no watercourses, lakebeds, sinkholes, playa lakes, residences, schools, hospitals, institutions, churches, springs, private domestic water wells, springs, wetlands, incorporated municipal boundaries, subsurface mines, or floodplains are located within the specified distances. The site is in a low karst potential area. One well near the site is listed in the New Mexico Office of the State Engineers website. The nearest well is listed .65 miles away from site in Section 20, Township 17 South, Range 30 East, and has a reported depth to groundwater of 80 feet below ground surface. It was completed in 2013. The Chevron trend map show a depth to water >100 feet. The groundwater data is shown in Appendix B.

Tetra Tech
901 W. Wall Street, Suite 100, Midland, TX 79701
Tel 432.682.4559 www.tetratech.com

Regulatory

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

Soil Assessment and Analytical Results

On January 29, 2019, COG personnel were onsite to assess the spill area. A total of three (3) auger holes (#1, #2, and #3) were installed until refusal to total depths of 2.5 – 3.5' below surface. Soil samples were collected and submitted to the laboratory for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B, and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The sample locations are shown on Figure 3.

Referring to Table 1, all the sample collections from the shallow 0-1' interval exceeded the RRALs for TPH but decreased with depth and did not exceed the RRAL in the deeper intervals. Additionally, the sample location of #1 and #2 exceeded the RRAL for total BTEX but did not exceed the RRAL in deeper samples.

Remediation Activities

Tetra Tech personnel were onsite from March 28 – April 8, 2019 to supervise the remediation activities. The release area was excavated to total depths between 1.5' to 2.0' below surface. Three (3) bottom hole and four (4) sidewall composite samples were collected every 200 square feet to ensure proper removal of the impacted soils. The samples were submitted to the laboratory to be analyzed for TPH method 8015 extended, BTEX method 8021B, and chlorides by EPA Method 300.0. The sampling results are summarized in Table 1. The excavation depths and sample locations are shown in Figure 4.

Referring to Table 2, all collected confirmation samples showed benzene, total BTEX, TPH and chloride concentrations below the RRAL's except for sidewall NSW-1. The composite sample from NSW-1 had a documented TPH concentration of 8,860 mg/kg that exceeded the RRAL. However, due to safety concerns regarding pipeline encroachment, the excavation could not be extended.

Once the excavation activities were completed, the site was backfilled with clean material to surface grade. Approximately 80 cubic yards of material were hauled for proper disposal.

TETRA TECH

Conclusion

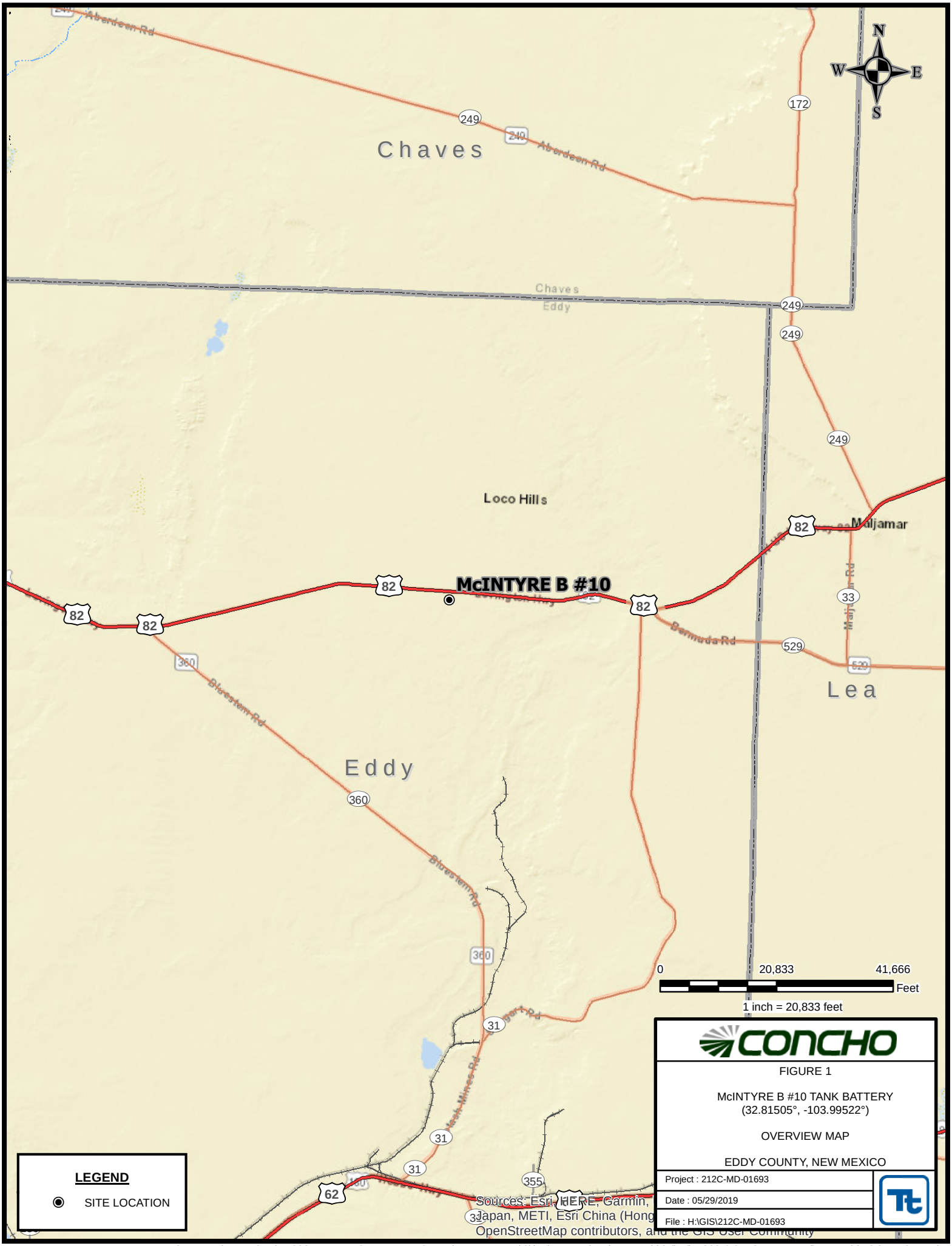
Based on the laboratory results and remediation activities performed COG requests to defer the remaining impact until site abandonment. If you have any questions or comments concerning the assessment or remediation activities for this site, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Clair Gonzales,
Project Manager

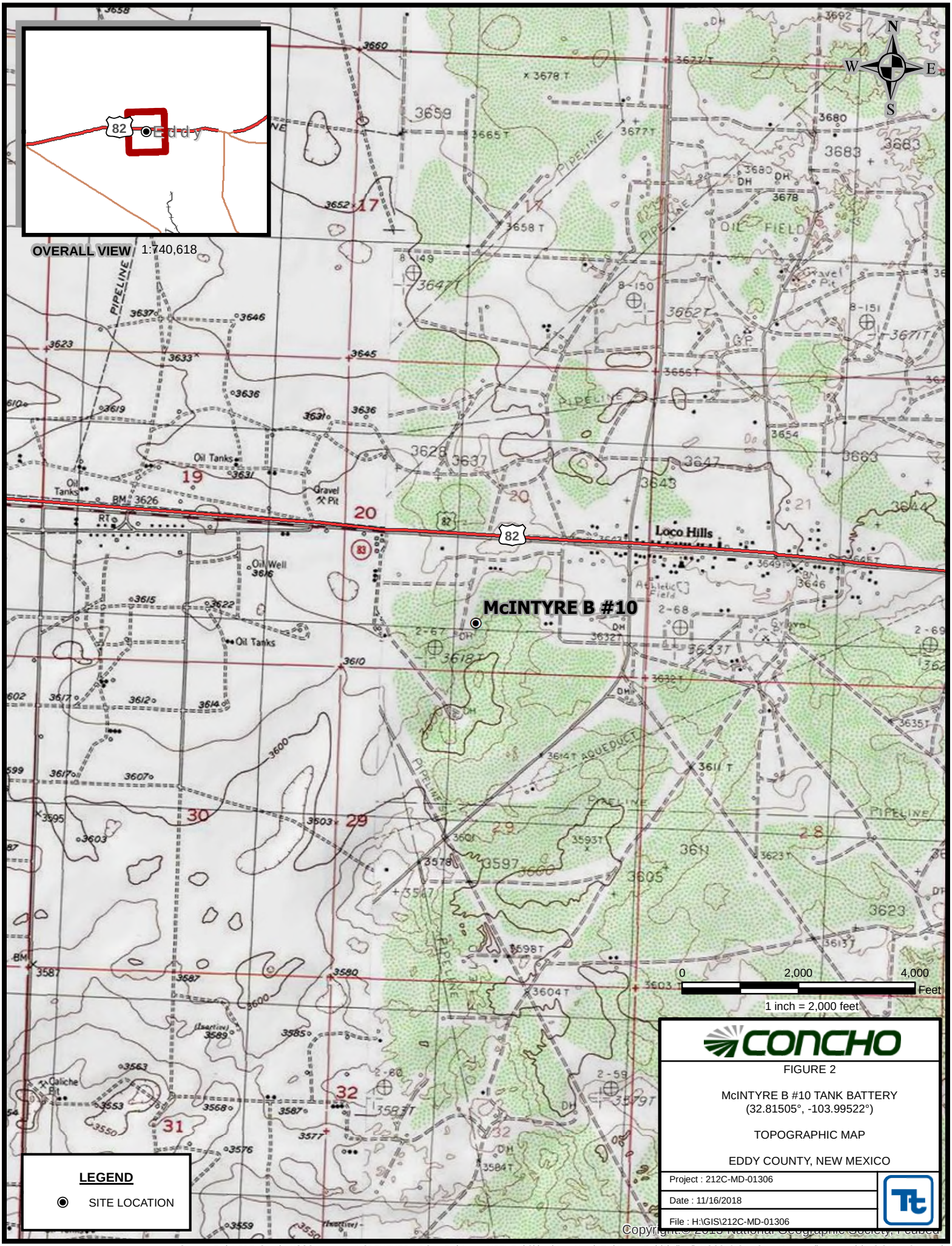
cc: Ike Tavarez – COG
Dakota Neel - COG
Rebecca Haskell - COG
Sheldon Hitchcock - COG
DeAnn Grant - COG

Figures



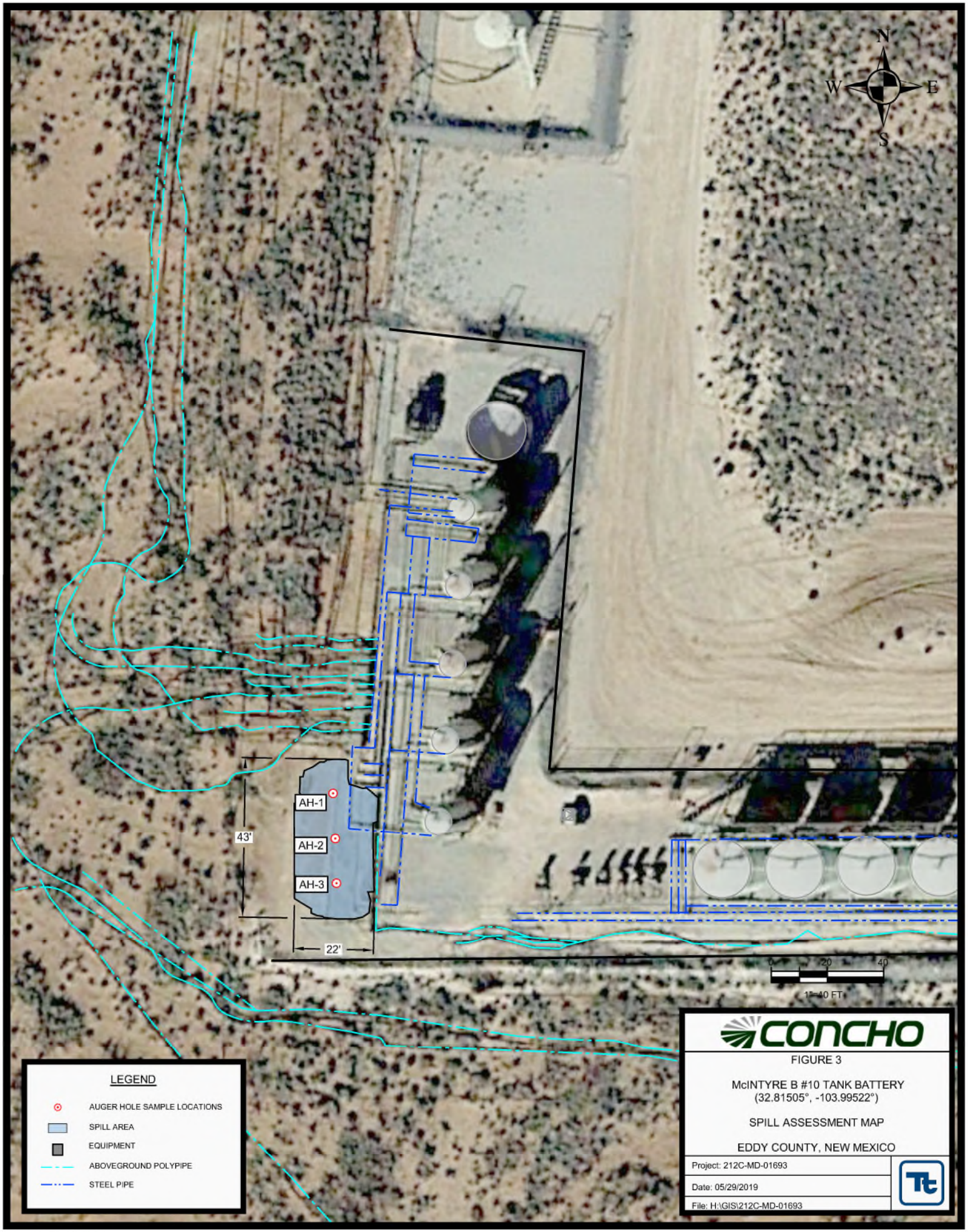
MAPPED BY: MISTI MORGAN

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



MAPPED BY: MISTI MORGAN

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



LEGEND

- AUGER HOLE SAMPLE LOCATIONS
- SPILL AREA
- EQUIPMENT
- ABOVEGROUND POLYPIPE
- STEEL PIPE

CONCHO

FIGURE 3

McINTYRE B #10 TANK BATTERY
(32.81505°, -103.99522°)

SPILL ASSESSMENT MAP

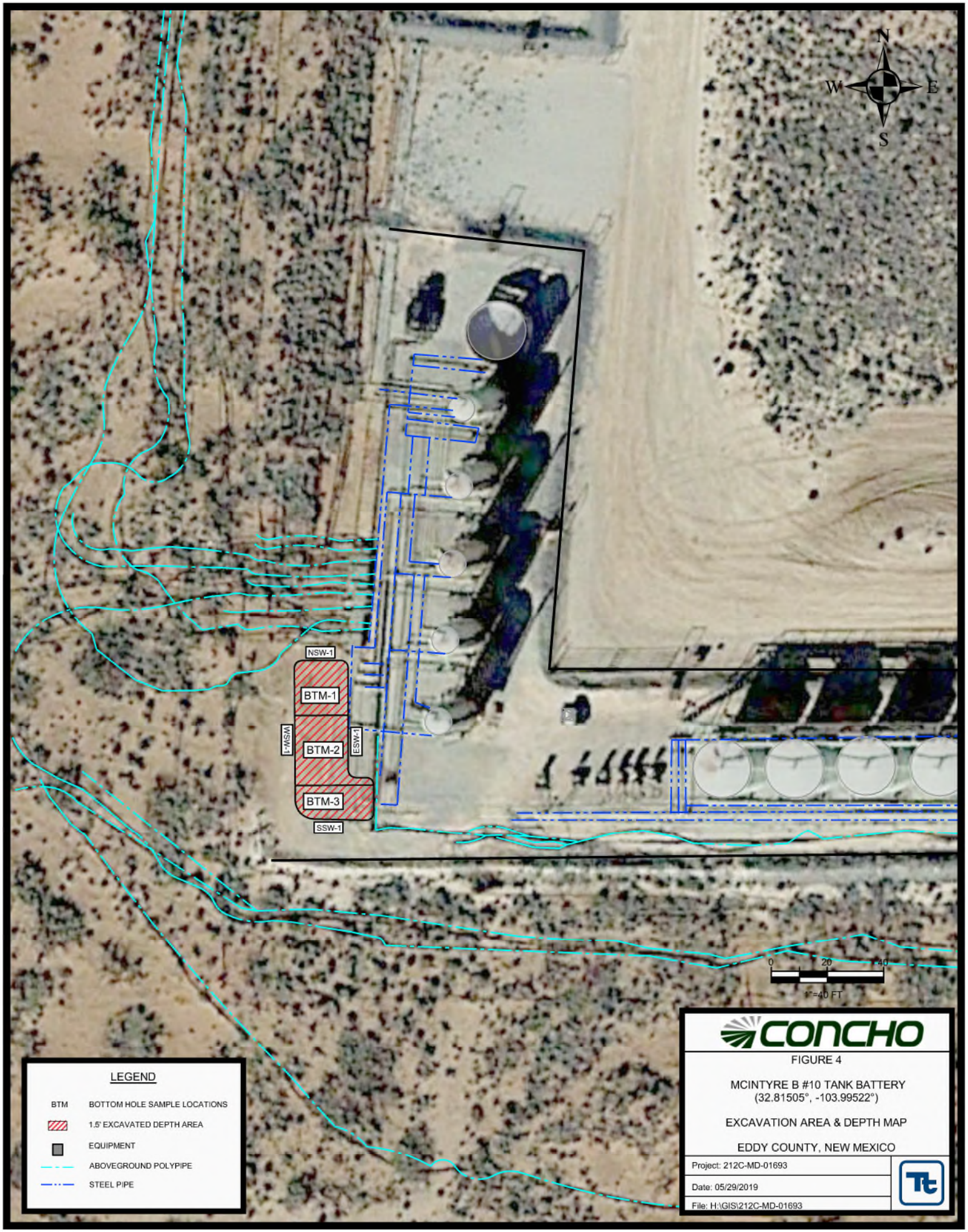
EDDY COUNTY, NEW MEXICO

Project: 212C-MD-01693

Date: 05/29/2019

File: H:\GIS\212C-MD-01693

Drawn By: MISTI MORGAN



Drawn By: MISTI MORGAN

Tables

Table 1
COG Operating, LLC
Summary of Soil Sample Locations
Mclintyre B #10 Tank Battery (12/6/2018)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH				BTEX					
			In Situ	Removed	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	Total TPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
#1	1/29/2019	0-1		X	**3,460**	**8,090**	1,230	**12,800**	3.03	15.8	35.2	54.0	**108**	40.3
	1/29/2019	1-1.5		X	24.0	843	244	1,110	0.00834	0.0353	0.0438	0.07	0.157	337
	1/29/2019	2-2.5	X		-	-	-	-	-	-	-	-	-	511
#2	1/29/2019	0-1		X	**1,200**	**3,650**	503	**5,350**	1.6	12.0	19.8	39.0	**72.4**	1,290
	1/29/2019	1-1.5		X	24.2	62.2	<15.0	86.4	<0.00202	0.00335	0.00667	0.0288	0.0389	1,430
	1/29/2019	2-2.5	X		-	-	-	-	-	-	-	-	-	806
#3	1/29/2019	0-1		X	710	**3,080**	480	**4,270**	<0.498	4.88	6.54	17.0	28.4	1,800
	1/29/2019	1-1.5		X	<15.0	57.2	<15.0	57.2	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	3,280
	1/29/2019	2-2.5	X		-	-	-	-	-	-	-	-	-	3,310
	1/29/2019	3-3.5	X		-	-	-	-	-	-	-	-	-	2,890

NOTES:

ft	Feet	GRO	Gasoline Range Organics
PPM	Parts per million	DRO	Diesel Range Organics
mg/kg	Milligrams per kilogram	ORO	Oil Range Organics
TPH	Total Petroleum Hydrocarbons		Excavation Depths
-	Not Analyzed		

Table 2
COG Operating, LLC
Summary of Excavation Composite Sample Locations
Mclintyre B #10 Tank Battery (12/6/2018)
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH				BTEX					
			In Situ	Removed	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	Total TPH (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
BTTM-1	4/11/2019	1.5	X		53.4	669	152	874	<0.200	0.518	1.10	3.66	5.28	3480
BTTM-2	4/11/2019	1.5	X		<10.0	90.1	22	112	<0.050	<0.050	0.088	0.274	0.362	2600
BTTM-3	4/11/2019	1.5	X		<10.0	542	97	639	<0.050	<0.050	0.084	0.248	0.332	304
NSW-1	4/11/2019		X		<50.0	**7,040**	1820	**8,860**	<0.050	0.138	0.322	0.947	1.41	496
WSW-1	4/11/2019		X		<10.0	106	<10.0	106	<0.050	<0.050	<0.050	<0.150	<0.300	32.0
SSW-1	4/11/2019		X		<10.0	866	265	1,131	<0.050	<0.050	0.098	0.380	0.477	528
ESW-1	4/11/2019		X		<10.0	771	273	1,044	<0.050	<0.050	<0.050	<0.150	<0.300	928

NOTES:

ft	Feet	DRO	Diesel Range Organics
PPM	Parts per million	ORO	Oil Range Organics
mg/kg	Milligrams per kilogram		
TPH	Total Petroleum Hydrocarbons		
GRO	Gasoline Range Organics		

Photos

COG

McIntyre B #10 Tank Battery

Eddy County, New Mexico

Facing West – View of Bottomhole-2, Bottomhole-3, and WSW-1

Facing North – View of Bottomhole-1, Bottomhole-2 and ESW-1

COG

McIntyre B #10 Tank Battery

Eddy County, New Mexico

Facing Northeast – View of Bottomhole-1 and NSW-1

Facing East – View of Bottomhole-2 and ESW-1

Appendix A

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

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	NAB1835458775
District RP	2RP-5127
Facility ID	fAB1835455522
Application ID	pAB1835458374

Release Notification

Responsible Party

Responsible Party	COG Operating, LLC	OGRID	229137
Contact Name	Robert McNeill	Contact Telephone	(432) 683-7443
Contact email	RMcNeill@concho.com	Incident # *(assigned by OCD)*	NAB1835458775
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701		

Location of Release Source

Latitude 32.81505 Longitude -103.99522

(NAD 83 in decimal degrees to 5 decimal places)

Site Name	McIntyre B #10	Site Type	Tank Battery
Date Release Discovered	December 6, 2018	API# *(if applicable)*	

Unit Letter	Section	Township	Range	County
N	20	17S	30E	Eddy

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

Nature and Volume of Release

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

■ Crude Oil	Volume Released (bbls) 16	Volume Recovered (bbls) 15
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

The release was caused by a corroded pipe. The pipe is being replaced.
The release was on location. A vacuum truck was dispatched to remove all freestanding fluids.
Concho will evaluate the site to determine if we may commence remediation immediately or delineate any possible impact from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation activities.

State of New Mexico
Oil Conservation Division

Incident ID	NAB1835458775
District RP	2RP-5127
Facility ID	fAB1835455522
Application ID	pAB1835458374

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

Initial Response

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

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

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

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

Printed Name: DeAnn Grant Title: HSE Administrative Assistant

Signature: DeAnn Grant Date: 12/10/2018

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

OCD Only

Received by: Amalia Bustamante Date: 12/20/2018

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5127
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?	80 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☑ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☑ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☑ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☑ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☑ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☑ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☑ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☑ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☑ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☑ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☑ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☑ No

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

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

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

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

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5127
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: 6/3/19

email: itavarez@concho.com Telephone: (432) 686-3023

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5127
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: 6/3/19

email: itavarez@concho.com Telephone: (432) 686-3023

OCD Only

Received by: _____ Date: _____

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: _____ Date: _____

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
Alamo- Section 20, T17S, R30E
Eddy County, New Mexico

16 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14 220 dry	13
19 110	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

16 South 30 East

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

16 South 31 East

6	5	4	3	2 290	1
7	8	9	10	11	12 288
18	17	16	15	14 113 314	13 299
19	20	21	22	23	24
30	29	28	27	26	25
31 290	32	33	34	35	36

17 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22 76 80	23	24
30	29 210 208	28	27	26	25
31	32	33	34	35 153	36

17 South 30 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20 80 Site	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

17 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34 271	35	36

18 South 29 East

6	5	4	3	2	1
7	8	9	10 95	11	12
18	17	16	15	14	13
19	20	21	22	23	24 158
30	29	28	27	26	25
31	32	33	34	35	36

18 South 30 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23 44	24
30	29	28	27	26	25
31	32	33	34	35	36

18 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12 400
18	17	16	15 98	14 317	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35 261	36

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

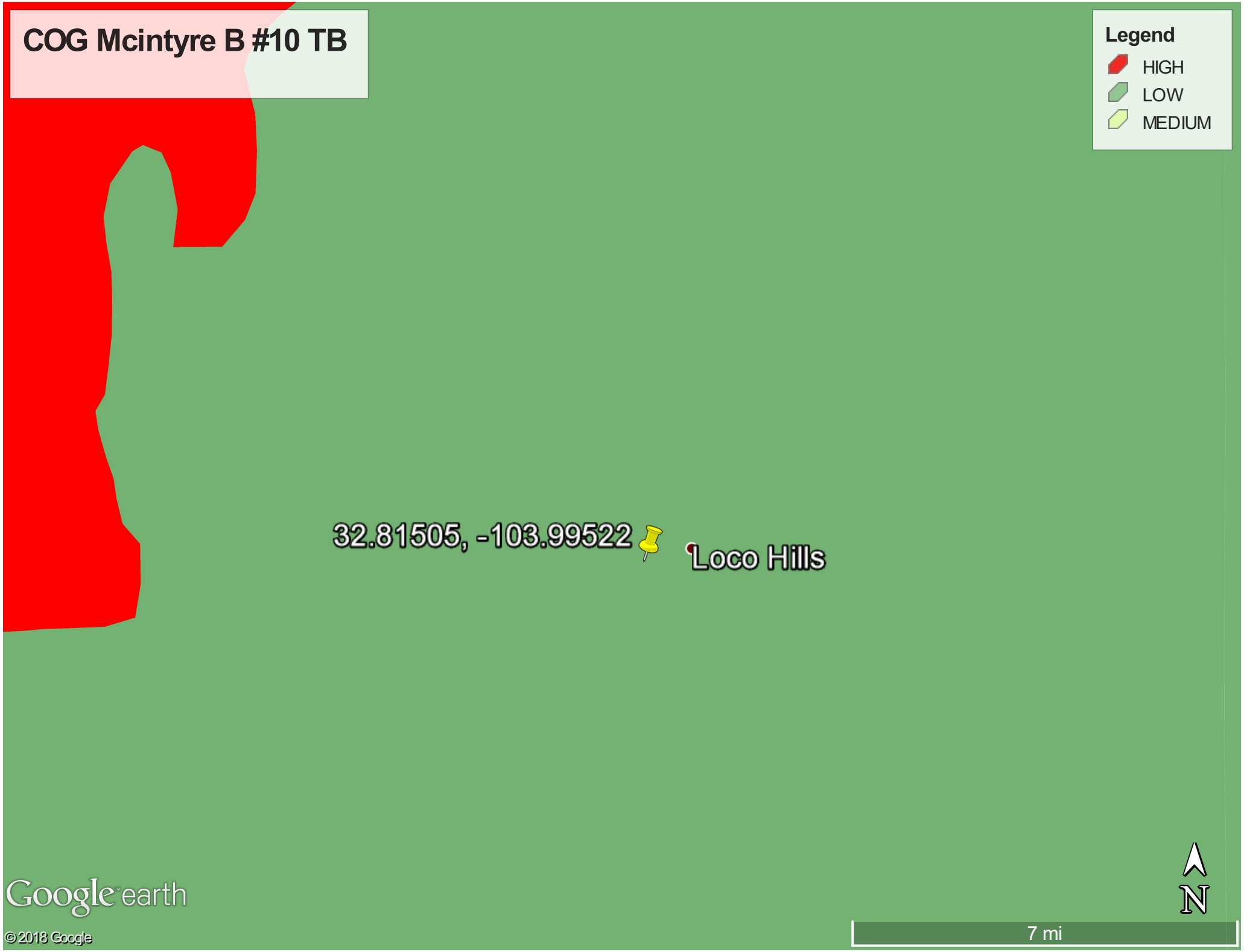
90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)

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

34 NMOCD - Groundwater Data

123 Tetra Tech installed temporary wells and field water level

143 NMOCD Groundwater map well location


COG Mcintyre B #10 TB
Legend
HIGH
LOW
MEDIUM
32.81505, -103.99522
Loco Hills
Google earth
© 2018 Google
N
7 mi

New Mexico NFHL Data

November 7, 2018

1:9,028

0 0.075 0.15 0.3 mi

0 0.1 0.2 0.4 km

FEMA
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

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

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

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

POD Number	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
RA 11914 POD1	RA	ED	2	4	2	20	17S	30E	594801	3632002	85	80	5

Average Depth to Water: **80 feet**

Minimum Depth: **80 feet**

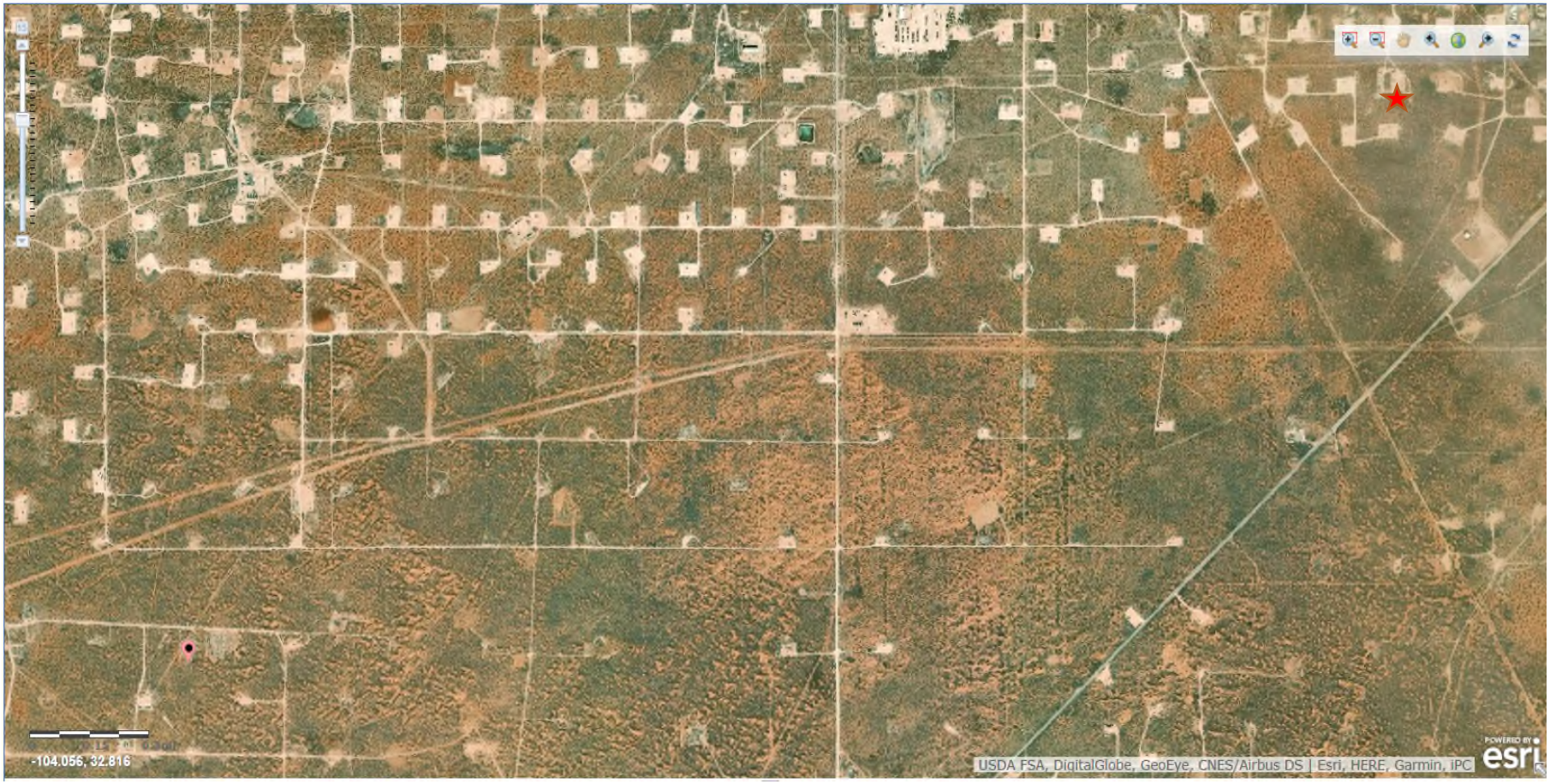
Maximum Depth: **80 feet**

Record Count: 1

PLSS Search:

Section(s): 20 **Township:** 17S **Range:** 30E

USGS National Water Information System: Mapper



Appendix C

Certificate of Analysis Summary 613151

COG Operating LLC, Artesia, NM

Project Name: McIntgre B #10 tb (12-6-18)

Project Id:
Contact: Ike Tavarez
Project Location: Eddy Co, NM

Date Received in Lab: Fri Feb-01-19 08:05 am
Report Date: 04-FEB-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	613151-001		613151-002		613151-003		613151-004		613151-005		613151-006	
	Field Id:	#1 0-1		#1 1-1.5'		#1 2-2.5'		#2 0-1		#2 1-1.5'		#2 2-2.5'	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jan-29-19 00:00		Jan-29-19 00:00		Jan-29-19 00:00		Jan-29-19 00:00		Jan-29-19 00:00		Jan-29-19 00:00	
BTEX by EPA 8021B	***Extracted:***	Feb-01-19 10:00		Feb-01-19 10:00				Feb-01-19 10:00		Feb-01-19 10:00			
	Analyzed:	Feb-01-19 22:45		Feb-01-19 18:21				Feb-01-19 22:26		Feb-01-19 20:51			
	Units/RL:	mg/kg	RL	mg/kg	RL			mg/kg	RL	mg/kg	RL		
Benzene		3.03	0.497	0.00834	0.00201			1.60	0.500	<0.00202	0.00202		
Toluene		15.8	0.497	0.0353	0.00201			12.0	0.500	0.00335	0.00202		
Ethylbenzene		35.2	0.497	0.0438	0.00201			19.8	0.500	0.00667	0.00202		
m,p-Xylenes		47.0	0.994	0.0599	0.00402			33.3	1.00	0.0261	0.00403		
o-Xylene		7.01	0.497	0.0101	0.00201			5.71	0.500	0.00274	0.00202		
Total Xylenes		54.0	0.497	0.0700	0.00201			39.0	0.500	0.0288	0.00202		
Total BTEX		108	0.497	0.157	0.00201			72.4	0.500	0.0389	0.00202		
Chloride by EPA 300	***Extracted:***	Feb-02-19 12:50		Feb-02-19 12:50		Feb-02-19 12:50		Feb-02-19 12:50		Feb-02-19 12:50		Feb-02-19 12:50	
	Analyzed:	Feb-02-19 20:15		Feb-02-19 20:34		Feb-02-19 20:40		Feb-02-19 21:01		Feb-02-19 21:08		Feb-02-19 21:14	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		40.3	5.00	337	4.98	511	5.01	1290	4.99	1430	4.97	806	4.96
TPH By SW8015 Mod	***Extracted:***	Feb-03-19 09:00		Feb-03-19 09:00				Feb-03-19 09:00		Feb-03-19 09:00			
	Analyzed:	Feb-03-19 18:20		Feb-04-19 07:28				Feb-03-19 19:00		Feb-03-19 19:21			
	Units/RL:	mg/kg	RL	mg/kg	RL			mg/kg	RL	mg/kg	RL		
Gasoline Range Hydrocarbons		3460	75.0	24.0	14.9			1200	74.7	24.2	15.0		
Diesel Range Organics		8090	75.0	843	14.9			3650	74.7	62.2	15.0		
Motor Oil Range Hydrocarbons (MRO)		1230	75.0	244	14.9			503	74.7	<15.0	15.0		
Total TPH		12800	75.0	1110	14.9			5350	74.7	86.4	15.0		

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 613151

COG Operating LLC, Artesia, NM

Project Name: McIntgre B #10 tb (12-6-18)

Project Id:
Contact: Ike Tavarez
Project Location: Eddy Co, NM

Date Received in Lab: Fri Feb-01-19 08:05 am
Report Date: 04-FEB-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	613151-007		613151-008		613151-009		613151-010					
	Field Id:	#3 0-1		#3 1-1.5'		#3 2-2.5'		#3 3-3.5'					
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL					
	Sampled:	Jan-29-19 00:00		Jan-29-19 00:00		Jan-29-19 00:00		Jan-29-19 00:00					
BTEX by EPA 8021B	***Extracted:***	Feb-01-19 10:00		Feb-01-19 10:00									
	Analyzed:	Feb-01-19 22:07		Feb-04-19 13:28									
	Units/RL:	mg/kg	RL	mg/kg	RL								
Benzene		<0.498	0.498	<0.00200	0.00200								
Toluene		4.88	0.498	<0.00200	0.00200								
Ethylbenzene		6.54	0.498	<0.00200	0.00200								
m,p-Xylenes		12.6	0.996	<0.00399	0.00399								
o-Xylene		4.39	0.498	<0.00200	0.00200								
Total Xylenes		17.0	0.498	<0.00200	0.00200								
Total BTEX		28.4	0.498	<0.00200	0.00200								
Chloride by EPA 300	***Extracted:***	Feb-02-19 12:50		Feb-02-19 12:50		Feb-02-19 12:50		Feb-02-19 12:50					
	Analyzed:	Feb-02-19 21:45		Feb-02-19 21:51		Feb-02-19 21:32		Feb-02-19 21:38					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		1800	25.0	3280	25.0	3310	25.2	2890	25.2				
TPH By SW8015 Mod	***Extracted:***	Feb-03-19 09:00		Feb-03-19 09:00									
	Analyzed:	Feb-03-19 19:41		Feb-03-19 20:00									
	Units/RL:	mg/kg	RL	mg/kg	RL								
Gasoline Range Hydrocarbons		710	74.8	<15.0	15.0								
Diesel Range Organics		3080	74.8	57.2	15.0								
Motor Oil Range Hydrocarbons (MRO)		480	74.8	<15.0	15.0								
Total TPH		4270	74.8	57.2	15.0								

Jessica Kramer
Project Assistant

Analytical Report 613151

for

COG Operating LLC

Project Manager: Ike Tavarez

McIntgre B #10 tb (12-6-18)

04-FEB-19

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

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

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

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

04-FEB-19

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

Reference: XENCO Report No(s): **613151**
McIntgre B #10 tb (12-6-18)
Project Address: Eddy Co, NM

Ike Tavarez:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 613151. 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. 613151 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Kramer

Jessica Kramer
Project Assistant

Sample Cross Reference 613151

COG Operating LLC, Artesia, NM

McIntgre B #10 tb (12-6-18)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
#1 0-1	S	01-29-19 00:00		613151-001
#1 1-1.5'	S	01-29-19 00:00		613151-002
#1 2-2.5'	S	01-29-19 00:00		613151-003
#2 0-1	S	01-29-19 00:00		613151-004
#2 1-1.5'	S	01-29-19 00:00		613151-005
#2 2-2.5'	S	01-29-19 00:00		613151-006
#3 0-1	S	01-29-19 00:00		613151-007
#3 1-1.5'	S	01-29-19 00:00		613151-008
#3 2-2.5'	S	01-29-19 00:00		613151-009
#3 3-3.5'	S	01-29-19 00:00		613151-010

CASE NARRATIVE

Client Name: COG Operating LLC

Project Name: McIntgre B #10 tb (12-6-18)

Project ID:
Work Order Number(s): *613151*

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

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3077910 Inorganic Anions by EPA 300
Lab Sample ID 613151-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 613151-001, -002, -003, -004, -005, -006, -007, -008, -009, -010.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3077950 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.
Samples affected are: 613151-005,613151-001,613151-004,613151-007.

Dilution due to matrix interference.

Batch: LBA-3077973 TPH By SW8015 Mod
Surrogate o-Terphenyl recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.
Samples affected are: 613151-004,613151-001.

Certificate of Analytical Results 613151

COG Operating LLC, Artesia, NM

McIntgre B #10 tb (12-6-18)

Sample Id:	**#1 0-1**	Matrix:	Soil	Date Received:	02.01.19 08.05
Lab Sample Id:	613151-001	Date Collected:	01.29.19 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	02.02.19 12.50	Basis:	Wet Weight
Seq Number:	3077910				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**40.3**	5.00	mg/kg	02.02.19 20.15		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	02.03.19 09.00	Basis:	Wet Weight
Seq Number:	3077973				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	**3460**	75.0	mg/kg	02.03.19 18.20		5
Diesel Range Organics	C10C28DRO	**8090**	75.0	mg/kg	02.03.19 18.20		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**1230**	75.0	mg/kg	02.03.19 18.20		5
Total TPH	PHC635	**12800**	75.0	mg/kg	02.03.19 18.20		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	02.03.19 18.20	
o-Terphenyl	84-15-1	212	%	70-135	02.03.19 18.20	**

Certificate of Analytical Results 613151

COG Operating LLC, Artesia, NM

McIntgre B #10 tb (12-6-18)

Sample Id:	**#1 0-1**	Matrix:	Soil	Date Received:	02.01.19 08.05
Lab Sample Id:	613151-001	Date Collected:	01.29.19 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	02.01.19 10.00	Basis:	Wet Weight
Seq Number:	3077950				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**3.03**	0.497	mg/kg	02.01.19 22.45		250
Toluene	108-88-3	**15.8**	0.497	mg/kg	02.01.19 22.45		250
Ethylbenzene	100-41-4	**35.2**	0.497	mg/kg	02.01.19 22.45		250
m,p-Xylenes	179601-23-1	**47.0**	0.994	mg/kg	02.01.19 22.45		250
o-Xylene	95-47-6	**7.01**	0.497	mg/kg	02.01.19 22.45		250
Total Xylenes	1330-20-7	**54.0**	0.497	mg/kg	02.01.19 22.45		250
Total BTEX		**108**	0.497	mg/kg	02.01.19 22.45		250

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	157	%	70-130	02.01.19 22.45	**
1,4-Difluorobenzene	540-36-3	116	%	70-130	02.01.19 22.45	

Certificate of Analytical Results 613151

COG Operating LLC, Artesia, NM

McIntgre B #10 tb (12-6-18)

Sample Id:	**#1 1-1.5'**	Matrix:	Soil	Date Received:	02.01.19 08.05
Lab Sample Id:	613151-002	Date Collected:	01.29.19 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	02.02.19 12.50	Basis:	Wet Weight
Seq Number:	3077910				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**337**	4.98	mg/kg	02.02.19 20.34		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	02.03.19 09.00	Basis:	Wet Weight
Seq Number:	3077973				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	**24.0**	14.9	mg/kg	02.04.19 07.28		1
Diesel Range Organics	C10C28DRO	**843**	14.9	mg/kg	02.04.19 07.28		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**244**	14.9	mg/kg	02.04.19 07.28		1
Total TPH	PHC635	**1110**	14.9	mg/kg	02.04.19 07.28		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	02.04.19 07.28	
o-Terphenyl	84-15-1	111	%	70-135	02.04.19 07.28	

Certificate of Analytical Results 613151

COG Operating LLC, Artesia, NM

McIntgre B #10 tb (12-6-18)

Sample Id:	**#1 1-1.5'**	Matrix:	Soil	Date Received:	02.01.19 08.05
Lab Sample Id:	613151-002	Date Collected:	01.29.19 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	02.01.19 10.00	Basis:	Wet Weight
Seq Number:	3077950				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**0.00834**	0.00201	mg/kg	02.01.19 18.21		1
Toluene	108-88-3	**0.0353**	0.00201	mg/kg	02.01.19 18.21		1
Ethylbenzene	100-41-4	**0.0438**	0.00201	mg/kg	02.01.19 18.21		1
m,p-Xylenes	179601-23-1	**0.0599**	0.00402	mg/kg	02.01.19 18.21		1
o-Xylene	95-47-6	**0.0101**	0.00201	mg/kg	02.01.19 18.21		1
Total Xylenes	1330-20-7	**0.0700**	0.00201	mg/kg	02.01.19 18.21		1
Total BTEX		**0.157**	0.00201	mg/kg	02.01.19 18.21		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	119	%	70-130	02.01.19 18.21	
1,4-Difluorobenzene	540-36-3	117	%	70-130	02.01.19 18.21	

Certificate of Analytical Results 613151

COG Operating LLC, Artesia, NM

McIntgre B #10 tb (12-6-18)

Sample Id:	**#1 2-2.5'**	Matrix:	Soil	Date Received:	02.01.19 08.05
Lab Sample Id:	613151-003	Date Collected:	01.29.19 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	02.02.19 12.50	Basis:	Wet Weight
Seq Number:	3077910				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**511**	5.01	mg/kg	02.02.19 20.40		1

Certificate of Analytical Results 613151

COG Operating LLC, Artesia, NM

McIntgre B #10 tb (12-6-18)

Sample Id:	**#2 0-1**	Matrix:	Soil	Date Received:	02.01.19 08.05
Lab Sample Id:	613151-004	Date Collected:	01.29.19 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	02.02.19 12.50	Basis:	Wet Weight
Seq Number:	3077910				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1290**	4.99	mg/kg	02.02.19 21.01		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	02.03.19 09.00	Basis:	Wet Weight
Seq Number:	3077973				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	**1200**	74.7	mg/kg	02.03.19 19.00		5
Diesel Range Organics	C10C28DRO	**3650**	74.7	mg/kg	02.03.19 19.00		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**503**	74.7	mg/kg	02.03.19 19.00		5
Total TPH	PHC635	**5350**	74.7	mg/kg	02.03.19 19.00		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	119	%	70-135	02.03.19 19.00	
o-Terphenyl	84-15-1	159	%	70-135	02.03.19 19.00	**

Certificate of Analytical Results 613151

COG Operating LLC, Artesia, NM

McIntgre B #10 tb (12-6-18)

Sample Id:	**#2 0-1**	Matrix:	Soil	Date Received:	02.01.19 08.05
Lab Sample Id:	613151-004	Date Collected:	01.29.19 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	02.01.19 10.00	Basis:	Wet Weight
Seq Number:	3077950				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	**1.60**	0.500	mg/kg	02.01.19 22.26		250
Toluene	108-88-3	**12.0**	0.500	mg/kg	02.01.19 22.26		250
Ethylbenzene	100-41-4	**19.8**	0.500	mg/kg	02.01.19 22.26		250
m,p-Xylenes	179601-23-1	**33.3**	1.00	mg/kg	02.01.19 22.26		250
o-Xylene	95-47-6	**5.71**	0.500	mg/kg	02.01.19 22.26		250
Total Xylenes	1330-20-7	**39.0**	0.500	mg/kg	02.01.19 22.26		250
Total BTEX		**72.4**	0.500	mg/kg	02.01.19 22.26		250

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	144	%	70-130	02.01.19 22.26	**
1,4-Difluorobenzene	540-36-3	112	%	70-130	02.01.19 22.26	

Certificate of Analytical Results 613151

COG Operating LLC, Artesia, NM

McIntgre B #10 tb (12-6-18)

Sample Id:	**#2 1-1.5'**	Matrix:	Soil	Date Received:	02.01.19 08.05
Lab Sample Id:	613151-005	Date Collected:	01.29.19 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	02.02.19 12.50	Basis:	Wet Weight
Seq Number:	3077910				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1430**	4.97	mg/kg	02.02.19 21.08		1

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	02.03.19 09.00	Basis:	Wet Weight
Seq Number:	3077973				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	**24.2**	15.0	mg/kg	02.03.19 19.21		1
Diesel Range Organics	C10C28DRO	**62.2**	15.0	mg/kg	02.03.19 19.21		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	02.03.19 19.21	U	1
Total TPH	PHC635	**86.4**	15.0	mg/kg	02.03.19 19.21		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	02.03.19 19.21	
o-Terphenyl	84-15-1	108	%	70-135	02.03.19 19.21	

Certificate of Analytical Results 613151

COG Operating LLC, Artesia, NM

McIntgre B #10 tb (12-6-18)

Sample Id:	**#2 1-1.5'**	Matrix:	Soil	Date Received:	02.01.19 08.05
Lab Sample Id:	613151-005	Date Collected:	01.29.19 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	02.01.19 10.00	Basis:	Wet Weight
Seq Number:	3077950				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	02.01.19 20.51	U	1
Toluene	108-88-3	**0.00335**	0.00202	mg/kg	02.01.19 20.51		1
Ethylbenzene	100-41-4	**0.00667**	0.00202	mg/kg	02.01.19 20.51		1
m,p-Xylenes	179601-23-1	**0.0261**	0.00403	mg/kg	02.01.19 20.51		1
o-Xylene	95-47-6	**0.00274**	0.00202	mg/kg	02.01.19 20.51		1
Total Xylenes	1330-20-7	**0.0288**	0.00202	mg/kg	02.01.19 20.51		1
Total BTEX		**0.0389**	0.00202	mg/kg	02.01.19 20.51		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	99	%	70-130	02.01.19 20.51	
4-Bromofluorobenzene	460-00-4	132	%	70-130	02.01.19 20.51	**

Certificate of Analytical Results 613151

COG Operating LLC, Artesia, NM

McIntgre B #10 tb (12-6-18)

Sample Id:	**#2 2-2.5'**	Matrix:	Soil	Date Received:	02.01.19 08.05
Lab Sample Id:	613151-006	Date Collected:	01.29.19 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	02.02.19 12.50	Basis:	Wet Weight
Seq Number:	3077910				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**806**	4.96	mg/kg	02.02.19 21.14		1

Certificate of Analytical Results 613151

COG Operating LLC, Artesia, NM

McIntgre B #10 tb (12-6-18)

Sample Id:	**#3 0-1**	Matrix:	Soil	Date Received:	02.01.19 08.05
Lab Sample Id:	613151-007	Date Collected:	01.29.19 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	02.02.19 12.50	Basis:	Wet Weight
Seq Number:	3077910				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1800**	25.0	mg/kg	02.02.19 21.45		5

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	02.03.19 09.00	Basis:	Wet Weight
Seq Number:	3077973				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	**710**	74.8	mg/kg	02.03.19 19.41		5
Diesel Range Organics	C10C28DRO	**3080**	74.8	mg/kg	02.03.19 19.41		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**480**	74.8	mg/kg	02.03.19 19.41		5
Total TPH	PHC635	**4270**	74.8	mg/kg	02.03.19 19.41		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	121	%	70-135	02.03.19 19.41	
o-Terphenyl	84-15-1	125	%	70-135	02.03.19 19.41	

Certificate of Analytical Results 613151

COG Operating LLC, Artesia, NM

McIntgre B #10 tb (12-6-18)

Sample Id:	**#3 0-1**	Matrix:	Soil	Date Received:	02.01.19 08.05
Lab Sample Id:	613151-007	Date Collected:	01.29.19 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	02.01.19 10.00	Basis:	Wet Weight
Seq Number:	3077950				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.498	0.498	mg/kg	02.01.19 22.07	U	250
Toluene	108-88-3	**4.88**	0.498	mg/kg	02.01.19 22.07		250
Ethylbenzene	100-41-4	**6.54**	0.498	mg/kg	02.01.19 22.07		250
m,p-Xylenes	179601-23-1	**12.6**	0.996	mg/kg	02.01.19 22.07		250
o-Xylene	95-47-6	**4.39**	0.498	mg/kg	02.01.19 22.07		250
Total Xylenes	1330-20-7	**17.0**	0.498	mg/kg	02.01.19 22.07		250
Total BTEX		**28.4**	0.498	mg/kg	02.01.19 22.07		250

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	108	%	70-130	02.01.19 22.07	
4-Bromofluorobenzene	460-00-4	139	%	70-130	02.01.19 22.07	**

Certificate of Analytical Results 613151

COG Operating LLC, Artesia, NM

McIntgre B #10 tb (12-6-18)

Sample Id:	**#3 1-1.5'**	Matrix:	Soil	Date Received:	02.01.19 08.05
Lab Sample Id:	613151-008	Date Collected:	01.29.19 00.00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	02.02.19 12.50	Basis:	Wet Weight
Seq Number:	3077910				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**3280**	25.0	mg/kg	02.02.19 21.51		5

Analytical Method:	TPH By SW8015 Mod			Prep Method:	TX1005P
Tech:	ARM			% Moisture:	
Analyst:	ARM	Date Prep:	02.03.19 09.00	Basis:	Wet Weight
Seq Number:	3077973				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons	PHC610	<15.0	15.0	mg/kg	02.03.19 20.00	U	1
Diesel Range Organics	C10C28DRO	**57.2**	15.0	mg/kg	02.03.19 20.00		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	02.03.19 20.00	U	1
Total TPH	PHC635	**57.2**	15.0	mg/kg	02.03.19 20.00		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	02.03.19 20.00	
o-Terphenyl	84-15-1	101	%	70-135	02.03.19 20.00	

Certificate of Analytical Results 613151

COG Operating LLC, Artesia, NM

McIntgre B #10 tb (12-6-18)

Sample Id:	**#3 1-1.5'**	Matrix:	Soil	Date Received:	02.01.19 08.05
Lab Sample Id:	613151-008	Date Collected:	01.29.19 00.00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	SCM			% Moisture:	
Analyst:	SCM	Date Prep:	02.01.19 10.00	Basis:	Wet Weight
Seq Number:	3077950				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	02.04.19 13.28	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	02.04.19 13.28	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	02.04.19 13.28	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	02.04.19 13.28	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	02.04.19 13.28	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	02.04.19 13.28	U	1
Total BTEX		<0.00200	0.00200	mg/kg	02.04.19 13.28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	120	%	70-130	02.04.19 13.28	
1,4-Difluorobenzene	540-36-3	112	%	70-130	02.04.19 13.28	

Certificate of Analytical Results 613151

COG Operating LLC, Artesia, NM

McIntgre B #10 tb (12-6-18)

Sample Id:	**#3 2-2.5'**	Matrix:	Soil	Date Received:	02.01.19 08.05
Lab Sample Id:	613151-009	Date Collected:	01.29.19 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	02.02.19 12.50	Basis:	Wet Weight
Seq Number:	3077910				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**3310**	25.2	mg/kg	02.02.19 21.32		5

Certificate of Analytical Results 613151

COG Operating LLC, Artesia, NM

McIntgre B #10 tb (12-6-18)

Sample Id:	**#3 3-3.5'**	Matrix:	Soil	Date Received:	02.01.19 08.05
Lab Sample Id:	613151-010	Date Collected:	01.29.19 00.00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	02.02.19 12.50	Basis:	Wet Weight
Seq Number:	3077910				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2890**	25.2	mg/kg	02.02.19 21.38		5

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

QC Summary 613151

COG Operating LLC

McIntgre B #10 tb (12-6-18)

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3077910 Matrix: Solid Date Prep: 02.02.19
MB Sample Id: 7670969-1-BLK LCS Sample Id: 7670969-1-BKS LCSD Sample Id: 7670969-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.858	250	262	105	242	97	90-110	8	20	mg/kg	02.02.19 18:33	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3077910 Matrix: Soil Date Prep: 02.02.19
Parent Sample Id: 613127-001 MS Sample Id: 613127-001 S MSD Sample Id: 613127-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.852	248	268	108	260	105	90-110	3	20	mg/kg	02.02.19 18:52	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3077910 Matrix: Soil Date Prep: 02.02.19
Parent Sample Id: 613151-001 MS Sample Id: 613151-001 S MSD Sample Id: 613151-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	40.3	250	356	126	368	131	90-110	3	20	mg/kg	02.02.19 20:21	X

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3077973 Matrix: Solid Date Prep: 02.03.19
MB Sample Id: 7671017-1-BLK LCS Sample Id: 7671017-1-BKS LCSD Sample Id: 7671017-1-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	847	85	843	84	70-135	0	20	mg/kg	02.03.19 11:38	
Diesel Range Organics	<8.13	1000	934	93	931	93	70-135	0	20	mg/kg	02.03.19 11:38	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	106		121		121		70-135	%	02.03.19 11:38
o-Terphenyl	109		117		117		70-135	%	02.03.19 11:38

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

QC Summary 613151

COG Operating LLC

McIntgre B #10 tb (12-6-18)

Analytical Method: **TPH By SW8015 Mod** Prep Method: TX1005P
Seq Number: 3077973 Matrix: Soil Date Prep: 02.03.19
Parent Sample Id: 613218-001 MS Sample Id: 613218-001 S MSD Sample Id: 613218-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons	<7.99	999	798	80	817	82	70-135	2	20	mg/kg	02.03.19 12:38	
Diesel Range Organics	103	999	893	79	914	81	70-135	2	20	mg/kg	02.03.19 12:38	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	121		123		70-135	%	02.03.19 12:38
o-Terphenyl	103		103		70-135	%	02.03.19 12:38

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3077950 Matrix: Solid Date Prep: 02.01.19
MB Sample Id: 7670961-1-BLK LCS Sample Id: 7670961-1-BKS LCSD Sample Id: 7670961-1-BSD

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

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

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B
Seq Number: 3077950 Matrix: Soil Date Prep: 02.01.19
Parent Sample Id: 613152-002 MS Sample Id: 613152-002 S MSD Sample Id: 613152-002 SD

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

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

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

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]
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

Analysis Request of Chain of Custody Record

613151

Page 1 of 1

CONCHO

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

Client Name: COG

Site Manager: Ike Tavarez

Project Name: McIntyre B #10 TB (12-6-18)

Project Location: (county, state) Eddy co. NM.

Project #:

Invoice to: COG - Ike Tavarez

Receiving Laboratory: Xenco

Sampler Signature: Ike Tavarez

Comments:

ANALYSIS REQUEST (Circle or Specify Method No.): BTEX 8021B / BTEX 8260B (circled); TPH TX1005 (Ext to C35); TPH 8015M (GRO - DRO - MRO) (circled); PAH 8270C; Total Metals Ag As Ba Cd Cr Pb Se Hg; TCLP Metals Ag As Ba Cd Cr Pb Se Hg; TCLP Volatiles; TCLP Semi Volatiles; RCI; GC/MS Vol. 8260B / 624; GC/MS Semi. Vol. 8270C/625; PCB's 8082 / 608; NORM; PLM (Asbestos); Chloride (circled); Chloride Sulfate TDS; General Water Chemistry (see attached list); Anion/Cation Balance; Hold

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	DATE	TIME	WATER	SOIL	HCL	HNO$_3$	ICE	# CONTAINERS	FILTERED (Y/N)	BTEX	TPH 8015M	Chloride
	#1 0-1	1-29-19			✓			✓	1		X	X	X
	#1 1-1.5'	1-29-19			✓			✓	1		X	X	X
	#1 2-2.5'	1-29-19			✓			✓	1				X
	#2 0-1	1-29-19			✓			✓	1				X
	#2 1-1.5'	1-29-19			✓			✓	1		X	X	X
	#2 2-2.5'	1-29-19			✓			✓	1		X	X	X
	#3 0-1	1-29-19			✓			✓	1				X
	#3 1-1.5'	1-29-19			✓			✓	1		X	X	X
	#3 2-2.5'	1-29-19			✓			✓	1		X	X	X
	#3 3-3.5'	1-29-19			✓			✓	1				X

Relinquished by: [illegible signature] Date: 2-1-19 Time:

Received by: [illegible signature] Date: 2-1-19 Time: 0805

Relinquished by: Date: Time:

Received by: Date: Time:

Relinquished by: Date: Time:

Received by: Date: Time:

LAB USE ONLY

Sample Temperature: 0.3/0.2 -0.1 IR8

REMARKS:

☐ RUSH: Same Day 24 hr (48 hr circled) 72 hr

☐ Rush Charges Authorized

☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: ____

ORIGINAL COPY

CARDINAL Laboratories

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

April 12, 2019

KAYLA LOVELY TAYLOR

TETRA TECH

901 WEST WALL STREET , STE 100

MIDLAND, TX 79701

RE: MCINTYRE B #10 TB

Enclosed are the results of analyses for samples received by the laboratory on 04/11/19 16:35.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	04/11/2019	Sampling Date:	04/11/2019
Reported:	04/12/2019	Sampling Type:	Soil
Project Name:	MCINTYRE B #10 TB	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BOTTOM HOLE - 1 (COMP 1.5') (H901339-01)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.200	0.200	04/12/2019	ND	2.03	102	2.00	2.50	
Toluene*	**0.518**	0.200	04/12/2019	ND	2.06	103	2.00	2.09	
Ethylbenzene*	**1.10**	0.200	04/12/2019	ND	2.05	102	2.00	1.56	
Total Xylenes*	**3.66**	0.600	04/12/2019	ND	6.07	101	6.00	1.82	
Total BTEX	**5.28**	1.20	04/12/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *108 %* *73.3-129*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3480**	16.0	04/12/2019	ND	448	112	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	**53.4**	10.0	04/11/2019	ND	210	105	200	6.01	
DRO >C10-C28*	**669**	10.0	04/11/2019	ND	195	97.6	200	15.5	
EXT DRO >C28-C36	**152**	10.0	04/11/2019	ND					

Surrogate: 1-Chlorooctane *88.2 %* *41-142*

Surrogate: 1-Chlorooctadecane *88.0 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

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

Received:	04/11/2019	Sampling Date:	04/11/2019
Reported:	04/12/2019	Sampling Type:	Soil
Project Name:	MCINTYRE B #10 TB	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BOTTOM HOLE - 2 (COMP 1.5') (H901339-02)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/11/2019	ND	2.03	102	2.00	2.50	
Toluene*	<0.050	0.050	04/11/2019	ND	2.06	103	2.00	2.09	
Ethylbenzene*	**0.088**	0.050	04/11/2019	ND	2.05	102	2.00	1.56	
Total Xylenes*	**0.274**	0.150	04/11/2019	ND	6.07	101	6.00	1.82	
Total BTEX	**0.362**	0.300	04/11/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *112 %* *73.3-129*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2600**	16.0	04/12/2019	ND	448	112	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/11/2019	ND	210	105	200	6.01	
DRO >C10-C28*	**90.1**	10.0	04/11/2019	ND	195	97.6	200	15.5	
EXT DRO >C28-C36	**22.1**	10.0	04/11/2019	ND					

Surrogate: 1-Chlorooctane *93.6 %* *41-142*

Surrogate: 1-Chlorooctadecane *93.6 %* *37.6-147*

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Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

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

Received:	04/11/2019	Sampling Date:	04/11/2019
Reported:	04/12/2019	Sampling Type:	Soil
Project Name:	MCINTYRE B #10 TB	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: BOTTOM HOLE - 3 (COMP 1.5') (H901339-03)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/11/2019	ND	2.03	102	2.00	2.50	
Toluene*	<0.050	0.050	04/11/2019	ND	2.06	103	2.00	2.09	
Ethylbenzene*	**0.084**	0.050	04/11/2019	ND	2.05	102	2.00	1.56	
Total Xylenes*	**0.248**	0.150	04/11/2019	ND	6.07	101	6.00	1.82	
Total BTEX	**0.332**	0.300	04/11/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *96.9 %* *73.3-129*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**304**	16.0	04/12/2019	ND	448	112	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/11/2019	ND	197	98.3	200	5.18	
DRO >C10-C28*	**542**	10.0	04/11/2019	ND	194	97.2	200	3.53	
EXT DRO >C28-C36	**97.0**	10.0	04/11/2019	ND					

Surrogate: 1-Chlorooctane *75.3 %* *41-142*

Surrogate: 1-Chlorooctadecane *96.5 %* *37.6-147*

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Analytical Results For:

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

Received:	04/11/2019	Sampling Date:	04/11/2019
Reported:	04/12/2019	Sampling Type:	Soil
Project Name:	MCINTYRE B #10 TB	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: NSW - 1 (COMP 1.5') (H901339-04)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/11/2019	ND	2.03	102	2.00	2.50	
Toluene*	**0.138**	0.050	04/11/2019	ND	2.06	103	2.00	2.09	
Ethylbenzene*	**0.322**	0.050	04/11/2019	ND	2.05	102	2.00	1.56	
Total Xylenes*	**0.947**	0.150	04/11/2019	ND	6.07	101	6.00	1.82	
Total BTEX	**1.41**	0.300	04/11/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *116 %* *73.3-129*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**496**	16.0	04/12/2019	ND	448	112	400	3.64	

TPH 8015M mg/kg Analyzed By: MS S-06

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<50.0	50.0	04/11/2019	ND	197	98.3	200	5.18	
DRO >C10-C28*	**7040**	50.0	04/11/2019	ND	194	97.2	200	3.53	
EXT DRO >C28-C36	**1820**	50.0	04/11/2019	ND					

Surrogate: 1-Chlorooctane *87.1 %* *41-142*

Surrogate: 1-Chlorooctadecane *304 %* *37.6-147*

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	04/11/2019	Sampling Date:	04/11/2019
Reported:	04/12/2019	Sampling Type:	Soil
Project Name:	MCINTYRE B #10 TB	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: WSW - 1 (COMP 1.5') (H901339-05)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/11/2019	ND	2.03	102	2.00	2.50	
Toluene*	<0.050	0.050	04/11/2019	ND	2.06	103	2.00	2.09	
Ethylbenzene*	<0.050	0.050	04/11/2019	ND	2.05	102	2.00	1.56	
Total Xylenes*	<0.150	0.150	04/11/2019	ND	6.07	101	6.00	1.82	
Total BTEX	<0.300	0.300	04/11/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *106 %* *73.3-129*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	04/12/2019	ND	448	112	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/11/2019	ND	197	98.3	200	5.18	
DRO >C10-C28*	**106**	10.0	04/11/2019	ND	194	97.2	200	3.53	
EXT DRO >C28-C36	<10.0	10.0	04/11/2019	ND					

Surrogate: 1-Chlorooctane *83.7 %* *41-142*

Surrogate: 1-Chlorooctadecane *91.8 %* *37.6-147*

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	04/11/2019	Sampling Date:	04/11/2019
Reported:	04/12/2019	Sampling Type:	Soil
Project Name:	MCINTYRE B #10 TB	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: SSW - 1 (COMP 1.5') (H901339-06)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/11/2019	ND	2.03	102	2.00	2.50	
Toluene*	<0.050	0.050	04/11/2019	ND	2.06	103	2.00	2.09	
Ethylbenzene*	**0.098**	0.050	04/11/2019	ND	2.05	102	2.00	1.56	
Total Xylenes*	**0.380**	0.150	04/11/2019	ND	6.07	101	6.00	1.82	
Total BTEX	**0.477**	0.300	04/11/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *117 %* *73.3-129*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**528**	16.0	04/12/2019	ND	448	112	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/11/2019	ND	197	98.3	200	5.18	
DRO >C10-C28*	**866**	10.0	04/11/2019	ND	194	97.2	200	3.53	
EXT DRO >C28-C36	**265**	10.0	04/11/2019	ND					

Surrogate: 1-Chlorooctane *74.1 %* *41-142*

Surrogate: 1-Chlorooctadecane *107 %* *37.6-147*

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Analytical Results For:

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

Received:	04/11/2019	Sampling Date:	04/11/2019
Reported:	04/12/2019	Sampling Type:	Soil
Project Name:	MCINTYRE B #10 TB	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	COG - EDDY CO NM		

Sample ID: ESW - 1 (COMP 1.5') (H901339-07)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/11/2019	ND	2.03	102	2.00	2.50	
Toluene*	<0.050	0.050	04/11/2019	ND	2.06	103	2.00	2.09	
Ethylbenzene*	<0.050	0.050	04/11/2019	ND	2.05	102	2.00	1.56	
Total Xylenes*	<0.150	0.150	04/11/2019	ND	6.07	101	6.00	1.82	
Total BTEX	<0.300	0.300	04/11/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *110 %* *73.3-129*

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

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**928**	16.0	04/12/2019	ND	448	112	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	04/11/2019	ND	197	98.3	200	5.18	
DRO >C10-C28*	**771**	10.0	04/11/2019	ND	194	97.2	200	3.53	
EXT DRO >C28-C36	**273**	10.0	04/11/2019	ND					

Surrogate: 1-Chlorooctane *67.5 %* *41-142*

Surrogate: 1-Chlorooctadecane *104 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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

Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: Tetra Tech	**BILL TO**
Project Manager: Kayla Taylor	P.O. #:
Address: 901 w wall	Company: Concho
City: Midland State: TX Zip: 79701	Attn: Ike Tavarez
Phone #: 432-210-5443 Fax #: —	Address: 600 W Illinois
Project #: — Project Owner: —	City: Midland
Project Name: McIntyre B #10 TB	State: TX Zip: 79701
Project Location: Eddy, NM	Phone #: 432-701-8630
Sampler Name: Devin Dominguez	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	TPH	BTEX	Chlorides								
H901339																									
1	Bottomhole-1 (Comp 1.5')	C	1			X					X		4/11/19	1200	X	X	X								
2	Bottomhole-2 (Comp 1.5')	C	1			X					X			1202	X	X	X								
3	Bottomhole-3 (Comp 1.5')	C	1			X					X			1204	X	X	X								
4	NSW-1 (Comp 1.5')	C	1			X					X			1206	X	X	X								
5	WSW-1 (Comp 1.5')	C	1			X					X			1208	X	X	X								
6	SSW-1 (Comp 1.5')	C	1			X					X			1210	X	X	X								
7	FSW-1 (Comp 1.5')	C	1			X					X		▽	1212	X	X	X								

Relinquished By:	Date: 4/11/19	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 4:35		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: Request to Attach devin.dominguez@tetratech.com to Results Email
	Time:		Rush!

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 4.5° #97

Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No

CHECKED BY: (Initials) T.O.