

## SITE INFORMATION

### Report Type: Closure 1RP-5521

#### General Site Information:

Site:	Roy Batty Federal Com #1H					
Company:	COG Operating LLC					
Section, Township and Range	Unit O	Sec. 09	T 24S	R 33E		
Lease Number:	API No.					
County:	Lea County					
GPS:	32.226612			-103.57423		
Surface Owner:	State					
Directions:	From the intersection of HWY 128 and CR 2 Turn North on HWY 128 and go 1.10 miles and turn west and go .35 miles and arrive.					

#### Release Data:

<b>Date Released:</b>	4/29/2019
<b>Type Release:</b>	Produced Water
<b>Source of Contamination:</b>	Flowline
<b>Fluid Released:</b>	10 bbls
<b>Fluids Recovered:</b>	9.5 bbls

#### Official Communication:

<b>Name:</b>	Ike Tavaréz		Clair Gonzales
<b>Company:</b>	COG Operating, LLC		Tetra Tech
<b>Address:</b>	One Concho Center		901 West Wall Street
	600 W. Illinois Ave.		Suite 100
<b>City:</b>	Midland Texas, 79701		Midland, Texas
<b>Phone number:</b>	(432) 686-3023		(432) 687-8110
<b>Fax:</b>	(432) 684-7137		
<b>Email:</b>	<a href="mailto:itavarez@concho.com">itavarez@concho.com</a>		<a href="mailto:Clair.Gonzales@tetrattech.com">Clair.Gonzales@tetrattech.com</a>

#### Site Characterization

<b>Depth to Groundwater:</b>	81'
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#### Recommended Remedial Action Levels (RRALs)

<b>Benzene</b>	<b>Total BTEX</b>	<b>TPH (GRO+DRO)</b>	<b>TPH (GRO+DRO+MRO)</b>	<b>Chlorides</b>
10 mg/kg	50 mg/kg	1,000 mg/kg	2,500 mg/kg	10,000 mg/kg



October 28, 2019

Mr. Dylan Rose-Coss  
Environmental Engineer Specialist  
Oil Conservation Division, District 1  
1625 North French Drive  
Hobbs, New Mexico 88240

**Re: Closure for the COG Operating, LLC, Roy Batty Federal Com #001H, Unit O, Section 09, Township 24 South, Range 33 East, Lea County, New Mexico. 1RP-5521**

Mr. Rose-Coss:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating, LLC (COG) to assess a release that occurred at the Roy Batty Federal Com #001H, Unit O, Section 09, Township 24 South, Range 33 East, occurred at the Lea County, New Mexico (Site). The spill site coordinates are 32.22612°, -103.57423°. The site location is shown on Figures 1 and 2.

### **Background**

According to the State of New Mexico C-141 Report, the release occurred on April 29, 2019, and released approximately 10 barrels of produced due to a 3<sup>rd</sup> party company striking a flowline. Taprock Resources was drilling a production well, and during the expansion of the pad, a COG flowline was struck on the pad. Once occurred, the flowline was immediately placed into a frac tank located near the release. A vacuum truck was used to remove all freestanding fluids, recovering approximately 9.5 barrels of produced water. The release impacted an area in the pasture measuring approximately 90' x 30'. 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. Two wells are near the site and listed in the New Mexico Office of the State Engineers website. The nearest well is listed in Section 10, Township 24 South, Range 33 East, approximately .72 miles northeast of the site, and has a reported depth to groundwater of 20 feet below ground surface. However, it was completed in 1920. The other well is listed in Section 01, Township 24 South, Range 33 East, approximately 3.66 miles northeast of the site, and has a reported depth to groundwater of 81 feet below ground surface. The well was installed in February 2017. In addition, the surface elevation of this site is 3,628' and the surface elevation of the 20' well is approximately 3,590. Based on the relative elevation the depth to groundwater is estimated to be around 58' below surface. The groundwater data is shown in Appendix B.

### **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

**Tetra Tech**

901 West Wall St, Suite 100, Midland, TX 79701

Tel 432.682.4559 Fax 432.682.3946 [www.tetrattech.com](http://www.tetrattech.com)



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**

#### Auger Holes

On July 29, 2019, Tetra Tech personnel were onsite to evaluate and sample the release area. A total of four (4) auger holes AH-1, AH-2, AH-3, and AH-4 were installed near the source area to total depths of 0-1' and 1.5' below surface. Prior to sampling the spill area was initially scraped by Taprock Resources and hauled to disposal. All 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, none of the samples collected showed chloride, benzene, total BTEX, or TPH concentrations above the RRALs.

### **Conclusion**

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

Respectfully submitted,  
TETRA TECH

Mike Carmona,  
Geologist

## Figures

Document Path: C:\Users\MISTI\MORGAN\Desktop\project folder\212C-MD-01850 ROY BATTY FEDERAL COM #001\HMD\212C-MD-01850 ROY BATTY FEDERAL COM #001 FIG.1.mxd



● SITE LOCATION



0 10,416.5 20,833

Approximate Scale in Feet

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

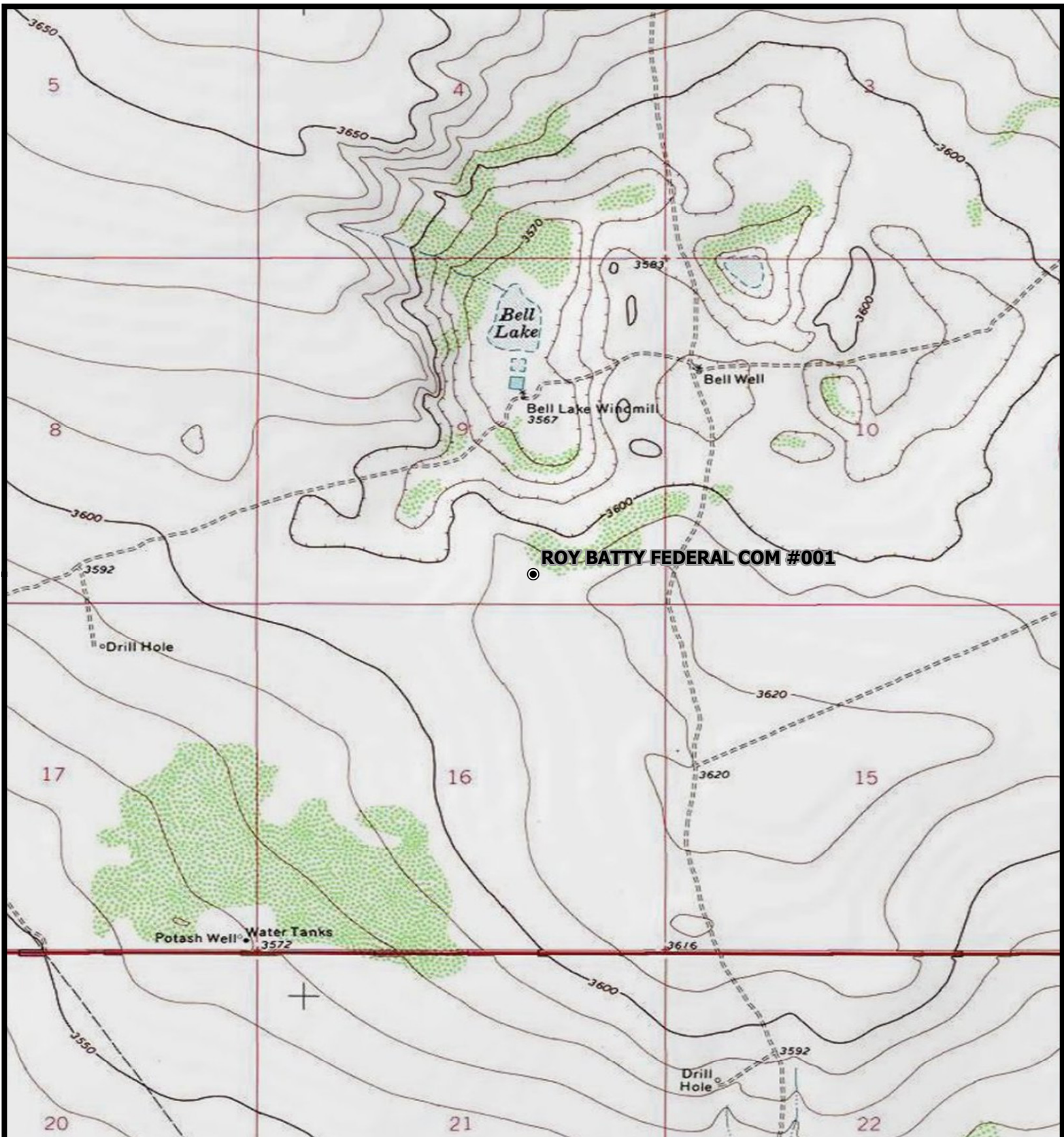


OVERVIEW MAP  
ROY BATTY FEDERAL COM #001  
Property Located at coordinates 32.22612°,-103.57423°  
LEA COUNTY, NEW MEXICO

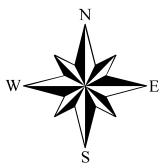


FIGURE  
1





● SITE LOCATION



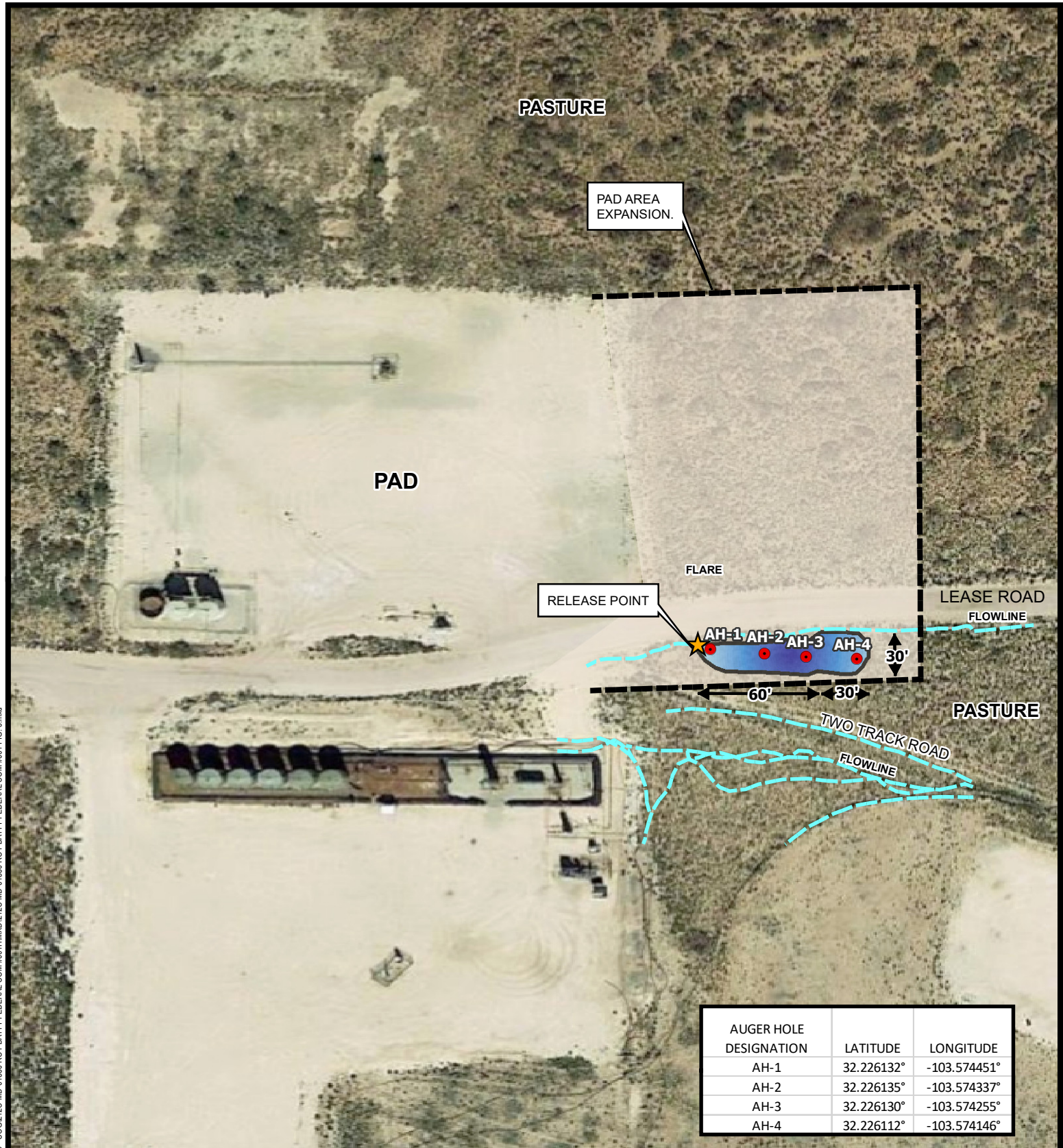
0 1,000 2,000  
Approximate Scale in Feet

TOPOGRAPHIC MAP  
ROY BATTY FEDERAL COM #001  
Property Located at coordinates 32.22612°,-103.57423°  
LEA COUNTY, NEW MEXICO



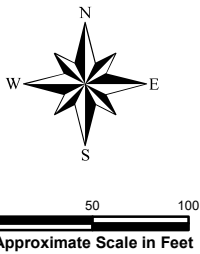
FIGURE  
2





AUGER HOLE DESIGNATION	LATITUDE	LONGITUDE
AH-1	32.226132°	-103.574451°
AH-2	32.226135°	-103.574337°
AH-3	32.226130°	-103.574255°
AH-4	32.226112°	-103.574146°

- AUGERHOLE SAMPLE LOCATIONS
- FLOWLINE
- AFFECTED SPILL AREA



SPILL ASSESSMENT MAP  
 ROY BATTY FEDERAL COM #001  
 Property Located at coordinates 32.22612°,-103.57423°  
 LEA COUNTY, NEW MEXICO



FIGURE  
 3

## Tables

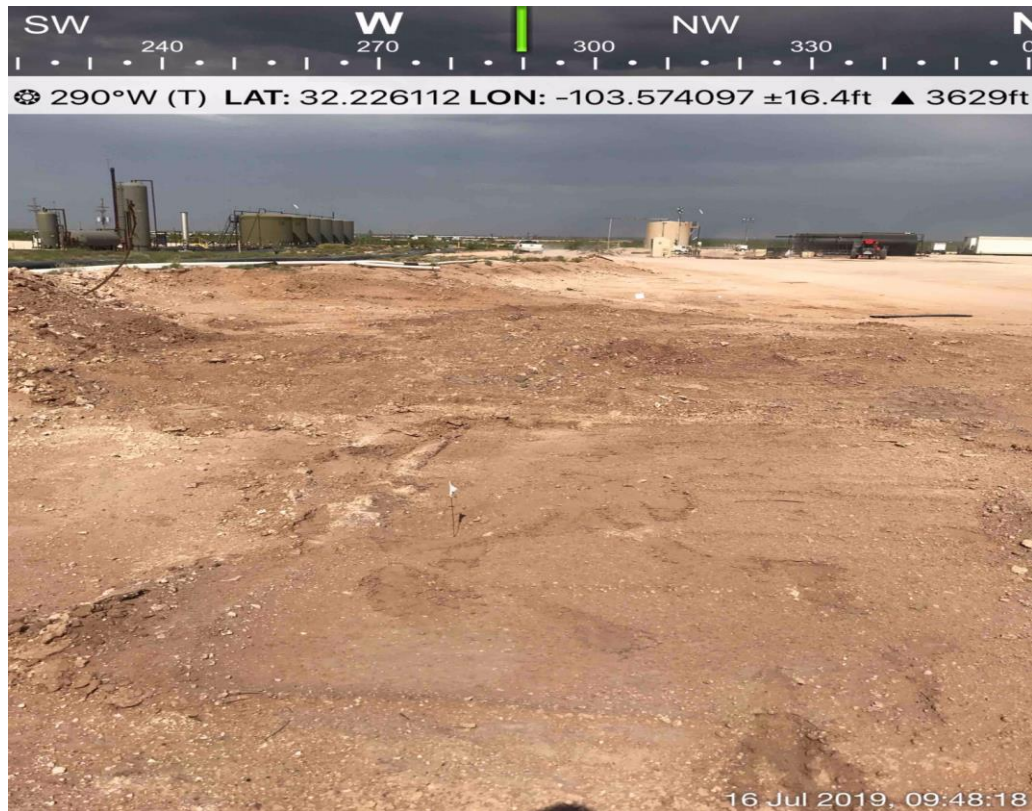


**Table 1**  
**COG**  
**Roy Batty Fed Com #1H (4.29.19)**  
**Lea County, New Mexico**

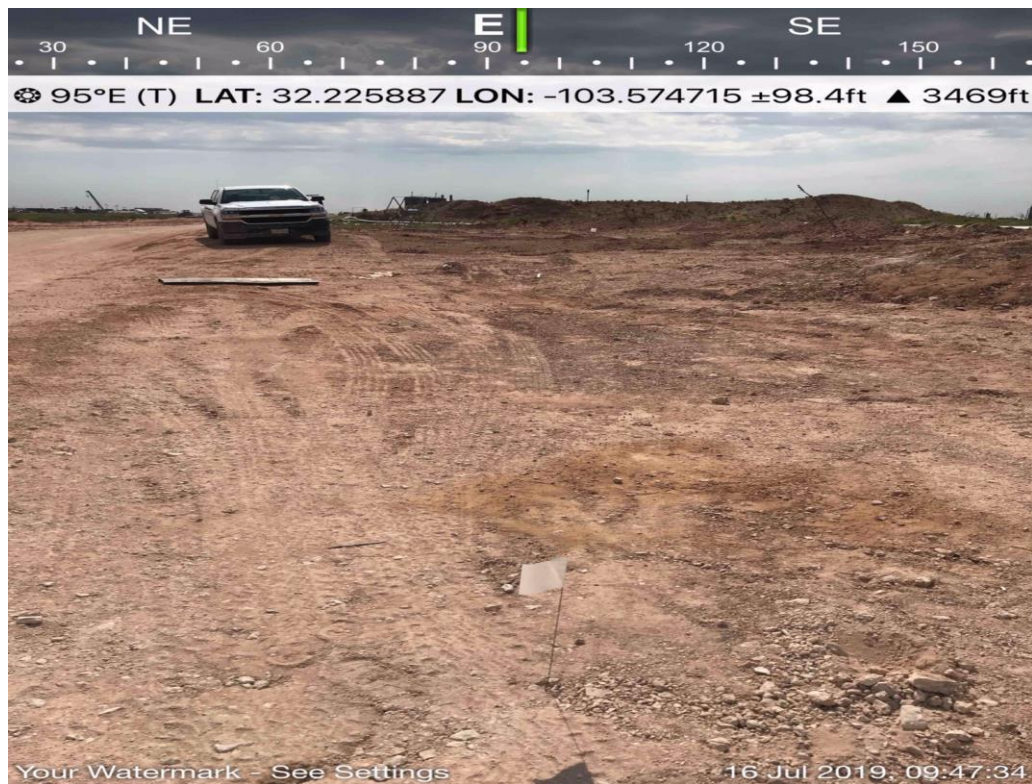
Sample ID	Sample Date	Sample Depth (ft)	BEB Sample Depth (ft)	Soil Status		TPH (mg/kg)					Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	GRO+DRO	ORO	Total						
AH-1	7/29/2019	0-1	-	X		<15.0	123	123	<15.0	123	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	520
AH-2	7/29/2019	0-1	-	X		<15.0	<15.0	<15.0	<15.0	<15.0	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	2,130
	"	1-1.5	-	X		<14.9	<14.9	<14.9	<14.9	<14.9	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	612
AH-3	7/29/2019	0-1	-	X		<15.0	<15.0	<15.0	<15.0	<15.0	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	195
	"	1-1.5	-	X		<15.0	<15.0	<15.0	<15.0	<15.0	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	146
AH-4	7/29/2019	0-1	-	X		<15.0	<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	8.56
	"	1-1.5	-	X		<15.0	<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	9.24

Photos

COG  
Roy Batty  
Lea County, New Mexico



View West – Area of AH-1, AH-2, AH-3, and AH-4



View East– Area of AH-1, AH-2, AH-3, and AH-4

## Appendix A



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

State of New Mexico  
Energy Minerals and Natural  
Resources Department

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

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

Incident ID	
District RP	1RP-5521
Facility ID	
Application ID	

## Release Notification

### Responsible Party

Responsible Party	COG Operating, LLC	OGRID	229137
Contact Name	Jennifer Knowlton	Contact Telephone	(575) 748-1570
Contact email	JKnowlton@concho.com	Incident # (assigned by OCD)	
Contact mailing address	600 West Illinois Avenue, Midland, Texas 79701		

### Location of Release Source

Latitude 32.22612 Longitude -103.57423  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Roy Batty Federal Com #001H	Site Type	Flowline
Date Release Discovered	April 29, 2019	API# (if applicable)	

Unit Letter	Section	Township	Range	County
O	09	24S	33E	Lea

Surface Owner: ☒ State ☐ Federal ☐ Tribal ☐ Private (Name: \_\_\_\_\_)

### Nature and Volume of Release

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

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 10	Volume Recovered (bbls) 9.5
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input checked="" 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

The release was caused by a third party striking a flowline. The flowline is being repaired. The release was in the pasture. 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.

Incident ID	
District RP	1RP-5521
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC?  <input type="checkbox"/> Yes <input checked="" 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 checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" 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: <u>DeAnn Grant</u>	Title: <u>HSE Administrative Assistant</u>
Signature: <u></u>	Date: <u>4/30/2019</u>
email: <u>agrانت@concho.com</u>	Telephone: <u>(432) 253-4513</u>
<b><u>OCD Only</u></b>	
Received by: _____	Date: _____

Incident ID	
District RP	1RP-5521
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?	81 (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 type="checkbox"/> Yes <input checked="" 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 <b>not</b> on an exploration, development, production, or storage site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

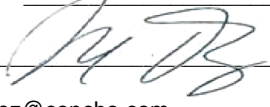
Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

<p><b>Characterization Report Checklist:</b> <i>Each of the following items must be included in the report.</i></p> <ul style="list-style-type: none"><li><input checked="" type="checkbox"/> Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.</li><li><input type="checkbox"/> Field data</li><li><input checked="" type="checkbox"/> Data table of soil contaminant concentration data</li><li><input checked="" type="checkbox"/> Depth to water determination</li><li><input checked="" type="checkbox"/> Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release</li><li><input type="checkbox"/> Boring or excavation logs</li><li><input checked="" type="checkbox"/> Photographs including date and GIS information</li><li><input checked="" type="checkbox"/> Topographic/Aerial maps</li><li><input checked="" type="checkbox"/> Laboratory data including chain of custody</li></ul>
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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	1RP-5521
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 tarez Title: Senior HSE Supervisor  
Signature:  Date: 10.28.19  
email: itarez@concho.com Telephone: 432.683.7443

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_



Incident ID	
District RP	1RP-5521
Facility ID	
Application ID	

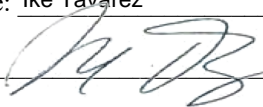
## Closure

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

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

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

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

Printed Name: Ike Tavaréz Title: Senior HSE Supervisor  
Signature:  Date: 10.28.19  
email: itavaréz@concho.com Telephone: 432.683.7443

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

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

Closure Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

## Appendix B

**Water Well Data**  
**Average Depth to Groundwater (ft)**  
**COG Cabo Blanco State #001H**  
**Lea County, New Mexico**

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

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

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

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

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

24 South			34 East		
6	5	4	3	2	1
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

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

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

25 South			34 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

- 88** New Mexico State Engineers Well Reports
- 105** USGS Well Reports
- 90** Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)
- Geology and Groundwater Resources of Eddy County, NM (Report 3)
- 34** NMOCD - Groundwater Data
- 123 Tetra Tech installed temporary wells and field water level
- 143** NMOCD Groundwater map well location

# New Mexico Office of the State Engineer

## Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column
<a href="#">C 02308</a>		CUB	LE	1	3	1	10	24S	33E	634953	3567364*	<input type="text"/>	40	20
<a href="#">C 02309</a>		CUB	LE	2	2	2	25	24S	33E	639638	3562994*	<input type="text"/>	60	30
<a href="#">C 02310</a>		CUB	LE	2	3	2	33	24S	33E	634437	3560918*	<input type="text"/>	120	70
<a href="#">C 02311</a>		CUB	LE	2	3	2	33	24S	33E	634437	3560918*	<input type="text"/>	120	70
<a href="#">C 02430</a>		CUB	LE	3	3	3	16	24S	33E	633377	3564732*	<input type="text"/>	643	415
<a href="#">C 02431</a>		CUB	LE	4	4	4	17	24S	33E	633175	3564728*	<input type="text"/>	525	415
<a href="#">C 02432</a>		CUB	LE	4	4	4	17	24S	33E	633175	3564728*	<input type="text"/>	640	415
<a href="#">C 02563</a>		CUB	LE	1	4	2	33	24S	33E	634639	3560923*	<input type="text"/>	120	
<a href="#">C 02564</a>		CUB	LE	2	4	2	33	24S	33E	634839	3560923*	<input type="text"/>	120	
<a href="#">C 02890</a>		C	LE		2	4	29	24S	33E	633114	3562012*	<input type="text"/>	500	
<a href="#">C 03565 POD3</a>		CUB	LE		3	4	08	24S	33E	632763	3566546	<input type="text"/>		1533
<a href="#">C 03591 POD1</a>		CUB	LE	2	1	4	05	24S	33E	632731	3568518	<input type="text"/>		
<a href="#">C 03600 POD1</a>		CUB	LE	2	2	1	26	24S	33E	637275	3563023	<input type="text"/>		
<a href="#">C 03600 POD2</a>		CUB	LE	4	4	1	25	24S	33E	638824	3562329	<input type="text"/>		
<a href="#">C 03600 POD3</a>		CUB	LE	3	4	2	26	24S	33E	637784	3562340	<input type="text"/>		
<a href="#">C 03600 POD4</a>		CUB	LE	3	3	1	26	24S	33E	636617	3562293	<input type="text"/>		
<a href="#">C 03600 POD5</a>		CUB	LE	3	2	4	26	24S	33E	637857	3562020	<input type="text"/>		
<a href="#">C 03600 POD6</a>		CUB	LE	3	1	4	26	24S	33E	637383	3562026	<input type="text"/>		
<a href="#">C 03600 POD7</a>		CUB	LE	3	1	3	26	24S	33E	636726	3561968	<input type="text"/>		
<a href="#">C 03601 POD1</a>		CUB	LE	4	4	2	23	24S	33E	638124	3563937	<input type="text"/>		
<a href="#">C 03601 POD2</a>		CUB	LE	3	2	4	23	24S	33E	637846	3563588	<input type="text"/>		
<a href="#">C 03601 POD3</a>		CUB	LE	1	3	3	24	24S	33E	638142	3563413	<input type="text"/>		
<a href="#">C 03601 POD4</a>		CUB	LE	3	3	3	24	24S	33E	638162	3561375	<input type="text"/>		
<a href="#">C 03601 POD5</a>		CUB	LE	2	4	4	23	24S	33E	637988	3563334	<input type="text"/>		
<a href="#">C 03601 POD6</a>		CUB	LE	1	4	4	23	24S	33E	637834	3563338	<input type="text"/>		
<a href="#">C 03601 POD7</a>		CUB	LE	4	4	4	23	24S	33E	637946	3563170	<input type="text"/>		
<a href="#">C 03602 POD2</a>		CUB	LE	4	4	1	25	24S	33E	638824	3562329	<input type="text"/>		
<a href="#">C 03603 POD1</a>		CUB	LE	3	2	2	35	24S	33E	637805	3561225	<input type="text"/>		
<a href="#">C 03603 POD2</a>		CUB	LE	3	1	2	35	24S	33E	637384	3561167	<input type="text"/>		
<a href="#">C 03603 POD3</a>		CUB	LE	4	1	1	35	24S	33E	636890	3561092	<input type="text"/>		
<a href="#">C 03603 POD4</a>		CUB	LE	3	2	4	35	24S	33E	637789	3560461	<input type="text"/>		
<a href="#">C 03603 POD5</a>		CUB	LE	3	3	2	35	24S	33E	636745	3560767	<input type="text"/>		
<a href="#">C 03603 POD6</a>		CUB	LE	3	1	3	35	24S	33E	636749	3560447	<input type="text"/>		
<a href="#">C 03662 POD1</a>		C	LE	3	1	2	23	24S	33E	637342	3564428	<input type="text"/>	550	110
<a href="#">C 03666 POD1</a>		C	LE	2	3	4	13	24S	33E	639132	3565078	<input type="text"/>	650	390
<a href="#">C 03679 POD1</a>		C	ED	1	4	2	14	24S	33E	603567	3581547	<input type="text"/>	700	575
<a href="#">C 03917 POD1</a>		C	LE	4	1	3	13	24S	33E	638374	3565212	<input type="text"/>	600	420
<a href="#">C 04014 POD2</a>		CUB	LE	4	4	2	01	24S	33E	639656	3568917	<input type="text"/>	95	81
<a href="#">C 04014 POD3</a>		CUB	LE	2	4	2	01	24S	33E	639497	3569007	<input type="text"/>	95	87
<a href="#">C 04014 POD4</a>		CUB	LE	3	4	2	01	24S	33E	639295	3568859	<input type="text"/>	96	86
<a href="#">C 04014 POD5</a>		CUB	LE	1	4	2	01	24S	33E	639284	3569086	<input type="text"/>	95	85

Average Depth to Water: **300 feet**

Minimum Depth: **20 feet**

Maximum Depth: **1533 feet**

Record Count: 41

PLSS Search:





Township: 24S Range: 33E

\*UTM location was derived from PLSS - see Help



# Roy Batty Federal Com #1H

## Legend

-  32.22612 -103.57423
-  High
-  Low
-  Medium

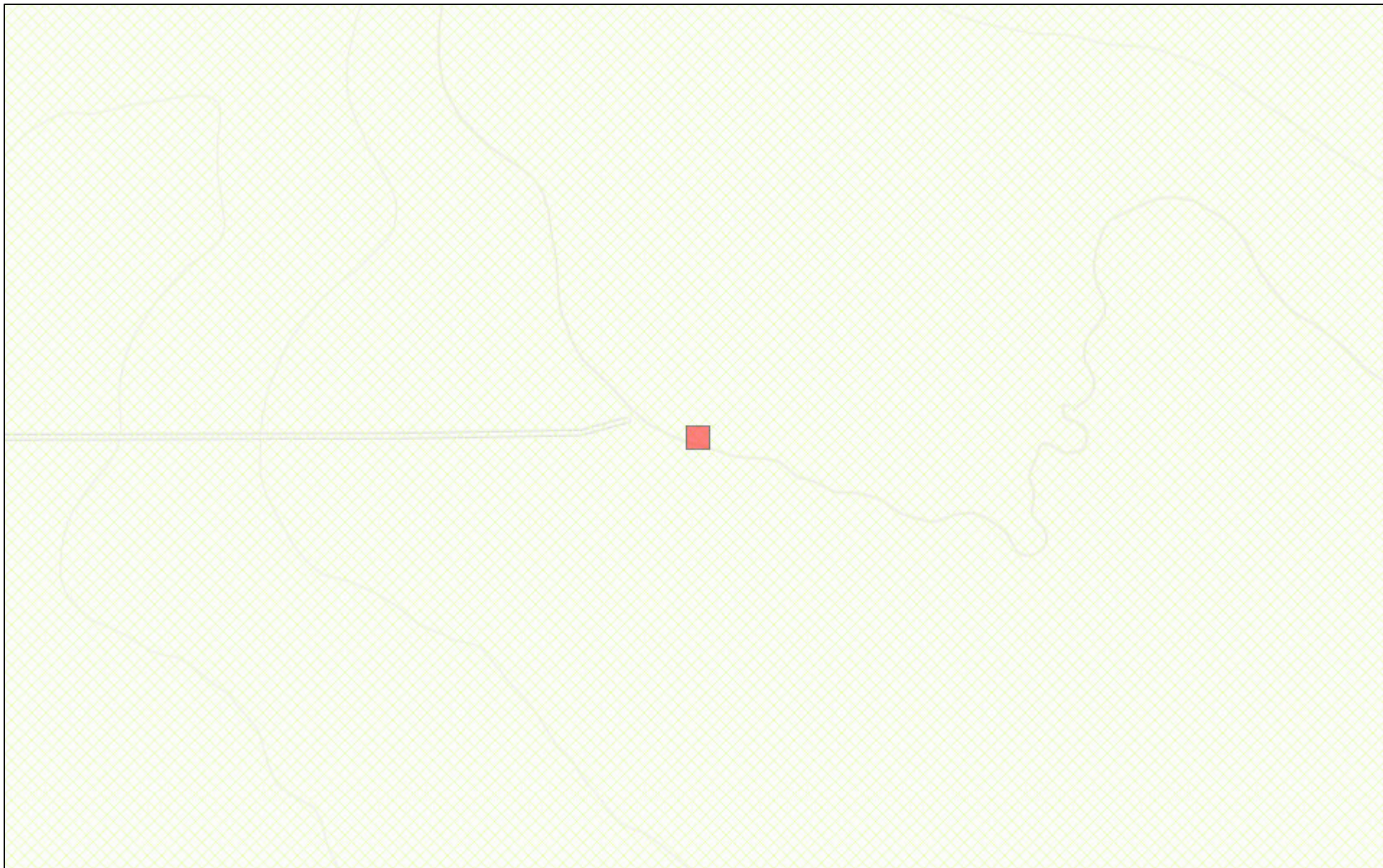
 32.22612 -103.57423

GeoRef-2-A

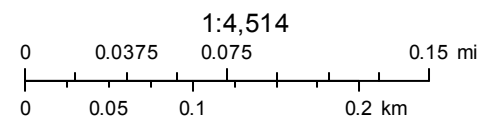


1000 ft

# New Mexico NFHL Data



March 13, 2019



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

## Appendix C

# **Analytical Report 633147**

## **for Tetra Tech- Midland**

**Project Manager: Mike Carmona**  
**Roy Batty Federal Com #001H (4.29.19)**

**212C-MD-01850**

**09-AUG-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), North Carolina (681)

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)





09-AUG-19

Project Manager: **Mike Carmona**

**Tetra Tech- Midland**

901 West Wall ST

Midland, TX 79701

Reference: XENCO Report No(s): **633147**

**Roy Batty Federal Com #001H (4.29.19)**

Project Address: Lea County, NM

**Mike Carmona:**

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) 633147. 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. 633147 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

**Jessica Kramer**

Project Assistant

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

*Certified and approved by numerous States and Agencies.*

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

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



## Sample Cross Reference 633147



### Tetra Tech- Midland, Midland, TX

Roy Batty Federal Com #001H (4.29.19)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH-1 (0-1')	S	07-29-19 00:00		633147-001
AH-2 (0-1')	S	07-29-19 00:00		633147-002
AH-2 (1'-1.5')	S	07-29-19 00:00		633147-003
AH-3 (0-1')	S	07-29-19 00:00		633147-004
AH-3 (1-1.5')	S	07-29-19 00:00		633147-005
AH-4 (0-1')	S	07-29-19 00:00		633147-006
AH-4 (1'-1.5')	S	07-29-19 00:00		633147-007



## CASE NARRATIVE

*Client Name: Tetra Tech- Midland*

*Project Name: Roy Batty Federal Com #001H (4.29.19)*

Project ID: 212C-MD-01850  
Work Order Number(s): 633147

Report Date: 09-AUG-19  
Date Received: 08/06/2019

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**Sample receipt non conformances and comments:**

None

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**Sample receipt non conformances and comments per sample:**

None

**Analytical non conformances and comments:**

Batch: LBA-3097738 TPH by SW8015 Mod

Surrogate o-Terphenyl recovered below QC limits. Matrix interferences is suspected.

Samples affected are: 632995-001 SD, 633147-006,633147-007,633147-005.

Batch: LBA-3097944 BTEX by EPA 8021B

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



# Certificate of Analysis Summary 633147

Tetra Tech- Midland, Midland, TX

Project Name: Roy Batty Federal Com #001H (4.29.19)



**Project Id:** 212C-MD-01850  
**Contact:** Mike Carmona  
**Project Location:** Lea County, NM

**Date Received in Lab:** Tue Aug-06-19 01:26 pm  
**Report Date:** 09-AUG-19  
**Project Manager:** Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	633147-001	633147-002	633147-003	633147-004	633147-005	633147-006
	<i>Field Id:</i>	AH-1 (0-1')	AH-2 (0-1')	AH-2 (1'-1.5')	AH-3 (0-1')	AH-3 (1-1.5')	AH-4 (0-1')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Jul-29-19 00:00	Jul-29-19 00:00	Jul-29-19 00:00	Jul-29-19 00:00	Jul-29-19 00:00	Jul-29-19 00:00
<b>BTEX by EPA 8021B</b>	<i>Extracted:</i>	Aug-06-19 14:00	Aug-06-19 14:00	Aug-06-19 14:00	Aug-06-19 14:00	Aug-06-19 14:00	Aug-06-19 14:00
	<i>Analyzed:</i>	Aug-07-19 16:43	Aug-07-19 17:03	Aug-07-19 17:23	Aug-07-19 17:43	Aug-07-19 18:03	Aug-07-19 18:24
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00199 0.00199
Toluene		<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00199 0.00199
Ethylbenzene		<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00199 0.00199
m,p-Xylenes		<0.00399 0.00399	<0.00397 0.00397	<0.00398 0.00398	<0.00397 0.00397	<0.00397 0.00397	<0.00398 0.00398
o-Xylene		<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00199 0.00199
Total Xylenes		<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00199 0.00199
Total BTEX		<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00199 0.00199
<b>Chloride by EPA 300</b>	<i>Extracted:</i>	Aug-07-19 09:00	Aug-07-19 09:00	Aug-07-19 09:00	Aug-07-19 09:00	Aug-07-19 09:00	Aug-07-19 09:00
	<i>Analyzed:</i>	Aug-07-19 09:52	Aug-07-19 10:11	Aug-07-19 10:17	Aug-07-19 10:24	Aug-07-19 10:30	Aug-07-19 10:49
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		520 5.05	2130 24.8	612 4.98	195 5.00	146 5.02	8.56 4.97
<b>TPH by SW8015 Mod</b>	<i>Extracted:</i>	Aug-06-19 16:48	Aug-06-19 16:48	Aug-06-19 16:48	Aug-06-19 16:48	Aug-06-19 16:48	Aug-06-19 16:48
	<i>Analyzed:</i>	Aug-07-19 01:06	Aug-07-19 01:30	Aug-07-19 02:17	Aug-07-19 02:41	Aug-07-19 03:05	Aug-07-19 03:28
	<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)		<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		123 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		123 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 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*

Jessica Kramer  
Project Assistant



# Certificate of Analysis Summary 633147

Tetra Tech- Midland, Midland, TX

Project Name: Roy Batty Federal Com #001H (4.29.19)



Project Id: 212C-MD-01850

Contact: Mike Carmona

Project Location: Lea County, NM

Date Received in Lab: Tue Aug-06-19 01:26 pm

Report Date: 09-AUG-19

Project Manager: Jessica Kramer

<b>Analysis Requested</b>	<b>Lab Id:</b>	633147-007					
	<b>Field Id:</b>	AH-4 (1'-1.5')					
	<b>Depth:</b>						
	<b>Matrix:</b>	SOIL					
	<b>Sampled:</b>	Jul-29-19 00:00					
<b>BTEX by EPA 8021B</b>	<b>Extracted:</b>	Aug-06-19 14:00					
	<b>Analyzed:</b>	Aug-07-19 19:56					
	<b>Units/RL:</b>	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					
<b>Chloride by EPA 300</b>	<b>Extracted:</b>	Aug-07-19 09:00					
	<b>Analyzed:</b>	Aug-07-19 10:55					
	<b>Units/RL:</b>	mg/kg RL					
Chloride		9.24 4.95					
<b>TPH by SW8015 Mod</b>	<b>Extracted:</b>	Aug-06-19 16:48					
	<b>Analyzed:</b>	Aug-07-19 03:52					
	<b>Units/RL:</b>	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					

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.

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Jessica Kramer

Jessica Kramer  
Project Assistant

- 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





# Form 2 - Surrogate Recoveries

Project Name: Roy Batty Federal Com #001H (4.29.19)

Work Orders : 633147,

Lab Batch #: 3097738

Sample: 633147-001 / SMP

Project ID: 212C-MD-01850

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/07/19 01:06

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	86.7	100	87	70-135	
o-Terphenyl	35.5	50.0	71	70-135	

Lab Batch #: 3097738

Sample: 633147-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/07/19 01:30

## 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	99.7	92	70-135	
o-Terphenyl	38.2	49.9	77	70-135	

Lab Batch #: 3097738

Sample: 633147-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/07/19 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	93.1	99.6	93	70-135	
o-Terphenyl	39.3	49.8	79	70-135	

Lab Batch #: 3097738

Sample: 633147-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/07/19 02:41

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	91.5	99.9	92	70-135	
o-Terphenyl	35.8	50.0	72	70-135	

Lab Batch #: 3097738

Sample: 633147-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/07/19 03:05

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	89.1	100	89	70-135	
o-Terphenyl	34.0	50.0	68	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: Roy Batty Federal Com #001H (4.29.19)

Work Orders : 633147,

Lab Batch #: 3097738

Sample: 633147-006 / SMP

Project ID: 212C-MD-01850

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/07/19 03:28

SURROGATE RECOVERY STUDY					
TPH by SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	84.7	99.7	85	70-135	
o-Terphenyl	33.9	49.9	68	70-135	**

Lab Batch #: 3097738

Sample: 633147-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/07/19 03:52

SURROGATE RECOVERY STUDY					
TPH by SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	83.9	99.9	84	70-135	
o-Terphenyl	34.0	50.0	68	70-135	**

Lab Batch #: 3097944

Sample: 633147-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/07/19 16:43

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0323	0.0300	108	70-130	
4-Bromofluorobenzene	0.0314	0.0300	105	70-130	

Lab Batch #: 3097944

Sample: 633147-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/07/19 17:03

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0328	0.0300	109	70-130	
4-Bromofluorobenzene	0.0344	0.0300	115	70-130	

Lab Batch #: 3097944

Sample: 633147-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/07/19 17:23

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0316	0.0300	105	70-130	
4-Bromofluorobenzene	0.0326	0.0300	109	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: Roy Batty Federal Com #001H (4.29.19)

Work Orders : 633147,

Lab Batch #: 3097944

Sample: 633147-004 / SMP

Project ID: 212C-MD-01850

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/07/19 17:43

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0304	0.0300	101	70-130	
4-Bromofluorobenzene	0.0348	0.0300	116	70-130	

Lab Batch #: 3097944

Sample: 633147-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/07/19 18:03

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0328	0.0300	109	70-130	
4-Bromofluorobenzene	0.0321	0.0300	107	70-130	

Lab Batch #: 3097944

Sample: 633147-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/07/19 18:24

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0258	0.0300	86	70-130	
4-Bromofluorobenzene	0.0346	0.0300	115	70-130	

Lab Batch #: 3097944

Sample: 633147-007 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/07/19 19:56

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0314	0.0300	105	70-130	
4-Bromofluorobenzene	0.0312	0.0300	104	70-130	

Lab Batch #: 3097738

Sample: 7683636-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/06/19 19:57

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.4	100	97	70-135	
o-Terphenyl	38.9	50.0	78	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: Roy Batty Federal Com #001H (4.29.19)

Work Orders : 633147,

Lab Batch #: 3097944

Sample: 7683634-1-BLK / BLK

Project ID: 212C-MD-01850

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/07/19 15:02

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0316	0.0300	105	70-130	
4-Bromofluorobenzene	0.0295	0.0300	98	70-130	

Lab Batch #: 3097738

Sample: 7683636-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/06/19 20:21

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	99.0	100	99	70-135	
o-Terphenyl	48.1	50.0	96	70-135	

Lab Batch #: 3097944

Sample: 7683634-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/07/19 13:28

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0316	0.0300	105	70-130	
4-Bromofluorobenzene	0.0317	0.0300	106	70-130	

Lab Batch #: 3097738

Sample: 7683636-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/06/19 20:44

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	93.8	100	94	70-135	
o-Terphenyl	46.5	50.0	93	70-135	

Lab Batch #: 3097944

Sample: 7683634-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 08/07/19 22:55

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0303	0.0300	101	70-130	
4-Bromofluorobenzene	0.0326	0.0300	109	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: Roy Batty Federal Com #001H (4.29.19)

Work Orders : 633147,

Lab Batch #: 3097738

Sample: 632995-001 S / MS

Project ID: 212C-MD-01850

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/06/19 21:32

## SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	79.7	99.7	80	70-135	
o-Terphenyl	35.2	49.9	71	70-135	

Lab Batch #: 3097944

Sample: 633109-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/07/19 14:10

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0318	0.0300	106	70-130	
4-Bromofluorobenzene	0.0305	0.0300	102	70-130	

Lab Batch #: 3097738

Sample: 632995-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/06/19 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	76.7	99.8	77	70-135	
o-Terphenyl	33.4	49.9	67	70-135	**

Lab Batch #: 3097944

Sample: 633109-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 08/07/19 18:44

## SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0314	0.0300	105	70-130	
4-Bromofluorobenzene	0.0329	0.0300	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.



## BS / BSD Recoveries



**Project Name: Roy Batty Federal Com #001H (4.29.19)**

**Work Order #:** 633147

**Project ID:** 212C-MD-01850

**Analyst:** ALG

**Date Prepared:** 08/06/2019

**Date Analyzed:** 08/07/2019

**Lab Batch ID:** 3097944

**Sample:** 7683634-1-BKS

**Batch #:** 1

**Matrix:** Solid

**Units:** mg/kg

### BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

<b>BTEX by EPA 8021B</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Benzene	<0.000385	0.100	0.105	105	0.100	0.107	107	2	70-130	35	
Toluene	<0.000456	0.100	0.0923	92	0.100	0.0985	99	6	70-130	35	
Ethylbenzene	<0.000565	0.100	0.0893	89	0.100	0.0976	98	9	70-130	35	
m,p-Xylenes	<0.00101	0.200	0.176	88	0.200	0.194	97	10	70-130	35	
o-Xylene	<0.000344	0.100	0.0932	93	0.100	0.103	103	10	70-130	35	

**Analyst:** CHE

**Date Prepared:** 08/07/2019

**Date Analyzed:** 08/07/2019

**Lab Batch ID:** 3097726

**Sample:** 7683628-1-BKS

**Batch #:** 1

**Matrix:** Solid

**Units:** mg/kg

### BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

<b>Chloride by EPA 300</b>	<b>Blank Sample Result [A]</b>	<b>Spike Added [B]</b>	<b>Blank Spike Result [C]</b>	<b>Blank Spike %R [D]</b>	<b>Spike Added [E]</b>	<b>Blank Spike Duplicate Result [F]</b>	<b>Blk. Spk Dup. %R [G]</b>	<b>RPD %</b>	<b>Control Limits %R</b>	<b>Control Limits %RPD</b>	<b>Flag</b>
<b>Analytes</b>											
Chloride	<5.00	250	262	105	250	262	105	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: Roy Batty Federal Com #001H (4.29.19)**

**Work Order #:** 633147

**Project ID:** 212C-MD-01850

**Analyst:** ARM

**Date Prepared:** 08/06/2019

**Date Analyzed:** 08/06/2019

**Lab Batch ID:** 3097738

**Sample:** 7683636-1-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)	12.0	1000	1140	114	1000	1110	111	3	70-135	20	
Diesel Range Organics (DRO)	13.7	1000	1190	119	1000	1150	115	3	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: Roy Batty Federal Com #001H (4.29.19)

Work Order #: 633147

Project ID: 212C-MD-01850

Lab Batch ID: 3097944

QC- Sample ID: 633109-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 08/07/2019

Date Prepared: 08/06/2019

Analyst: ALG

Reporting Units: mg/kg

## 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	0.000448	0.0992	0.0775	78	0.0998	0.115	115	39	70-130	35	F
Toluene	0.00357	0.0992	0.0665	63	0.0998	0.104	101	44	70-130	35	XF
Ethylbenzene	0.00184	0.0992	0.0633	62	0.0998	0.104	102	49	70-130	35	XF
m,p-Xylenes	0.0151	0.198	0.123	54	0.200	0.206	95	50	70-130	35	XF
o-Xylene	0.00745	0.0992	0.0650	58	0.0998	0.104	97	46	70-130	35	XF

Lab Batch ID: 3097726

QC- Sample ID: 633147-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 08/07/2019

Date Prepared: 08/07/2019

Analyst: CHE

Reporting Units: mg/kg

## 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	520	253	768	98	253	769	98	0	90-110	20	

Lab Batch ID: 3097738

QC- Sample ID: 632995-001 S

Batch #: 1 Matrix: Soil

Date Analyzed: 08/06/2019

Date Prepared: 08/06/2019

Analyst: ARM

Reporting Units: mg/kg

## 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)	14.8	997	1010	100	998	1000	99	1	70-135	20	
Diesel Range Organics (DRO)	56.5	997	1060	101	998	996	94	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.

## Analysis Request of Chain of Custody Record

Page 1 of 1



Tetra Tech, Inc.

901 West Wall, Suite 100  
Midland, Texas 79701  
Tel (432) 682-4559  
Fax (432) 682-3946

Client Name: COG		Site Manager: Mike Carmona	
Project Name: Roy Batty Federal Com #001H			
Project Location: (county, state) Lea County, NM		Project #: 212C-MD-01850	
Invoice to: COG like Tavaréz		Sampler Signature: Devin D	
Receiving Laboratory: Xenco		Comments:	

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		MATRIX	PRESERVATIVE METHOD					# CONTAINERS	FILTERED (Y/N)	
		DATE	TIME		WATER	SOIL	HCL	HNO <sub>3</sub>	ICE			None
	AH-1 (0-1')	7/29/2019		X			X			1 N		
	AH-2 (0-1')	7/29/2019		X			X			1 N		
	AH-2 (1'-1.5')	7/29/2019		X			X			1 N		
	AH-3 (0-1')	7/29/2019		X			X			1 N		
	AH-3 (1'-1.5')	7/29/2019		X			X			1 N		
	AH-4 (0-1')	7/29/2019		X			X			1 N		
	AH-4 (1'-1.5')	7/29/2019		X			X			1 N		

LAB USE ONLY	REMARKS:
<input type="checkbox"/> STANDARD	
<input checked="" type="checkbox"/> RUSH: Same Day 24 hr 48 hr 72 hr	
<input type="checkbox"/> Rush Charges Authorized	
<input type="checkbox"/> Special Report Limits or TRRP Report	

Reinquished by: Mike Carmona	Date: 8/6/19	Time: 1326	Received by: [Signature]	Date: 8/6/19	Time: 1326
Reinquished by:	Date:	Time:	Received by:	Date:	Time:

Reinquished by:	Date:	Time:	Received by:	Date:	Time:
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ORIGINAL COPY

ANALYSIS REQUEST  
(Circle or Specify Method No.)

BTEX 8021B BTEX 8260B

TPH TX1005 (Ext to C35)

TPH 8015M (GRO - DRO - ORO - MRO)

PAH 8270C

Total Metals Ag As Ba Cd Cr Pb Se Hg

TCLP Metals Ag As Ba Cd Cr Pb Se Hg

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8260B / 624

GC/MS Semi. Vol. 8270C/625

PCB's 8082 / 608

NORM

PLM (Asbestos)

Chloride

Chloride Sulfate TDS

General Water Chemistry (see attached list)

Anion/Cation Balance

Hold



# XENCO Laboratories

## Prelogin/Nonconformance Report- Sample Log-In



**Client:** Tetra Tech- Midland

**Date/ Time Received:** 08/06/2019 01:26:00 PM

**Work Order #:** 633147

**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)?	3.3
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

**Checklist completed by:**

*Brianna Teel*

Brianna Teel

Date: 08/06/2019

**Checklist reviewed by:**

*Jessica Kramer*

Jessica Kramer

Date: 08/06/2019