SITE INFORMATION

Report Type: Work Plan 2RP-5209

General Site Information:						
Site & Lease No:	**SRO State Com #64**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit E**	**Sec. 10**	**T 26S**	**R 28E**		
Lease Number:	**API No. 30-015-42130**					
County:	**Eddy County**					
GPS:	**32.057491**			**-104.082026**		
Surface Owner:	**State**					
Directions:	From the intersection of Hwy 285 and Whites City Rd, travel west on Whites City Rd for 1.0 mi, turn south onto lease road and continue for 0.30 mi, turn west onto lease road for 0.20 miles to location.					

Release Data:	
Date Released:	1/10/2019
Type Release:	Produced Water
Source of Contamination:	Transfer Line
Fluid Released:	10 bbls
Fluids Recovered:	5 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:	*>100'*
Karst Potential:	*Medium*

Recommended Remedial Action Levels (RRALs)			
Benzene	***Total BTEX***	***TPH (GRO+DRO+MRO)***	***Chlorides***
10 mg/kg	*50 mg/kg*	*100 mg/kg*	*600 mg/kg*

TETRA TECH

April 8, 2019

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

Re: Work Plan for the COG Operating, LLC, SRO State Com #64, Unit E, Section 10, Township 26 South, Range 28 East, Eddy County, New Mexico.
2RP-5209

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating, LLC (COG) to assess a release that occurred at the SRO State Com #64, Unit E, Section 10, Township 26 South, Range 28 East, Eddy County, New Mexico (Site). The spill site coordinates are 32.057491°, -104.082026°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on January 10, 2019, and released approximately 10 barrels of produced water due to a hole in the thread adapter on the transfer line. A vacuum truck was dispatched to remove all freestanding fluids, recovering approximately 5 barrels of produced water. The release occurred in the pasture adjacent to the facility and impacted an area measuring approximately 18' x 140'. 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.

However, the site is located in a medium karst potential area. No water wells were listed within Section 10 on the New Mexico Office of the State Engineer's (NMOSE) database, the Geology and Groundwater Resources of Eddy County (Report 3), or the USGS National Water Information database. The nearest well is listed in Section 14 on the USGS database, approximately 1.0 mile southeast of the site, and has a reported depth to groundwater of 140' below surface. According to the Chevron Texaco Groundwater Trend map, the average depth to groundwater in the area is 50'-75' below surface. The groundwater data is shown in Appendix B

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

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, updated August 14, 2018. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the site characterization the proposed RRAL for TPH is 100 mg/kg (GRO+DRO+MRO). Additionally, the proposed RRAL for chlorides is 600 mg/kg.

Soil Assessment and Analytical Results

Tetra Tech personnel were onsite on February 21, 2019, to evaluate the release area. A total of three (3) boreholes (BH-1, BH-2, and BH-3) were installed in the release footprint to total depths ranging from 6'-7' to 39'-40' below surface. Additionally, four (4) horizontal samples (Horizontal South 1, Horizontal West 1, Horizontal West 2, and Horizontal North 1) were collected to define the horizontal extents of the release. Selected 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 the boring logs are included in Appendix C. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix D. The results of the sampling are summarized in Table 1. The sample locations are shown on Figure 3.

Bore Holes

Referring to Table 1, the areas of boreholes (BH-1, BH-2, and BH-3) did not show any benzene, total BTEX, or TPH concentrations above the laboratory reporting limits. The areas of boreholes (BH-2 and BH-3) showed chloride concentrations above the 600 mg/kg threshold in the shallow soils, with chloride highs of 714 mg/kg (BH-2) and 850 mg/kg (BH-3) at 0-1' below surface. The chloride concentrations in these areas then declined with depth to below the RRAL at 2'-3' (BH-2) and 4'-5' (BH-3). The area of borehole (BH-1) showed a chloride high of 7,020 mg/kg at 0-1', which declined with depth to below the RRAL at 9'-10' with a chloride concentration of 333 mg/kg. However, the chloride concentrations then increased with depth to 5,900 mg/kg at 24'-25' before declining to 140 mg/kg at 34'-35' and 243 mg/kg at 39'-40' below surface.

Horizontals

Referring to Table 1, none of the horizontal samples collected showed benzene, total BTEX, TPH, or chloride concentrations above the RRALs.

Work Plan

Based on the laboratory results, COG proposes to remove the chloride impacted soils as shown on Figure 4 and highlighted (green) on Table 1. Due to access issues and safely concerns, the proposed excavation will be performed to remove the impacted soil to the maximum extent practicable. The areas of borehole (BH-2) will be excavated to 1'-2' and the

area of borehole (BH-3) will be excavated to 2'-3' below surface. Additionally, the area of borehole (BH-1) will be excavated to 4'-5' below surface.

Variance

Per rule 19.15.29.14, COG requests a variance to install a 20-mil liner at 4.0' below surface in the areas of borehole (BH-1) to prevent vertical migration of the deeper chloride concentrations detected. Prior to the liner installation, composite sidewall samples will be collected every 200 square feet, to be representative of the release area, for documentation purposes.

Once completed, the excavated areas will then be backfilled with clean material to surface grade. All the excavated material will be transported offsite for proper disposal. COG estimates approximately 480 cubic yards will be excavated and will be implemented within ninety (90) days of the work plan being approved.

Sampling Plan

Five-point composite bottom hole confirmation samples will be collected in the areas of borehole (BH-2 and BH-3) sidewall confirmation samples will be collected in the areas of borehole (BH-1, BH-2, and BH-3) every 200 square feet in order to ensure proper removal of the impacted areas. The proposed excavation depths may not be reached due to wall cave-ins and safety concerns for onsite personnel. Also, impacted soil around oil and gas equipment, structures or lines may not be viable or practicable to be removed due to safely concerns for on-site personnel. As such, COG will excavate the impacted soils to the maximum extent practicable.

Conclusion

Upon completion, a final report detailing the remediation activities will be submitted to the NMOCD. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

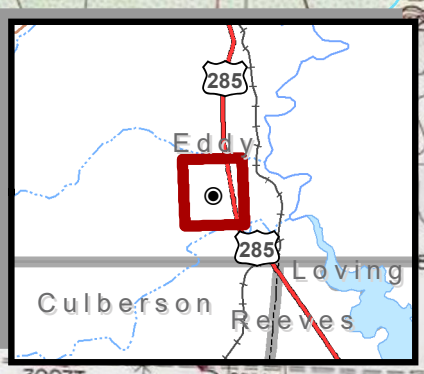
Clair Gonzales,
Project Manager

Mike Carmona,
Geologist

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

Figures

MAPPED BY: MISTI MORGAN



OVERALL VIEW 1:730,462

SRO STATE COM #064H

N
W
E
S

0 2,000 4,000 Feet

1 inch = 2,000 feet

LEGEND

SITE LOCATION

CONCHO

FIGURE 2

SRO STATE COM #064H
(32.057491°,-104.082026°)

TOPOGRAPHIC MAP

EDDY COUNTY, NEW MEXICO

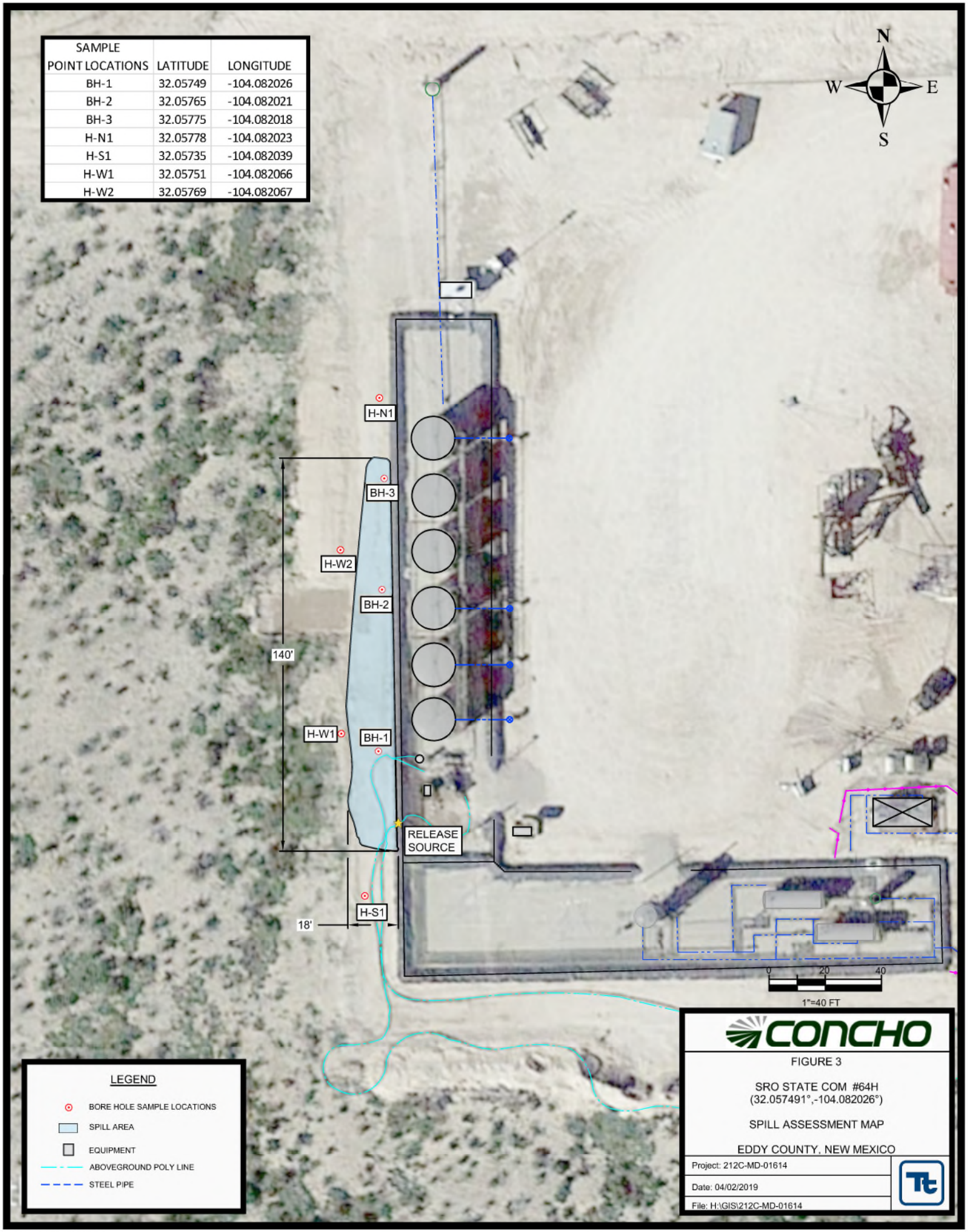
Project : 212C-MD-01614

Date : 03/29/2019

File : H:\GIS\212C-MD-01614

MAPPED BY: MISTI MORGAN

SAMPLE POINT LOCATIONS	LATITUDE	LONGITUDE
BH-1	32.05749	-104.082026
BH-2	32.05765	-104.082021
BH-3	32.05775	-104.082018
H-N1	32.05778	-104.082023
H-S1	32.05735	-104.082039
H-W1	32.05751	-104.082066
H-W2	32.05769	-104.082067



LEGEND

- BORE HOLE SAMPLE LOCATIONS
- SPILL AREA
- EQUIPMENT
- ABOVEGROUND POLY LINE
- STEEL PIPE

CONCHO

FIGURE 3

SRO STATE COM #64H
(32.057491°,-104.082026°)

SPILL ASSESSMENT MAP

EDDY COUNTY, NEW MEXICO

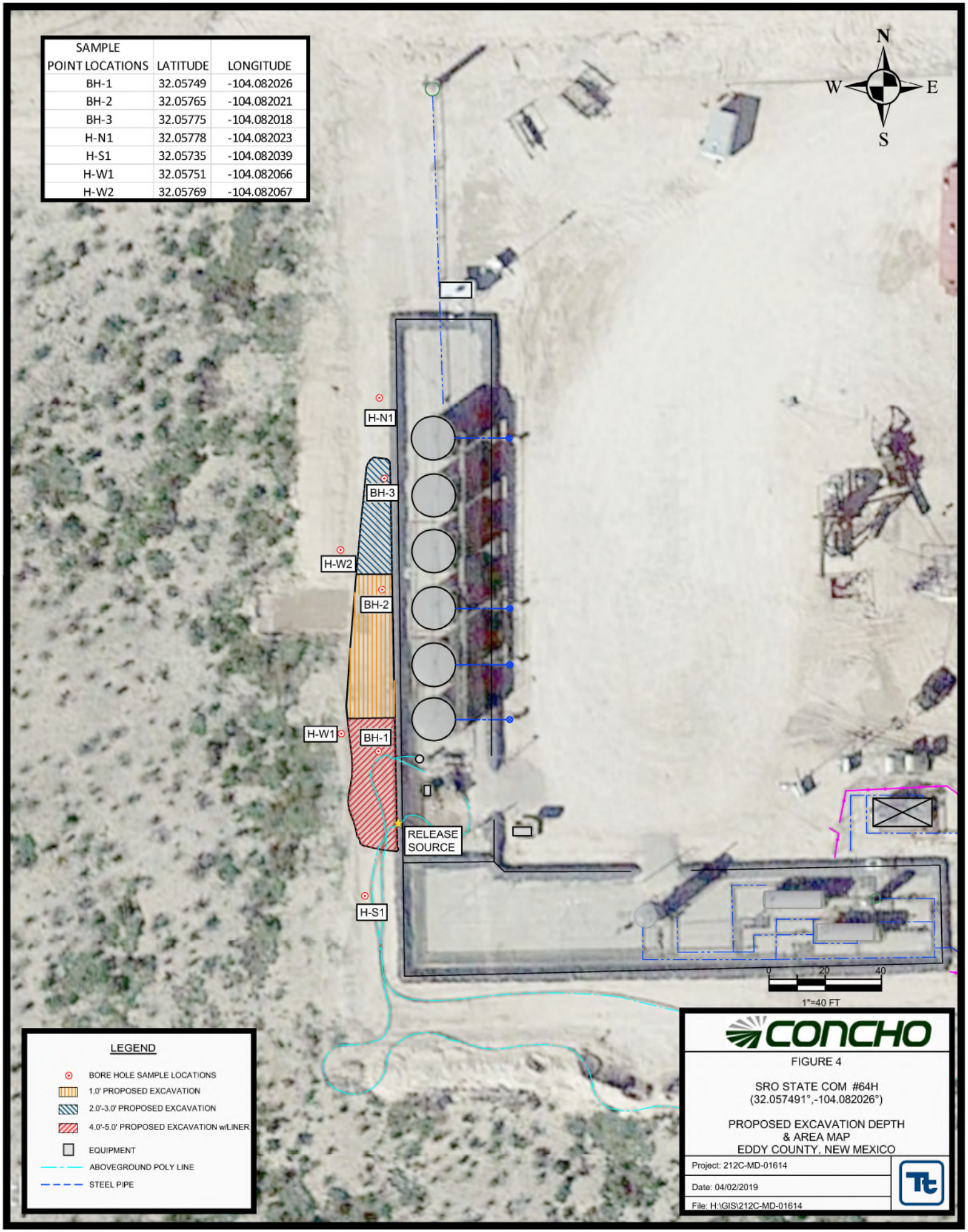
Project: 212C-MD-01614

Date: 04/02/2019

File: H:\GIS\212C-MD-01614

Drawn By: MISTI MORGAN

SAMPLE POINT LOCATIONS	LATITUDE	LONGITUDE
BH-1	32.05749	-104.082026
BH-2	32.05765	-104.082021
BH-3	32.05775	-104.082018
H-N1	32.05778	-104.082023
H-S1	32.05735	-104.082039
H-W1	32.05751	-104.082066
H-W2	32.05769	-104.082067



LEGEND

- BORE HOLE SAMPLE LOCATIONS
- 1.0' PROPOSED EXCAVATION
- 2.0'-3.0' PROPOSED EXCAVATION
- 4.0'-5.0' PROPOSED EXCAVATION w/LINER
- EQUIPMENT
- ABOVEGROUND POLY LINE
- STEEL PIPE

CONCHO

FIGURE 4

SRO STATE COM #64H
(32.057491°,-104.082026°)

PROPOSED EXCAVATION DEPTH
& AREA MAP
EDDY COUNTY, NEW MEXICO

Project: 212C-MD-01614

Date: 04/02/2019

File: H:\GIS\212C-MD-01614

Drawn By: MISTI MORGAN

Tables

Table 1
COG
SRO State Com #64
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	ORO	Total						
BH-1	2/21/2019	0-1	X		<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	**7,020**
	"	2-3	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	**6,990**
	"	4-5	X		-	-	-	-	-	-	-	-	-	**5,790**
	"	6-7	X		-	-	-	-	-	-	-	-	-	**5,810**
	"	9-10	X		-	-	-	-	-	-	-	-	-	333
	"	14-15	X		-	-	-	-	-	-	-	-	-	**712**
	"	19-20	X		-	-	-	-	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	**3,740**
	"	24-25	X		-	-	-	-	-	-	-	-	-	**5,900**
	"	29-30	X		-	-	-	-	-	-	-	-	-	**1,690**
	"	34-35	X		-	-	-	-	-	-	-	-	-	140
	"	39-40	X		-	-	-	-	-	-	-	-	-	243
BH-2	2/21/2019	0-1	X		<15.0	<15.0	<15.0	<15.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	**714**
	"	2-3	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	229
	"	4-5	X		-	-	-	-	-	-	-	-	-	421
	"	6-7	X		-	-	-	-	-	-	-	-	-	<49.5
	"	9-10	X		-	-	-	-	-	-	-	-	-	67.0
BH-3	2/21/2019	0-1	X		<14.9	<14.9	<14.9	<14.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	**850**
	"	2-3	X		<14.9	<14.9	<14.9	<14.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	**619**
	"	4-5	X		-	-	-	-	-	-	-	-	-	329
	"	6-7	X		-	-	-	-	-	-	-	-	-	522
Horizontal South 1	2/21/2019	-	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	224
Horizontal West 1	2/21/2019	-	X		<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	202
Horizontal West 2	2/21/2019	-	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	57.6
Horizontal North 1	2/21/2019	-	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	122

(-) Not Analyzed

Proposed Excavation Depth

Proposed Liner

Photos

COG Operating LLC
SRO State Com #64
Eddy County, New Mexico

View South – Area of BH-1

View West – Area of BH-2

COG Operating LLC
SRO State Com #64
Eddy County, New Mexico

View Northwest – Area of BH-3

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	2RP-5209
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 32.05748 Longitude -104.08201

(NAD 83 in decimal degrees to 5 decimal places)

Site Name	SRO State Com #064H	Site Type	Flowline
Date Release Discovered	January 10, 2019	API# *(if applicable)*	30-015-42130

Unit Letter	Section	Township	Range	County
E	10	26S	28E	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)	Volume Recovered (bbls)
■ Produced Water	Volume Released (bbls) 10	Volume Recovered (bbls) 5
	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 hole in the thread adapter on the transfer line. The thread adapter is being replaced. 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.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5209
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Application ID	

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

Initial Response

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

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

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

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

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

Printed Name: DeAnn Grant Title: HSE Administrative Assistant

Signature: DeAnn Grant Date: 1/18/2019

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

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5209
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	>100 (ft bgs)
Did this release impact groundwater or surface water?	☐ 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-5209
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: 4-9-19

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

OCD Only

Received by: Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-5209
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: 4-9-19

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

OCD Only

Received by: Date:

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

Signature: Date:

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - SRO State #64
Eddy County, New Mexico

25 South 27 East

6	5	4	3	2	1
7	8	9	10	11	12 92
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33 19	34	35	36

25 South 28 East

6	5 59	4 35	3 32	2	1 Site
7	8	9	10	11	12
18 67	17	16	15 48 49	14	13
19	20 96	21	22	23	24
30	29 15	28 90	27	26 40	25
31	32	33	34	35	36 40

25 South 29 East

6 40	5	4	3	2	1
7	8	9	10 40	11	12
18	17	16	15 60	14	13
19	20	21	22	23	24
30 30	29	28	27	26	25
31	32 115	33	34	35	36

26 South 27 East

6	5 12	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13 35
19	20	21	22 50	23	24
30	29	28	27	26	25
31	32	33	34	35	36

26 South 28 East

6	5	4	3	2 120	1
7	8	9	10	11	12 100
18	17	16	15	14 140	13 56
19	20	21	22 120	23	24
30	29	28	27	26	25
31	32	33	34	35	36

26 South 29 East

6	5 78	4	3	2	1
7	8	9	10	11	12
18	17	16 125	15	14	13
19	20	21	22 57 69	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

121 Abandoned Waterwell (recently measured)

New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

(NAD83 UTM in meters)

(In feet)

POD Number	Code	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Twn	Rng	X	Y		Depth Well	Depth Water	Water Column
C 01668		CUB	ED		3	3	12	26S	28E	589957	3546554*		250	100	150
C 02160		CUB	ED	4	1	2	14	26S	28E	589243	3546044*		300	120	180
C 02160 S		CUB	ED	1	1	2	14	26S	28E	589043	3546244*		300	120	180
C 02160 S2		CUB	ED	1	1	2	14	26S	28E	589043	3546244*		300	120	180
C 02160 S3		CUB	ED	2	2	1	14	26S	28E	588834	3546241*		300	120	180
C 02160 S4		CUB	ED	2	2	1	14	26S	28E	588834	3546241*		300	120	180
C 02160 S5		CUB	ED	1	1	1	14	26S	28E	588225	3546237*		300	120	180
C 02160 S6		CUB	ED	3	3	1	14	26S	28E	588232	3545635*		300	120	180
C 02160 S7		CUB	ED	3	3	1	22	26S	28E	586638	3543998*		300	120	180
C 02160 S8		CUB	ED	2	3	3	12	26S	28E	590056	3546653*		200	120	80
C 02160 S9		CUB	ED	3	3	2	02	26S	28E	589020	3548868*		300	120	180
C 02477		CUB	ED		1	1	03	26S	28E	586687	3549347*		150		
C 02478		CUB	ED		2	1	05	26S	28E	583848	3549325*		100		
C 02479		CUB	ED		4	4	10	26S	28E	587909	3546534*		200		
C 02480		CUB	ED		4	4	10	26S	28E	587909	3546534*		150		
C 02481		CUB	ED		1	1	14	26S	28E	588326	3546138*		200		
C 02894		C	ED	2	2	3	12	26S	28E	590458	3547061*		240		
C 02924		C	ED	1	3	2	11	26S	28E	589032	3547451*				
C 04022 POD1		CUB	ED	4	4	2	15	26S	28E	588082	3545647		220	175	45
C 04022 POD2		CUB	ED	2	2	2	27	26S	28E	588106	3543082		250	145	105

Average Depth to Water: **124 feet**

Minimum Depth: **100 feet**

Maximum Depth: **175 feet**

Record Count: 20

PLSS Search:

Township: 26S **Range:** 28E

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

National Water Information System: Web Interface

Click to hideNews Bulletins

- Introducing The Next Generation of USGS Water Data for the Nation
- Full News

Groundwater levels for New Mexico

Click to hide state-specific text

Search Results -- 1 sites found

site_no list =

- 320309104020401

Minimum number of levels = 1

Save file of selected sites to local disk for future upload

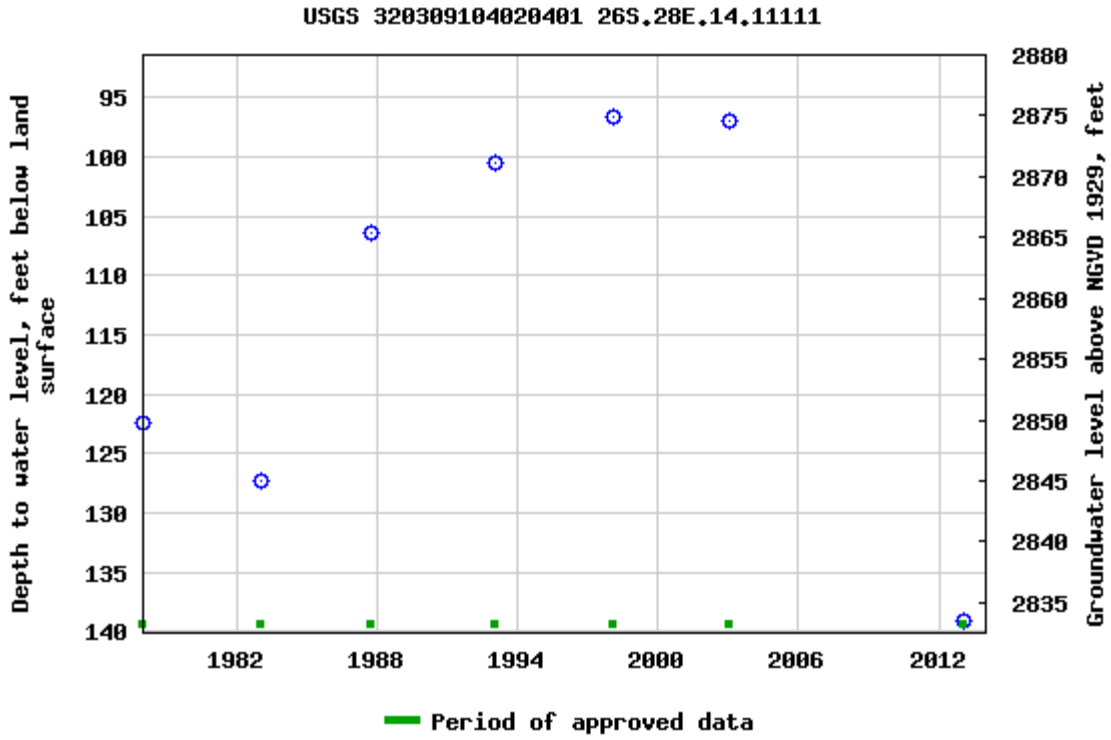
USGS 320309104020401 26S.28E.14.11111

Available data for this site Groundwater: Field measurements GO

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°02'59.0", Longitude 104°03'58.7" NAD83
Land-surface elevation 2,972.00 feet above NGVD29
This well is completed in the Rustler Formation (312RSLR) local aquifer.

Output formats

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



Breaks in the plot represent a gap of at least one year between field measurements.
Download a presentation-quality graph

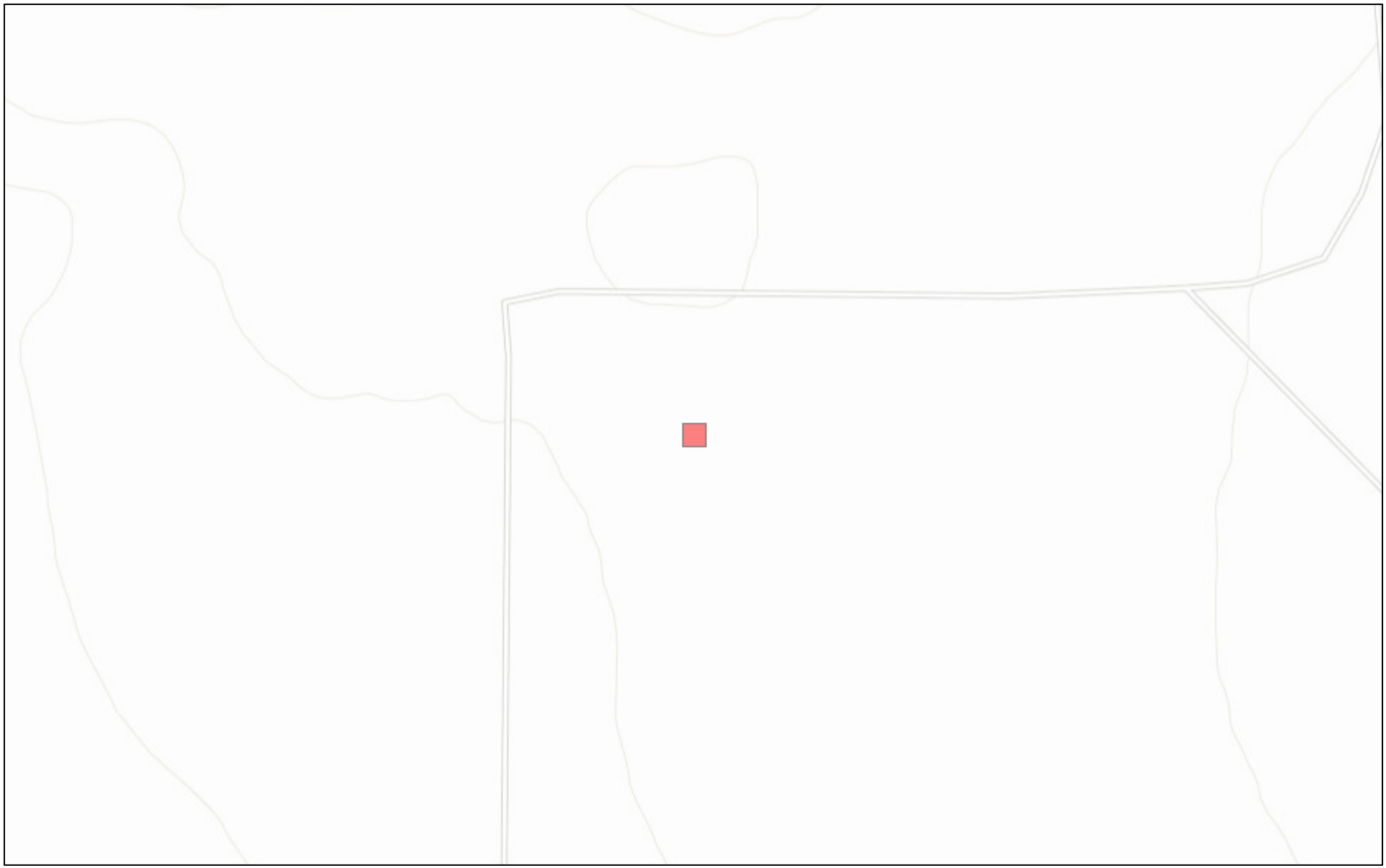
Questions about sites/data?
Feedback on this web site
Automated retrievals
Help
Data Tips
Explanation of terms
Subscribe for system changes
News

Title: Groundwater for New Mexico: Water Levels
URL: https://nwis.waterdata.usgs.gov/nm/nwis/gwlevels?

Page Contact Information: New Mexico Water Data Maintainer
Page Last Modified: 2019-03-22 11:39:04 EDT
1.16 0.95 nadww01


SRO State Com #64H
Legend
32.05748 -104.08201
High
Low
Medium
32.05748 -104.08201
285
Google Earth
© 2018 Google
N
2 mi

New Mexico NFHL Data



March 22, 2019

1:4,514

0 0.0375 0.075 0.15 mi

0 0.05 0.1 0.2 km

FEMA

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

Appendix C

Analytical Report 615456

for

Tetra Tech- Midland

Project Manager: Clair Gonzales

SRO State Com #64

212C-MD-01614

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

27-FEB-19

Project Manager: **Clair Gonzales**
Tetra Tech- Midland
901 West Wall ST
Midland, TX 79701

Reference: XENCO Report No(s): **615456**
SRO State Com #64
Project Address: Eddy County, New Mexico

Clair Gonzales:

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) 615456. 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. 615456 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 615456

Tetra Tech- Midland, Midland, TX

SRO State Com #64

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH-1 (0'-1')	S	02-21-19 00:00		615456-001
BH-1 (2'-3')	S	02-21-19 00:00		615456-002
BH-1 (4'-5')	S	02-21-19 00:00		615456-003
BH-1 (6'-7')	S	02-21-19 00:00		615456-004
BH-1 (9'-10')	S	02-21-19 00:00		615456-005
BH-1 (14'-15')	S	02-21-19 00:00		615456-006
BH-1 (19'-20')	S	02-21-19 00:00		615456-007
BH-1 (24'-25')	S	02-21-19 00:00		615456-008
BH-1 (29'-30')	S	02-21-19 00:00		615456-009
BH-1 (34'-35')	S	02-21-19 00:00		615456-010
BH-1 (39'-40')	S	02-21-19 00:00		615456-011
BH-2 (0'-1')	S	02-21-19 00:00		615456-012
BH-2 (2'-3')	S	02-21-19 00:00		615456-013
BH-2 (4'-5')	S	02-21-19 00:00		615456-014
BH-2 (6'-7')	S	02-21-19 00:00		615456-015
BH-2 (9'-10')	S	02-21-19 00:00		615456-016
BH-3 (0'-1')	S	02-21-19 00:00		615456-017
BH-3 (2'-3')	S	02-21-19 00:00		615456-018
BH-3 (4'-5')	S	02-21-19 00:00		615456-019
BH-3 (4'-7')	S	02-21-19 00:00		615456-020
Horizontal-South 1	S	02-21-19 00:00		615456-021
Horizontal- West 1	S	02-21-19 00:00		615456-022
Horizontal West-2	S	02-21-19 00:00		615456-023
Horizontal- North 1	S	02-21-19 00:00		615456-024

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3080460 BTEX by EPA 8021B

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

Certificate of Analysis Summary 615456

Tetra Tech- Midland, Midland, TX

Project Name: SRO State Com #64

Project Id: 212C-MD-01614
Contact: Clair Gonzales
Project Location: Eddy County, New Mexico

Date Received in Lab: Fri Feb-22-19 10:50 am
Report Date: 27-FEB-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	615456-001		615456-002		615456-003		615456-004		615456-005		615456-006	
	Field Id:	BH-1 (0'-1')		BH-1 (2'-3')		BH-1 (4'-5')		BH-1 (6'-7')		BH-1 (9'-10')		BH-1 (14'-15')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00	
BTEX by EPA 8021B	***Extracted:***	Feb-26-19 13:45		Feb-26-19 13:45									
	Analyzed:	Feb-26-19 15:44		Feb-26-19 17:56									
	Units/RL:	mg/kg	RL	mg/kg	RL								
Benzene		<0.00201	0.00201	<0.00200	0.00200								
Toluene		<0.00201	0.00201	<0.00200	0.00200								
Ethylbenzene		<0.00201	0.00201	<0.00200	0.00200								
m,p-Xylenes		<0.00402	0.00402	<0.00401	0.00401								
o-Xylene		<0.00201	0.00201	<0.00200	0.00200								
Total Xylenes		<0.00201	0.00201	<0.00200	0.00200								
Total BTEX		<0.00201	0.00201	<0.00200	0.00200								
Chloride by EPA 300	***Extracted:***	Feb-22-19 14:40		Feb-22-19 14:40		Feb-22-19 14:40		Feb-22-19 14:40		Feb-22-19 14:40		Feb-22-19 14:40	
	Analyzed:	Feb-22-19 17:03		Feb-22-19 17:23		Feb-22-19 17:29		Feb-22-19 17:36		Feb-22-19 17:42		Feb-22-19 17:48	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		7020	49.6	6990	49.7	5790	49.9	5810	100	333	50.0	712	25.0
TPH by SW8015 Mod	***Extracted:***	Feb-22-19 14:00		Feb-22-19 14:00									
	Analyzed:	Feb-23-19 01:43		Feb-23-19 02:42									
	Units/RL:	mg/kg	RL	mg/kg	RL								
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0	<15.0	15.0								
Diesel Range Organics (DRO)		<15.0	15.0	<15.0	15.0								
Motor Oil Range Hydrocarbons (MRO)		<15.0	15.0	<15.0	15.0								
Total TPH		<15.0	15.0	<15.0	15.0								

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 615456

Tetra Tech- Midland, Midland, TX

Project Name: SRO State Com #64

Project Id: 212C-MD-01614
Contact: Clair Gonzales
Project Location: Eddy County, New Mexico

Date Received in Lab: Fri Feb-22-19 10:50 am
Report Date: 27-FEB-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	615456-007		615456-008		615456-009		615456-010		615456-011		615456-012	
	Field Id:	BH-1 (19'-20')		BH-1 (24'-25')		BH-1 (29'-30')		BH-1 (34'-35')		BH-1 (39'-40')		BH-2 (0'-1')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00	
BTEX by EPA 8021B	***Extracted:***	Feb-26-19 13:45										Feb-26-19 13:45	
	Analyzed:	Feb-26-19 20:07										Feb-26-19 20:26	
	Units/RL:	mg/kg	RL									mg/kg	RL
Benzene		<0.00199	0.00199									<0.00202	0.00202
Toluene		<0.00199	0.00199									<0.00202	0.00202
Ethylbenzene		<0.00199	0.00199									<0.00202	0.00202
m,p-Xylenes		<0.00398	0.00398									<0.00403	0.00403
o-Xylene		<0.00199	0.00199									<0.00202	0.00202
Total Xylenes		<0.00199	0.00199									<0.00202	0.00202
Total BTEX		<0.00199	0.00199									<0.00202	0.00202
Chloride by EPA 300	***Extracted:***	Feb-22-19 14:40		Feb-22-19 14:40		Feb-22-19 14:40		Feb-22-19 14:40		Feb-22-19 14:40		Feb-22-19 14:40	
	Analyzed:	Feb-22-19 18:13		Feb-22-19 18:19		Feb-22-19 18:39		Feb-22-19 18:45		Feb-22-19 16:15		Feb-22-19 18:51	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		3740	24.9	5900	49.9	1690	25.0	140	24.8	243	4.97	714	24.8
TPH by SW8015 Mod	***Extracted:***											Feb-22-19 14:00	
	Analyzed:											Feb-23-19 03:01	
	Units/RL:											mg/kg	RL
Gasoline Range Hydrocarbons (GRO)												<15.0	15.0
Diesel Range Organics (DRO)												<15.0	15.0
Motor Oil Range Hydrocarbons (MRO)												<15.0	15.0
Total TPH												<15.0	15.0

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 615456

Tetra Tech- Midland, Midland, TX

Project Name: SRO State Com #64

Project Id: 212C-MD-01614
Contact: Clair Gonzales
Project Location: Eddy County, New Mexico

Date Received in Lab: Fri Feb-22-19 10:50 am
Report Date: 27-FEB-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	615456-013		615456-014		615456-015		615456-016		615456-017		615456-018	
	Field Id:	BH-2 (2'-3')		BH-2 (4'-5')		BH-2 (6'-7')		BH-2 (9'-10')		BH-3 (0'-1')		BH-3 (2'-3')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00	
BTEX by EPA 8021B	***Extracted:***	Feb-26-19 13:45								Feb-26-19 13:45		Feb-26-19 13:45	
	Analyzed:	Feb-26-19 21:04								Feb-26-19 21:23		Feb-26-19 21:42	
	Units/RL:	mg/kg	RL							mg/kg	RL	mg/kg	RL
Benzene		<0.00199	0.00199							<0.00200	0.00200	<0.00200	0.00200
Toluene		<0.00199	0.00199							<0.00200	0.00200	<0.00200	0.00200
Ethylbenzene		<0.00199	0.00199							<0.00200	0.00200	<0.00200	0.00200
m,p-Xylenes		<0.00398	0.00398							<0.00399	0.00399	<0.00401	0.00401
o-Xylene		<0.00199	0.00199							<0.00200	0.00200	<0.00200	0.00200
Total Xylenes		<0.00199	0.00199							<0.00200	0.00200	<0.00200	0.00200
Total BTEX		<0.00199	0.00199							<0.00200	0.00200	<0.00200	0.00200
Chloride by EPA 300	***Extracted:***	Feb-22-19 14:40		Feb-22-19 14:40		Feb-22-19 14:40		Feb-22-19 14:40		Feb-22-19 14:40		Feb-22-19 15:10	
	Analyzed:	Feb-22-19 18:58		Feb-22-19 17:54		Feb-22-19 19:04		Feb-22-19 19:10		Feb-22-19 19:16		Feb-22-19 21:21	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		229	4.95	421	5.00	<49.5	49.5	67.0	25.0	850	25.0	619	24.9
TPH by SW8015 Mod	***Extracted:***	Feb-22-19 14:00								Feb-22-19 14:00		Feb-22-19 14:00	
	Analyzed:	Feb-23-19 03:21								Feb-23-19 03:41		Feb-23-19 04:01	
	Units/RL:	mg/kg	RL							mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<15.0	15.0							<14.9	14.9	<14.9	14.9
Diesel Range Organics (DRO)		<15.0	15.0							<14.9	14.9	<14.9	14.9
Motor Oil Range Hydrocarbons (MRO)		<15.0	15.0							<14.9	14.9	<14.9	14.9
Total TPH		<15.0	15.0							<14.9	14.9	<14.9	14.9

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 615456

Tetra Tech- Midland, Midland, TX

Project Name: SRO State Com #64

Project Id: 212C-MD-01614
Contact: Clair Gonzales
Project Location: Eddy County, New Mexico

Date Received in Lab: Fri Feb-22-19 10:50 am
Report Date: 27-FEB-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	615456-019		615456-020		615456-021		615456-022		615456-023		615456-024	
	Field Id:	BH-3 (4'-5')		BH-3 (4'-7')		Horizontal-South 1		Horizontal- West 1		Horizontal West-2		Horizontal- North 1	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00	
BTEX by EPA 8021B	***Extracted:***					Feb-26-19 13:45		Feb-26-19 13:45		Feb-26-19 13:45		Feb-26-19 13:45	
	Analyzed:					Feb-26-19 22:01		Feb-26-19 22:20		Feb-26-19 22:39		Feb-26-19 22:58	
	Units/RL:					mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene						<0.00199	0.00199	<0.00201	0.00201	<0.00200	0.00200	<0.00199	0.00199
Toluene						<0.00199	0.00199	<0.00201	0.00201	<0.00200	0.00200	<0.00199	0.00199
Ethylbenzene						<0.00199	0.00199	<0.00201	0.00201	<0.00200	0.00200	<0.00199	0.00199
m,p-Xylenes						<0.00398	0.00398	<0.00402	0.00402	<0.00399	0.00399	<0.00398	0.00398
o-Xylene						<0.00199	0.00199	<0.00201	0.00201	<0.00200	0.00200	<0.00199	0.00199
Total Xylenes						<0.00199	0.00199	<0.00201	0.00201	<0.00200	0.00200	<0.00199	0.00199
Total BTEX						<0.00199	0.00199	<0.00201	0.00201	<0.00200	0.00200	<0.00199	0.00199

Jessica Kramer
Project Assistant

Certificate of Analysis Summary 615456

Tetra Tech- Midland, Midland, TX

Project Name: SRO State Com #64

Project Id: 212C-MD-01614
Contact: Clair Gonzales
Project Location: Eddy County, New Mexico

Date Received in Lab: Fri Feb-22-19 10:50 am
Report Date: 27-FEB-19
Project Manager: Jessica Kramer

Analysis Requested													
	Lab Id:	615456-019		615456-020		615456-021		615456-022		615456-023		615456-024	
	Field Id:	BH-3 (4'-5')		BH-3 (4'-7')		Horizontal-South 1		Horizontal- West 1		Horizontal West-2		Horizontal- North 1	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00		Feb-21-19 00:00	
Chloride by EPA 300	***Extracted:***	Feb-22-19 15:10		Feb-22-19 15:10		Feb-22-19 15:10		Feb-22-19 15:10		Feb-22-19 15:10		Feb-22-19 15:10	
	Analyzed:	Feb-22-19 21:27		Feb-22-19 21:33		Feb-22-19 21:40		Feb-22-19 22:00		Feb-22-19 22:06		Feb-22-19 22:12	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		329	49.9	522	50.0	112	5.00	34.3	5.00	93.2	5.00	134	4.96
TPH by SW8015 Mod	***Extracted:***					Feb-22-19 14:00		Feb-22-19 14:00		Feb-22-19 14:00		Feb-22-19 14:00	
	Analyzed:					Feb-23-19 04:21		Feb-23-19 04:40		Feb-23-19 05:00		Feb-23-19 05:20	
	Units/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	<15.0	15.0	<15.0	15.0
Diesel Range Organics (DRO)						<15.0	15.0	<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	<15.0	15.0	<15.0	15.0
Total TPH						<15.0	15.0	<15.0	15.0	<15.0	15.0	<15.0	15.0

Jessica Kramer
Project Assistant

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

Form 2 - Surrogate Recoveries

Project Name: SRO State Com #64

Work Orders : 615456,

Project ID: 212C-MD-01614

Lab Batch #: 3080227 **Sample:** 615456-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/23/19 01:43

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.6	100	99	70-135	
o-Terphenyl	48.7	50.0	97	70-135	

Lab Batch #: 3080227 **Sample:** 615456-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/23/19 02:42

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	99.4	99.7	100	70-135	
o-Terphenyl	49.0	49.9	98	70-135	

Lab Batch #: 3080227 **Sample:** 615456-012 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/23/19 03:01

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.0	100	98	70-135	
o-Terphenyl	48.2	50.0	96	70-135	

Lab Batch #: 3080227 **Sample:** 615456-013 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/23/19 03:21

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	98.8	99.8	99	70-135	
o-Terphenyl	49.0	49.9	98	70-135	

Lab Batch #: 3080227 **Sample:** 615456-017 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/23/19 03:41

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.3	99.6	98	70-135	
o-Terphenyl	48.4	49.8	97	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: SRO State Com #64

Work Orders : 615456,

Project ID: 212C-MD-01614

Lab Batch #: 3080227 **Sample:** 615456-018 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/23/19 04:01

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	96.9	99.6	97	70-135	
o-Terphenyl	48.1	49.8	97	70-135	

Lab Batch #: 3080227 **Sample:** 615456-021 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/23/19 04:21

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.7	99.9	98	70-135	
o-Terphenyl	48.0	50.0	96	70-135	

Lab Batch #: 3080227 **Sample:** 615456-022 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/23/19 04:40

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	95.8	99.8	96	70-135	
o-Terphenyl	47.1	49.9	94	70-135	

Lab Batch #: 3080227 **Sample:** 615456-023 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/23/19 05:00

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	97.7	99.7	98	70-135	
o-Terphenyl	47.9	49.9	96	70-135	

Lab Batch #: 3080227 **Sample:** 615456-024 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/23/19 05:20

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	96.9	99.9	97	70-135	
o-Terphenyl	47.3	50.0	95	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: SRO State Com #64

Work Orders : 615456,

Project ID: 212C-MD-01614

Lab Batch #: 3080460 **Sample:** 615456-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/26/19 15:44

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0339	0.0300	113	70-130	
4-Bromofluorobenzene	0.0318	0.0300	106	70-130	

Lab Batch #: 3080460 **Sample:** 615456-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/26/19 17:56

SURROGATE RECOVERY STUDY

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

Lab Batch #: 3080460 **Sample:** 615456-007 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/26/19 20:07

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0341	0.0300	114	70-130	
4-Bromofluorobenzene	0.0324	0.0300	108	70-130	

Lab Batch #: 3080460 **Sample:** 615456-012 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/26/19 20:26

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0345	0.0300	115	70-130	
4-Bromofluorobenzene	0.0346	0.0300	115	70-130	

Lab Batch #: 3080460 **Sample:** 615456-013 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/26/19 21:04

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0340	0.0300	113	70-130	
4-Bromofluorobenzene	0.0343	0.0300	114	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: SRO State Com #64

Work Orders : 615456,

Project ID: 212C-MD-01614

Lab Batch #: 3080460 **Sample:** 615456-017 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/26/19 21:23

SURROGATE RECOVERY STUDY

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

Lab Batch #: 3080460 **Sample:** 615456-018 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/26/19 21:42

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0342	0.0300	114	70-130	
4-Bromofluorobenzene	0.0338	0.0300	113	70-130	

Lab Batch #: 3080460 **Sample:** 615456-021 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/26/19 22:01

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0336	0.0300	112	70-130	
4-Bromofluorobenzene	0.0362	0.0300	121	70-130	

Lab Batch #: 3080460 **Sample:** 615456-022 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/26/19 22:20

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0340	0.0300	113	70-130	
4-Bromofluorobenzene	0.0344	0.0300	115	70-130	

Lab Batch #: 3080460 **Sample:** 615456-023 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/26/19 22:39

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0334	0.0300	111	70-130	
4-Bromofluorobenzene	0.0357	0.0300	119	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: SRO State Com #64

Work Orders : 615456,

Project ID: 212C-MD-01614

Lab Batch #: 3080460 **Sample:** 615456-024 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/26/19 22:58

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0341	0.0300	114	70-130	
4-Bromofluorobenzene	0.0347	0.0300	116	70-130	

Lab Batch #: 3080227 **Sample:** 7672374-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/22/19 21:07

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	101	100	101	70-135	
o-Terphenyl	51.9	50.0	104	70-135	

Lab Batch #: 3080460 **Sample:** 7672572-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/26/19 15:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0327	0.0300	109	70-130	
4-Bromofluorobenzene	0.0308	0.0300	103	70-130	

Lab Batch #: 3080227 **Sample:** 7672374-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/22/19 21:27

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	121	100	121	70-135	
o-Terphenyl	54.6	50.0	109	70-135	

Lab Batch #: 3080460 **Sample:** 7672572-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/26/19 13:52

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0319	0.0300	106	70-130	
4-Bromofluorobenzene	0.0298	0.0300	99	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: SRO State Com #64

Work Orders : 615456, **Project ID:** 212C-MD-01614

Lab Batch #: 3080227 **Sample:** 7672374-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/22/19 21:46

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	130	100	130	70-135	
o-Terphenyl	62.7	50.0	125	70-135	

Lab Batch #: 3080460 **Sample:** 7672572-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 02/26/19 14:11

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0318	0.0300	106	70-130	
4-Bromofluorobenzene	0.0296	0.0300	99	70-130	

Lab Batch #: 3080227 **Sample:** 615310-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/22/19 22:25

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	125	99.9	125	70-135	
o-Terphenyl	60.2	50.0	120	70-135	

Lab Batch #: 3080460 **Sample:** 615456-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/26/19 14:30

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0326	0.0300	109	70-130	
4-Bromofluorobenzene	0.0311	0.0300	104	70-130	

Lab Batch #: 3080227 **Sample:** 615310-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/22/19 22:45

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	122	99.8	122	70-135	
o-Terphenyl	49.9	49.9	100	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: SRO State Com #64

Work Orders : 615456, **Project ID:** 212C-MD-01614

Lab Batch #: 3080460 **Sample:** 615456-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 02/26/19 14:49

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0329	0.0300	110	70-130	
4-Bromofluorobenzene	0.0314	0.0300	105	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

BS / BSD Recoveries

Project Name: SRO State Com #64

Work Order #: 615456 **Project ID:** 212C-MD-01614

Analyst: SCM **Date Prepared:** 02/26/2019 **Date Analyzed:** 02/26/2019

Lab Batch ID: 3080460 **Sample:** 7672572-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B 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
Benzene	<0.000385	0.100	0.119	119	0.101	0.119	118	0	70-130	35	
Toluene	<0.000456	0.100	0.107	107	0.101	0.106	105	1	70-130	35	
Ethylbenzene	<0.000565	0.100	0.104	104	0.101	0.104	103	0	70-130	35	
m,p-Xylenes	<0.00101	0.200	0.210	105	0.201	0.208	103	1	70-130	35	
o-Xylene	<0.000344	0.100	0.103	103	0.101	0.103	102	0	70-130	35	

Analyst: CHE **Date Prepared:** 02/22/2019 **Date Analyzed:** 02/22/2019

Lab Batch ID: 3080218 **Sample:** 7672335-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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
Chloride	<0.858	250	244	98	250	244	98	0	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: SRO State Com #64

Work Order #: 615456 **Project ID:** 212C-MD-01614

Analyst: CHE **Date Prepared:** 02/22/2019 **Date Analyzed:** 02/22/2019

Lab Batch ID: 3080220 **Sample:** 7672336-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Chloride by EPA 300 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
Chloride	<0.858	250	246	98	250	255	102	4	90-110	20	

Analyst: ARM **Date Prepared:** 02/22/2019 **Date Analyzed:** 02/22/2019

Lab Batch ID: 3080227 **Sample:** 7672374-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Gasoline Range Hydrocarbons (GRO)	<8.00	1000	933	93	1000	915	92	2	70-135	20	
Diesel Range Organics (DRO)	<8.13	1000	1030	103	1000	990	99	4	70-135	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS / MSD Recoveries

Project Name: SRO State Com #64

Work Order # : 615456 **Project ID:** 212C-MD-01614

Lab Batch ID: 3080460 **QC- Sample ID:** 615456-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/26/2019 **Date Prepared:** 02/26/2019 **Analyst:** SCM

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	<0.000384	0.0998	0.0933	93	0.100	0.0953	95	2	70-130	35	
Toluene	<0.000455	0.0998	0.0814	82	0.100	0.0827	83	2	70-130	35	
Ethylbenzene	<0.000564	0.0998	0.0747	75	0.100	0.0764	76	2	70-130	35	
m,p-Xylenes	<0.00101	0.200	0.152	76	0.200	0.154	77	1	70-130	35	
o-Xylene	<0.000344	0.0998	0.0752	75	0.100	0.0767	77	2	70-130	35	

Lab Batch ID: 3080218 **QC- Sample ID:** 615456-011 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/22/2019 **Date Prepared:** 02/22/2019 **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	243	249	509	107	249	499	103	2	90-110	20	

Lab Batch ID: 3080218 **QC- Sample ID:** 615456-014 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/22/2019 **Date Prepared:** 02/22/2019 **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	421	250	657	94	250	654	93	0	90-110	20	

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

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

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

Form 3 - MS / MSD Recoveries

Project Name: SRO State Com #64

Work Order # : 615456 **Project ID:** 212C-MD-01614

Lab Batch ID: 3080220 **QC- Sample ID:** 615308-002 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/22/2019 **Date Prepared:** 02/22/2019 **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	30.4	250	279	99	250	290	104	4	90-110	20	

Lab Batch ID: 3080220 **QC- Sample ID:** 615308-003 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/22/2019 **Date Prepared:** 02/22/2019 **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	30.4	249	279	100	249	289	104	4	90-110	20	

Lab Batch ID: 3080227 **QC- Sample ID:** 615310-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 02/22/2019 **Date Prepared:** 02/22/2019 **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)	8.49	999	909	90	998	914	91	1	70-135	20	
Diesel Range Organics (DRO)	52.5	999	998	95	998	1020	97	2	70-135	20	

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

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

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

Analysis Request of Chain of Custody Record

Le154564

Tetra Tech. Inc.

900 West Wall Street, Ste 100
Midland,Texas 79701
Tel (432) 682-4559
Fax (432) 682-3946

Client Name: COG	**Site Manager:** Clair Gonzales
Project Name: SRO State Com #64	
Project Location: (county, state) Eddy County, New Mexico	**Project #:** 212C-MD-01614
Invoice to: COG - Ike Tavarez	
Receiving Laboratory: Xenco	**Sampler Signature:**

Comments: Run deeper samples if GRO+DRO exceeds 100 mg/kg. Run deeper samples if benzene exceeds 10 mg/kg or total BTEX exceeds 50 mg/kg.

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	PRESERVATIVE METHOD None	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B / BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - ORO - MRO)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Metals Ag As Ba Cd Cr Pb Se Hg	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8260B / 624	GC/MS Semi. Vol. 8270C/625	PCB's 8082 / 608	NORM	PLM (Asbestos)	Chloride 300.0	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance	TPH 8015R	HOLD
	BH-1 (0'- 1')	2/21/2019			X			X		1	N	X		X												X				
	BH-1 (2'- 3')	2/21/2019			X			X		1	N	X		X												X				
	BH-1 (4'- 5')	2/21/2019			X			X		1	N															X				
	BH-1 (6'- 7')	2/21/2019			X			X		1	N															X				
	BH-1 (9'- 10')	2/21/2019			X			X		1	N															X				
	BH-1 (14'- 15')	2/21/2019			X			X		1	N															X				
	BH-1 (19'- 20')	2/21/2019			X			X		1	N															X				
	BH-1 (24'- 25')	2/21/2019			X			X		1	N															X				
	BH-1 (29'- 30')	2/21/2019			X			X		1	N															X				
	BH-1 (34'- 35')	2/21/2019			X			X		1	N															X				

Relinquished by:	Date: 2-22-19	Time:	Received by: Date: 2/20/19 Time: 1050
Relinquished by:	Date:	Time:	Received by: Date: Time:
Relinquished by:	Date:	Time:	Received by: Date: Time:

LAB USE ONLY

Sample Temperature
0.5 | 0.4
-0.1 | 8

REMARKS:

- ☐ STANDARD
- ☒ RUSH: Same Day 24 hr 48 hr (72 hr)
- ☐ Rush Charges Authorized
- ☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: _____

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Analysis Request of Chain of Custody Record

1615454

Tetra Tech. Inc.

900 West Wall Street, Ste 100
Midland,Texas 79701
Tel (432) 682-4559
Fax (432) 682-3946

Client Name: COG	**Site Manager:** Clair Gonzales
Project Name: SRO State Com #64	
Project Location: (county, state) Eddy County, New Mexico	**Project #:** 212C-MD-01614
Invoice to: COG - Ike Tavarez	
Receiving Laboratory: Xenco	**Sampler Signature:**

Comments: Run deeper samples if GRO+DRO exceeds 100 mg/kg. Run deeper samples if benzene exceeds 10 mg/kg or total BTEX exceeds 50 mg/kg.

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	MATRIX	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE	PRESERVATIVE METHOD None		# CONTAINERS	FILTERED (Y/N)
	BH-1 (39'- 40')	2/21/2019			X				X			1	N
	BH-2 (0'- 1')	2/21/2019			X				X			1	N
	BH-2 (2'- 3')	2/21/2019			X				X			1	N
	BH-2 (4'- 5')	2/21/2019			X				X			1	N
	BH-2 (6'- 7')	2/21/2019			X				X			1	N
	BH-2 (9'- 10')	2/21/2019			X				X			1	N
	BH-3 (0'- 1')	2/21/2019			X				X			1	N
	BH-3 (2'- 3')	2/21/2019			X				X			1	N
	BH-3 (4'- 5')	2/21/2019			X				X			1	N
	BH-3 (6'- 7')	2/21/2019			X				X			1	N

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 300.0	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance	TPH 8015R		HOLD
															X						
X			X												X						
X			X												X						
X			X												X						
															X						
															X						
															X						
X			X												X						
X			X												X						
															X						
															X						

Relinquished by: Date: 2-22-19 Time:

Received by: Date: 2/22/19 Time: 1050

Relinquished by: Date: Time:

Received by: Date: Time:

Relinquished by: Date: Time:

Received by: Date: Time:

LAB USE ONLY

Sample Temperature 0.5 | 0.4 −0.1 RE

REMARKS:

- ☐ STANDARD
- ☒ RUSH: Same Day 24 hr 48 hr (72 hr)
- ☐ Rush Charges Authorized
- ☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: _____

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Analysis Request of Chain of Custody Record

6154564

Tetra Tech, Inc.

900 West Wall Street, Ste 100
Midland, Texas 79701
Tel (432) 682-4559
Fax (432) 682-3946

Client Name: COG	**Site Manager:** Clair Gonzales
Project Name: SRO State Com #64	
Project Location: (county, state) Eddy County, New Mexico	**Project #:** 212C-MD-01614
Invoice to: COG - Ike Tavarez	
Receiving Laboratory: Xenco	**Sampler Signature:**

Comments: Run deeper samples if GRO+DRO exceeds 100 mg/kg. Run deeper samples if benzene exceeds 10 mg/kg or total BTEX exceeds 50 mg/kg.

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE	SAMPLING TIME	MATRIX: WATER	MATRIX: SOIL	PRESERVATIVE METHOD: HCL	PRESERVATIVE METHOD: HNO_3	PRESERVATIVE METHOD: ICE	PRESERVATIVE METHOD: None	# CONTAINERS	FILTERED (Y/N)
	Horizontal - South 1	2/21/2019			X			X		1	N
	Horizontal - West 1	2/21/2019			X			X		1	N
	Horizontal - West 2	2/21/2019			X			X		1	N
	Horizontal - North 1	2/21/2019			X			X		1	N

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 300.0	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance	TPH 8015R	HOLD
X			X												X					
X			X												X					
X			X												X					
X			X												X					
X			X												X					

Relinquished by:	Date:	Time:	Received by:	Date:	Time:
	2-22-19			2/22/19	1050
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

LAB USE ONLY

Sample Temperature

05/04
-04 IR

REMARKS:

- ☐ STANDARD
- ☒ RUSH: Same Day 24 hr 48 hr (72 hr)
- ☐ Rush Charges Authorized
- ☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: _____

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XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Tetra Tech- Midland

Date/ Time Received: 02/22/2019 10:50:00 AM

Work Order #: 615456

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

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

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 02/22/2019

Brianna Teel

Checklist reviewed by: Jessica Kramer Date: 02/22/2019

Jessica Kramer