SITE INFORMATION

Report Type: Deferment Report 2RP-4954

General Site Information:						
Site:	**Graham Cracker 2 State #1H**					
Company:	**COG Operating LLC**					
Section, Township and Range	**Unit P**	**Unit 02**	**T 26S**	**R 28E**		
Lease Number:	**API No. 30-015-42282**					
County:	**Eddy County**					
GPS:	**32.06543**			**-104.050695**		
Surface Owner:	**State**					
Mineral Owner:						
Directions:	From the intersection of HWY 285 and Longhorn Rd, travel north on HWY 285 and continue for 1.5 mi, turn east on lease road and continue for 1.27 mi to location.					

Release Data:	
Date Released:	8/22/2018
Type Release:	Oil
Source of Contamination:	Truck
Fluid Released:	5 bbls
Fluids Recovered:	0 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:	*120' below surface*
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

May 22, 2019

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

Re: Deferment Request for the COG Operating, LLC, Graham Cracker 2 State #1H, Unit P, Section 02, Township 26 South, Range 28 East, Eddy County, New Mexico.
2RP-4954

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating, LLC (COG) to assess a release that occurred at the Graham Cracker 2 State #1H, Unit P, Section 02, Township 26 South, Range 28 East, Eddy County, New Mexico (Site). The spill site coordinates are 32.6543°, -104.050695 °. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the release was discovered on August 22, 2018, and released approximately 5 barrels of oil due to a third party truck overfilling. None of the fluids were recovered. The release impacted an area on the pad measuring approximately 55' x 75'. 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. The nearest well listed is in Section 02 on the New Mexico Office of the State Engineer's (NMOSE) database, approximately 0.5 miles northwest of the site, and has a reported depth to groundwater of 120 feet below surface. The site characterization data is shown in Appendix B.

Tetra Tech
901 West Wall St, 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, based on the site characterization, the proposed RRAL for chlorides is 600 mg/kg.

Soil Assessment and Analytical Results

On December 13, 2018, Tetra Tech personnel were onsite to evaluate and sample the release area. A total of two (2) backhoe trenches (T-1 and T-2) were installed in the release footprint to total depths of 10' below surface. Additionally, due to the gypsum formation encountered during sampling activities, a background trench (Background 1) was installed in the adjacent pasture to a total depth of 6' below surface evaluate the native soils. 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 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 analyzed showed benzene, total BTEX, or TPH concentrations above the RRALs. However, the areas of trenches (T-1 and T-2) showed chloride concentrations above the 600 mg/kg threshold. The area of trench (T-1) showed a chloride high of 1,340 mg/kg at 4.0', which declined with depth to 890 mg/kg at 10' below surface. The area of trench (T-2) showed a chloride high of 4,070 mg/kg at 1.0', which declined with depth to 573 mg/kg at 4.0' and showed a bottom trench concentration of 519 mg/kg at 10' below surface.

The samples collected at the background trench (Background 1) showed a chloride high of 539 mg/kg at 3.0' below surface.

Remediation Activities

Between May 14 and May 17, 2019, Tetra Tech personnel were onsite to supervise the remediation activities. The areas of trenches (T-1 and T-2) were excavated to approximately 4.0' below surface. Once the areas were excavated to the appropriate depths, confirmation bottom hole and sidewall samples were collected every 200 square feet to ensure proper removal of the impacted soils. A total of eleven (11) bottom hole confirmation samples (Bottomhole-1 through Bottomhole-11) and a total of six (6) sidewall samples (WSW-1, WSW-2, ESW-1, ESW-2, SWS-1, and NSW-1) were collected. 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 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 analyzed showed benzene, total BTEX, or TPH concentrations above the laboratory reporting limits. Additionally, the areas of confirmation samples (Bottomhole-3, Bottomhole-4, Bottomhole-5, Bottomhole-6, Bottomhole-8, Bottomhole-9, Bottomhole-10, WSW-2, ESW-1, ESW-2, SWS-1, and NSW-1) showed chloride concentrations below the 600 mg/kg threshold. However, the areas of confirmation samples (Bottomhole-1, Bottomhole-2, Bottomhole-7, Bottomhole-11, and WSW-1) showed chloride concentrations of 1,480 mg/kg, 1,1220 mg/kg, 1,1750 mg/kg, 1,330 mg/kg, and 2,400 mg/kg, respectively.

The excavation area was then lined with a 20-mil plastic liner to prevent vertical migration of the deeper chloride concentrations detected. The area of sidewall sample (WSW-1) could not be expanded due to the location of the existing facility and onsite equipment.

Once the excavation was completed, the areas were backfilled with clean material to surface grade. Approximately 560 cubic yards were excavated and hauled for proper disposal.

Conclusion

Based on the laboratory results and remediation activities performed, COG requests deferral of the remaining chloride impact in the area of sidewall sample (WSW-1) until abandonment. If you have any questions or comments concerning the assessment or remediation activities for this site, please call at (432) 682-4559.

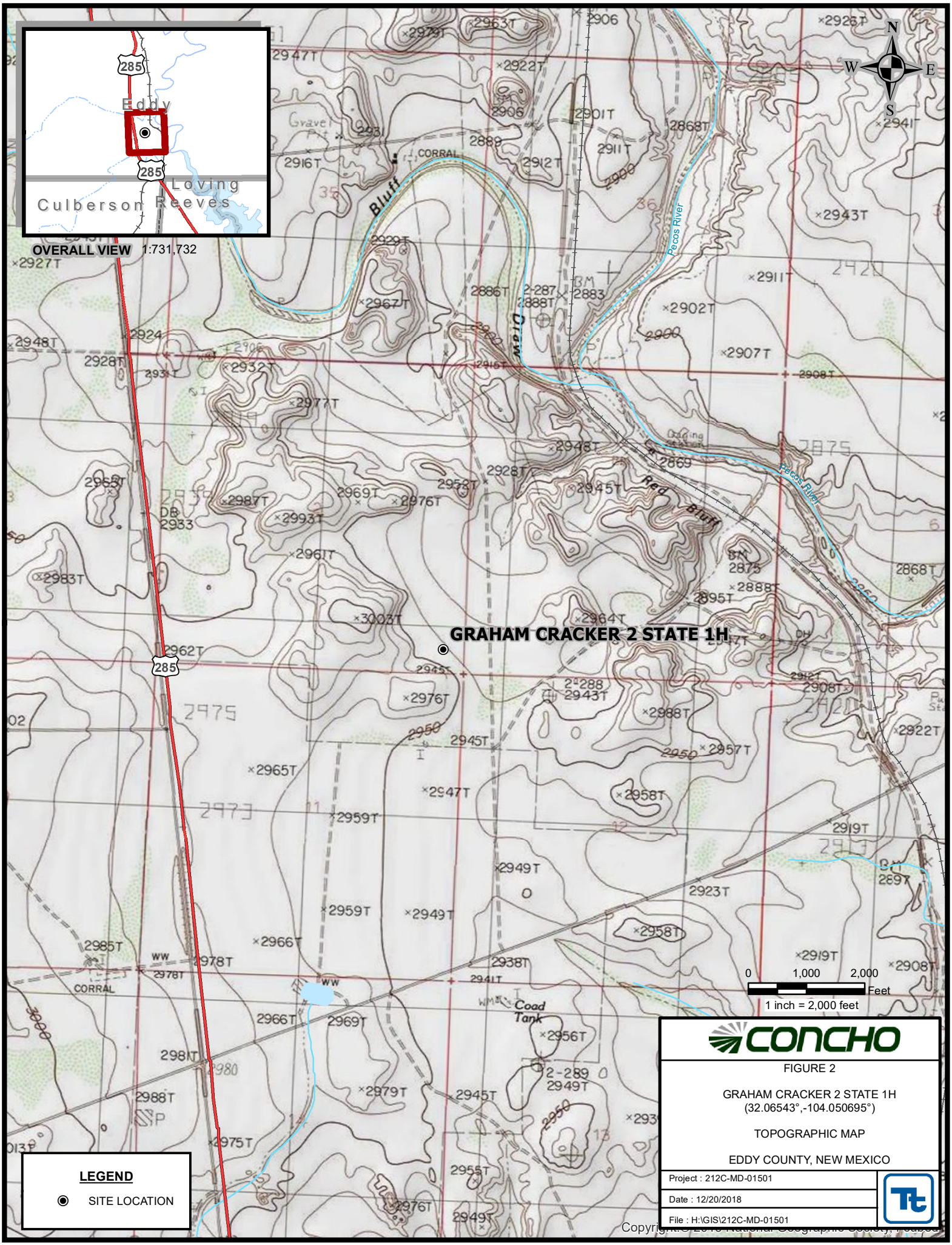
Respectfully submitted,
TETRA TECH

Clair Gonzales, P.G.,
Project Manager

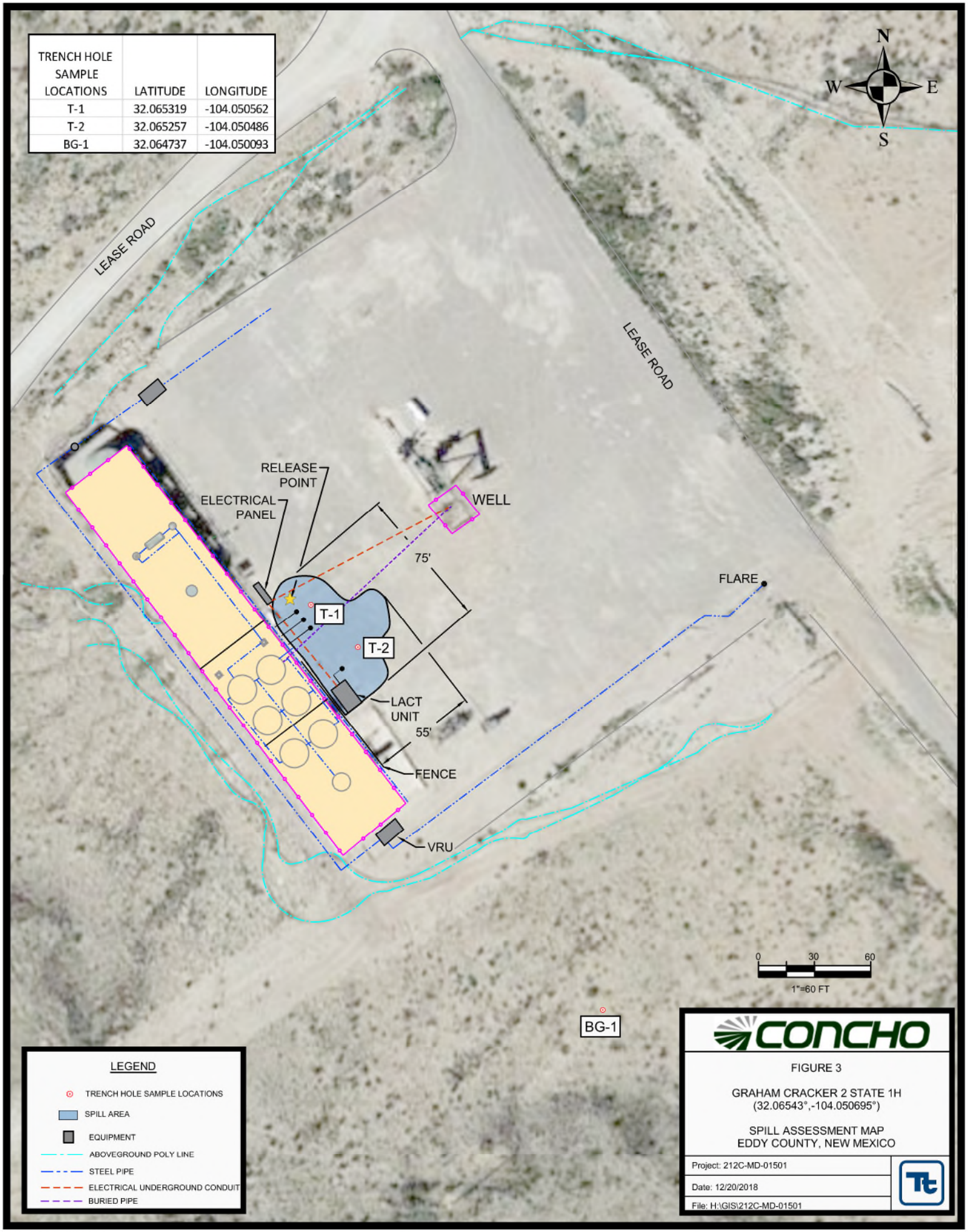
cc: Ryan Mann - NMSLO
Ike Tavarez - COG

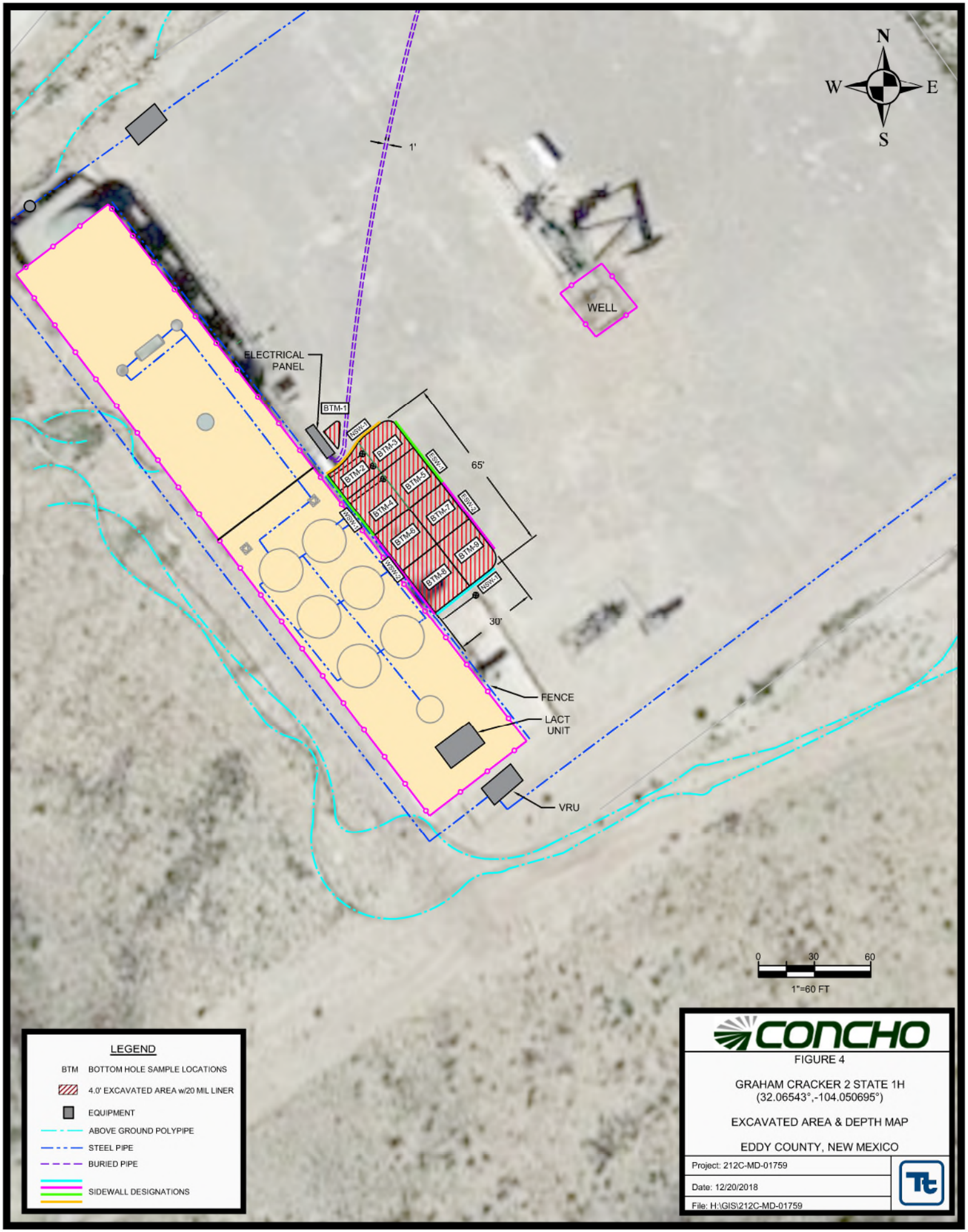
Figures

MAPPED BY: MISTI MORGAN



MAPPED BY: MISTI MORGAN


TRENCH HOLE SAMPLE LOCATIONS | LATITUDE | LONGITUDE
T-1 | 32.065319 | -104.050562
T-2 | 32.065257 | -104.050486
BG-1 | 32.064737 | -104.050093
N
W
E
S
LEASE ROAD
LEASE ROAD
RELEASE POINT
ELECTRICAL PANEL
WELL
75'
FLARE
T-1
T-2
LACT UNIT
55'
FENCE
VRU
0
30
60
1"=60 FT
BG-1
LEGEND
TRENCH HOLE SAMPLE LOCATIONS
SPILL AREA
EQUIPMENT
ABOVEGROUND POLY LINE
STEEL PIPE
ELECTRICAL UNDERGROUND CONDUIT
BURIED PIPE
CONCHO
FIGURE 3
GRAHAM CRACKER 2 STATE 1H
(32.06543°,-104.050695°)
SPILL ASSESSMENT MAP
EDDY COUNTY, NEW MEXICO
Project: 212C-MD-01501
Date: 12/20/2018
File: H:\GIS\212C-MD-01501
Drawn By: MISTI MORGAN


N
W
E
S
1'
WELL
ELECTRICAL PANEL
BTM-1
NSW-1
BTM-3
BTM-2
BTM-5
BTM-4
BTM-7
BTM-6
BTM-9
BTM-8
ESW-1
ESW-2
WSW-1
WSW-2
NSW-1
65'
30'
FENCE
LACT UNIT
VRU
0
30
60
1"=60 FT
LEGEND
BTM BOTTOM HOLE SAMPLE LOCATIONS
4.0' EXCAVATED AREA w/20 MIL LINER
EQUIPMENT
ABOVE GROUND POLYPIPE
STEEL PIPE
BURIED PIPE
SIDEWALL DESIGNATIONS
CONCHO
FIGURE 4
GRAHAM CRACKER 2 STATE 1H
(32.06543°,-104.050695°)
EXCAVATED AREA & DEPTH MAP
EDDY COUNTY, NEW MEXICO
Project: 212C-MD-01759
Date: 12/20/2018
File: H:\GIS\212C-MD-01759
Drawn By: MISTI MORGAN
SOURCE: GOOGLE MAPS

Tables

Table 1
COG
Graham Cracker 2 State #1H
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB (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						
T-1	12/13/2018	1	-	X		<14.9	<14.9	<14.9	<14.9	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	**1,300**
	"	2	-	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	473
	"	3	-	X		-	-	-	-	-	-	-	-	-	**1,190**
	"	4	-	X		-	-	-	-	-	-	-	-	-	**1,340**
	"	6	-	X		-	-	-	-	-	-	-	-	-	**1,310**
	"	8	-	X		-	-	-	-	-	-	-	-	-	**1,150**
	"	10	-	X		-	-	-	-	-	-	-	-	-	890
T-2	12/13/2018	1	-	X		<15.0	39.2	<15.0	39.2	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	**4,070**
	"	2	-	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	**2,240**
	"	3	-	X		-	-	-	-	-	-	-	-	-	**1,840**
	"	4	-	X		-	-	-	-	-	-	-	-	-	573
	"	6	-	X		-	-	-	-	-	-	-	-	-	314
	"	8	-	X		-	-	-	-	-	-	-	-	-	334
	"	10	-	X		-	-	-	-	-	-	-	-	-	519
Bottomehole - 1	5/15/2019	-	4	X		-	-	-	-	-	-	-	-	-	**1,480**
Bottomehole - 2	5/15/2019	-	4	X		<14.9	31.3	<14.9	31.3	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	**1,220**
Bottomehole - 3	5/14/2019	-	4	X		<15.0	16.7	<15.0	16.7	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	86.6
Bottomehole - 4	5/15/2019	-	4	X		-	-	-	-	-	-	-	-	-	454
Bottomehole - 5	5/15/2019	-	4	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	401
Bottomehole - 6	5/15/2019	-	4	X		-	-	-	-	-	-	-	-	-	405
Bottomehole - 7	5/15/2019	-	4	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	**1,750**
Bottomehole - 8	5/16/2019	-	4	X		-	-	-	-	-	-	-	-	-	609
Bottomehole - 9	5/16/2019	-	4	X		<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	459
Bottomehole - 10	5/16/2019	-	4	X		-	-	-	-	-	-	-	-	-	536
Bottomehole - 11	5/16/2019	-	4	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	**1,330**
WSW-1	5/15/2019	-	-	X		<15.0	38.5	<15.0	38.5	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	**2,400**
WSW-2	5/15/2019	-	-	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	481
ESW-1	5/15/2019	-	-	X		<15.0	<15.0	<15.0	<15.0	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	254
ESW-2	5/15/2019	-	-	X		<15.0	<15.0	<15.0	<15.0	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	12.5
SWS-1	5/16/2019	-	-	X		<15.0	<15.0	<15.0	<15.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	503
NSW-1	5/16/2019	-	-	X		<15.0	<15.0	<15.0	<15.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	238

Table 1
COG
Graham Cracker 2 State #1H
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB (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						
Background 1	12/13/2018	1	-	X		-	-	-	-	-	-	-	-	-	<4.98
	"	2	-	X		-	-	-	-	-	-	-	-	-	25.9
	"	3	-	X		-	-	-	-	-	-	-	-	-	539
	"	4	-	X		-	-	-	-	-	-	-	-	-	97.0
	"	6	-	X		-	-	-	-	-	-	-	-	-	500

BEB — Below Excavation Bottom

(-) — Not Analyzed

Excavation Depth

Liner Placement

Photos

COG Operating LLC
Graham Cracker 2 State #1H
Eddy County, New Mexico

View Northwest – Area of T-1

View West – Area of T-2

COG Operating LLC
Graham Cracker 2 State #1H
Eddy County, New Mexico

View Northeast – Area of Background 1

View North – Excavated Area

COG Operating LLC
Graham Cracker 2 State #1H
Eddy County, New Mexico

View North – Lined Excavation Area

View South – Lined Excavation Area

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-4954
Facility ID	
Application ID	

Release Notification

Responsible Party

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

Location of Release Source

Latitude 32.06649 Longitude -104.05199

(NAD 83 in decimal degrees to 5 decimal places)

Site Name	Graham Cracker 2 State #001H	Site Type	Tank Battery
Date Release Discovered	August 22, 2018	API# *(if applicable)*	30-015-42282

Unit Letter	Section	Township	Range	County
P	02	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) 5	Volume Recovered (bbls) 0
☐ Produced Water	Volume Released (bbls)	Volume Recovered (bbls)
	Is the concentration of total dissolved solids (TDS) 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

A 3rd party trucking company working for Holly Energy Partners overfilled their truck.
The release was on location. A vacuum truck was dispatched to remove all freestanding fluids.
Under Concho oversight the 3rd party will evaluate the site to determine if they will commence remediation immediately or delineate any possible impact from the release and they 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-4954
Facility ID	
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: 8/29/2018

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-4954
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?	120 (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	
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: 5/22/19

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: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	2RP-4954
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: 12/20/2018

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-4954
Facility ID	
Application ID	

Closure

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

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

☑ A scaled site and sampling diagram as described in 19.15.29.11 NMAC

☑ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

☑ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

☑ Description of remediation activities

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

Printed Name: Ike Tavarez Title: Senior HSE Supervisor

Signature:  Date: 5/22/19

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

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 - Graham Cracker 2 State #1H

24 South 27 East

6	5	4	3	2	1
7	8 36 26	9 50 43	10	11	12 27
18 30 34	17	16	15	14	13 30 31
19	20	21	22 70	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South 28 East

6 70	5 30	4 30	3	2 55	1 60
7	8 50	9	10 17	11 20	12 73
18	17 42	16 29	15 18	14 52	13 34
19	20 48	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

24 South 29 East

6	5	4	3	2	1
7 160	8	9	10	11	12
18	17 4	16 18	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

25 South 27 East

6	5	4	3	2 27	1
7	8	9	10	11	12 92
18	17	16	15	14	13
19	20 24	21	22 26	23	24 67
30	29	28	27 16	26	25 12
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 55	36 40

25 South 29 East

6 40	5	4	3	2 98	1
7	8	9	10 40	11	12
18	17	16 165	15 60 140	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 21	1
7	8	9	10	11	12 100
18	17	16	15 175	14 93 120	13 56
19	20	21	22 120 22	23	24
30	29	28	27 145	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)

90 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**

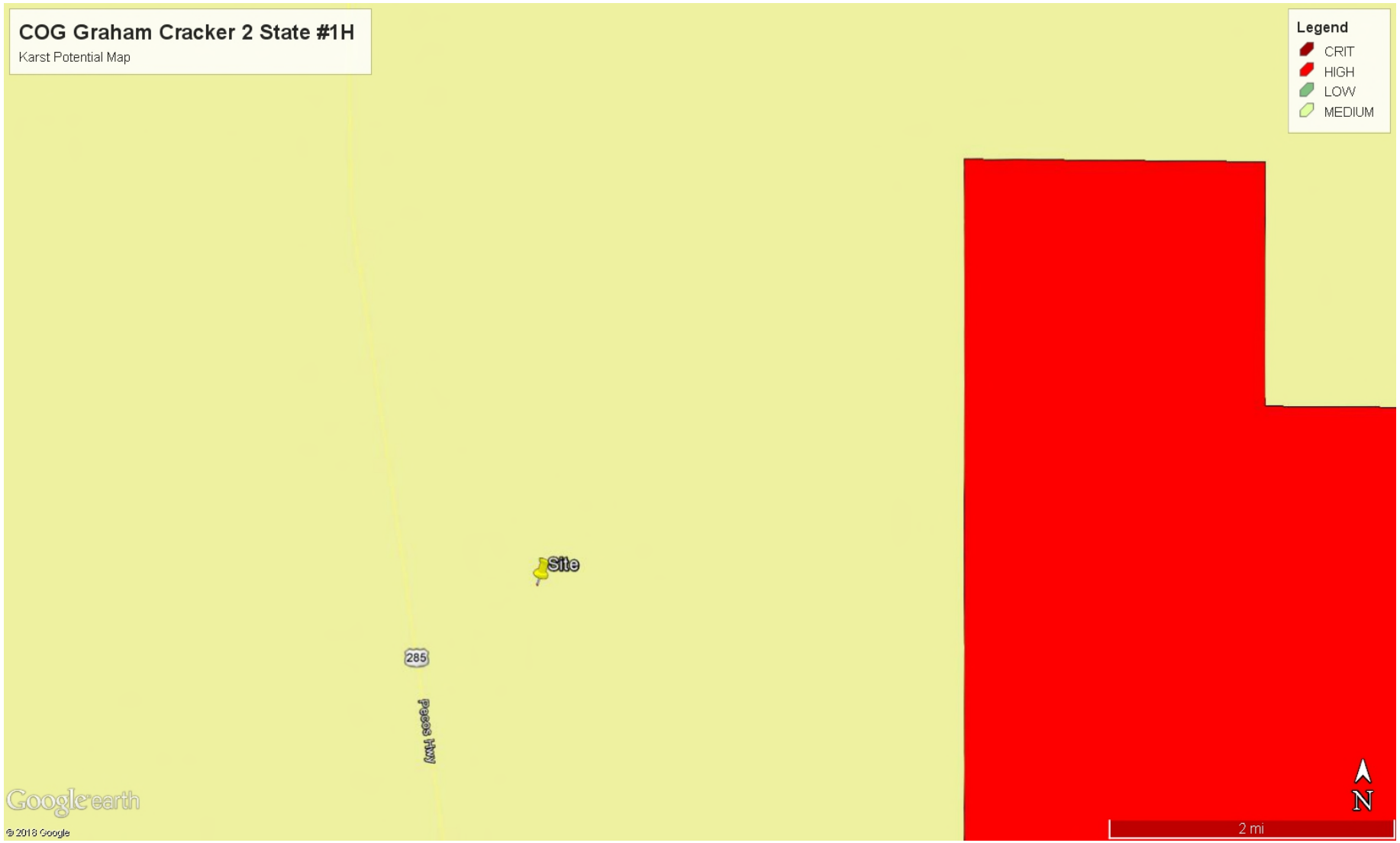
Maximum Depth: **175 feet**

Record Count: 20

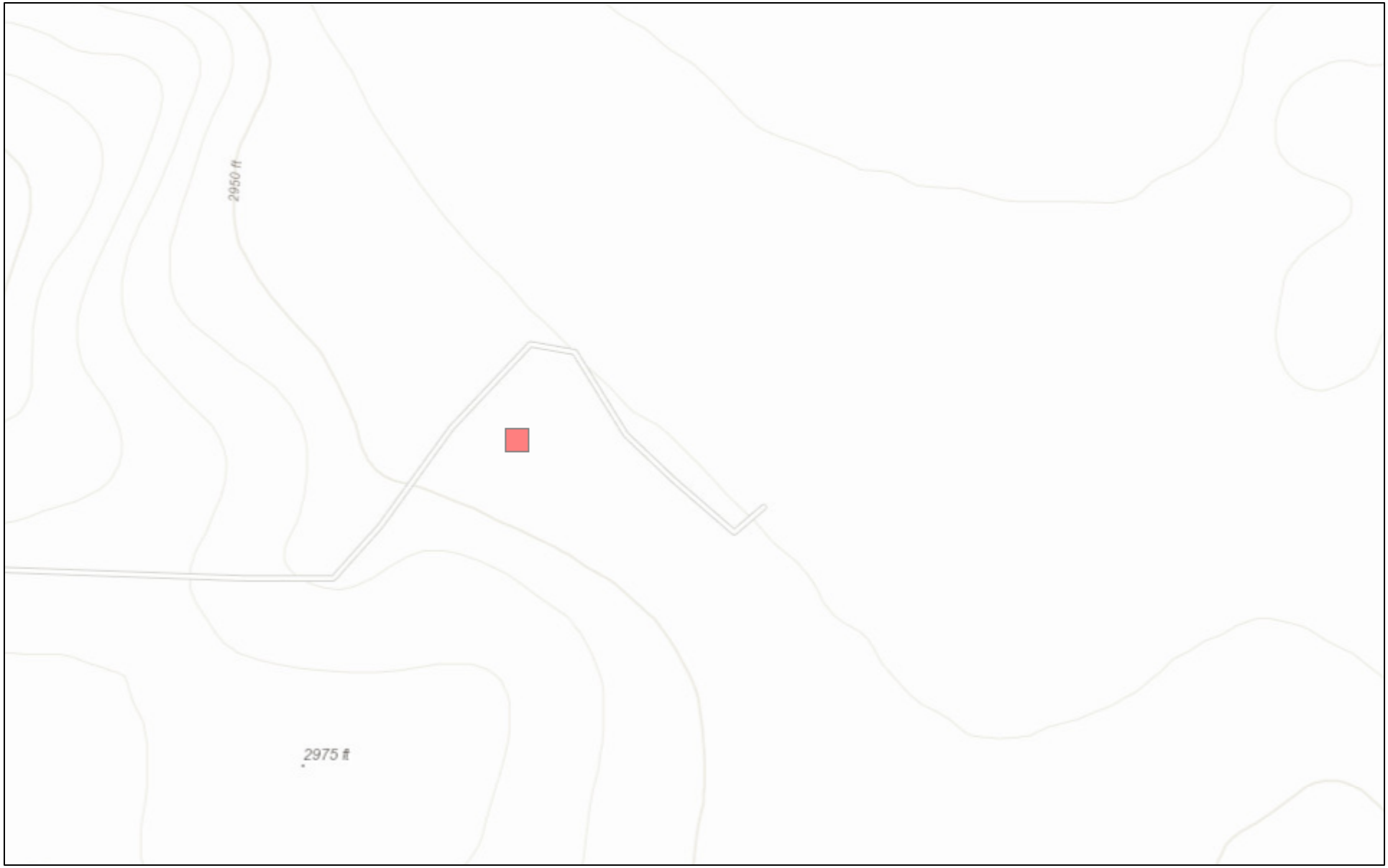
PLSS Search:

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

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


COG Graham Cracker 2 State #1H
Karst Potential Map
Legend
CRIT
HIGH
LOW
MEDIUM
Site
285
Pecos Hwy
Google earth
© 2018 Google
N
2 mi

New Mexico NFHL Data



December 20, 2018

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 605900

for

Tetra Tech- Midland

Project Manager: Clair Gonzales

COG-Graham Cracker 2 State #001H

212C-MD-01501

20-NOV-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

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

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

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

20-NOV-18

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

Reference: XENCO Report No(s): **605900**
COG-Graham Cracker 2 State #001H
Project Address: Eddy CO, NM

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) 605900. 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. 605900 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,

Kelsey Brooks
Project Manager

Sample Cross Reference 605900

Tetra Tech- Midland, Midland, TX

COG-Graham Cracker 2 State #001H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH #1 (0-6")	S	11-15-18 00:00		605900-001
AH #2 (0-6")	S	11-15-18 00:00		605900-002
AH #3 (0-6")	S	11-15-18 00:00		605900-003
AH #4 (0-6")	S	11-15-18 00:00		605900-004

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3070282 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.
Samples affected are: 605900-002,605900-001.

Certificate of Analysis Summary 605900

Tetra Tech- Midland, Midland, TX

Project Name: COG-Graham Cracker 2 State #001H

Project Id: 212C-MD-01501
Contact: Clair Gonzales
Project Location: Eddy CO, NM

Date Received in Lab: Mon Nov-19-18 08:50 am
Report Date: 20-NOV-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	605900-001		605900-002		605900-003		605900-004					
	Field Id:	AH #1 (0-6")		AH #2 (0-6")		AH #3 (0-6")		AH #4 (0-6")					
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL					
	Sampled:	Nov-15-18 00:00		Nov-15-18 00:00		Nov-15-18 00:00		Nov-15-18 00:00					
BTEX by EPA 8021B	***Extracted:***	Nov-19-18 10:00		Nov-19-18 10:00		Nov-19-18 10:00		Nov-19-18 10:00					
	Analyzed:	Nov-19-18 18:25		Nov-19-18 18:44		Nov-19-18 19:03		Nov-19-18 19:23					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Benzene		<0.00199	0.00199	<0.00200	0.00200	<0.00202	0.00202	<0.00201	0.00201				
Toluene		0.00581	0.00199	0.00585	0.00200	<0.00202	0.00202	<0.00201	0.00201				
Ethylbenzene		0.0419	0.00199	0.0808	0.00200	<0.00202	0.00202	<0.00201	0.00201				
m,p-Xylenes		0.381	0.00398	0.523	0.00399	<0.00403	0.00403	<0.00402	0.00402				
o-Xylene		0.169	0.00199	0.167	0.00200	<0.00202	0.00202	<0.00201	0.00201				
Total Xylenes		0.550	0.00199	0.690	0.00200	<0.00202	0.00202	<0.00201	0.00201				
Total BTEX		0.598	0.00199	0.777	0.00200	<0.00202	0.00202	<0.00201	0.00201				
Chloride by EPA 300	***Extracted:***	Nov-19-18 12:00		Nov-19-18 12:00		Nov-19-18 12:00		Nov-19-18 12:00					
	Analyzed:	Nov-19-18 17:01		Nov-19-18 17:07		Nov-19-18 17:14		Nov-19-18 17:45					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		2970	24.8	6890	49.7	7080	50.0	1220	24.9				
TPH by SW8015 Mod	***Extracted:***	Nov-19-18 10:00		Nov-19-18 10:00		Nov-19-18 10:00		Nov-19-18 10:00					
	Analyzed:	Nov-19-18 18:02		Nov-19-18 18:21		Nov-19-18 18:40		Nov-19-18 18:58					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		338	15.0	659	14.9	<15.0	15.0	<15.0	15.0				
Diesel Range Organics (DRO)		870	15.0	2560	14.9	467	15.0	63.1	15.0				
Motor Oil Range Hydrocarbons (MRO)		34.6	15.0	64.3	14.9	64.6	15.0	22.0	15.0				
Total TPH		1240	15.0	3280	14.9	532	15.0	85.1	15.0				

Kelsey Brooks
Project Manager

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: COG-Graham Cracker 2 State #001H

Work Orders : 605900,

Project ID: 212C-MD-01501

Lab Batch #: 3070265 **Sample:** 605900-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/19/18 18:02

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	111	99.8	111	70-135	
o-Terphenyl	53.4	49.9	107	70-135	

Lab Batch #: 3070265 **Sample:** 605900-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/19/18 18:21

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	127	99.6	128	70-135	
o-Terphenyl	63.6	49.8	128	70-135	

Lab Batch #: 3070282 **Sample:** 605900-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/19/18 18:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0305	0.0300	102	70-130	
4-Bromofluorobenzene	0.0534	0.0300	178	70-130	**

Lab Batch #: 3070265 **Sample:** 605900-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/19/18 18:40

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	91.2	99.9	91	70-135	
o-Terphenyl	50.2	50.0	100	70-135	

Lab Batch #: 3070282 **Sample:** 605900-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/19/18 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	0.0296	0.0300	99	70-130	
4-Bromofluorobenzene	0.0617	0.0300	206	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: COG-Graham Cracker 2 State #001H

Work Orders : 605900,

Project ID: 212C-MD-01501

Lab Batch #: 3070265 **Sample:** 605900-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/19/18 18:58

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	86.4	99.7	87	70-135	
o-Terphenyl	52.2	49.9	105	70-135	

Lab Batch #: 3070282 **Sample:** 605900-003 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/19/18 19:03

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0332	0.0300	111	70-130	
4-Bromofluorobenzene	0.0347	0.0300	116	70-130	

Lab Batch #: 3070282 **Sample:** 605900-004 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/19/18 19:23

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0331	0.0300	110	70-130	
4-Bromofluorobenzene	0.0333	0.0300	111	70-130	

Lab Batch #: 3070265 **Sample:** 7666533-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/19/18 11:54

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	91.4	100	91	70-135	
o-Terphenyl	48.2	50.0	96	70-135	

Lab Batch #: 3070282 **Sample:** 7666551-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/19/18 12:31

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0311	0.0300	104	70-130	
4-Bromofluorobenzene	0.0323	0.0300	108	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: COG-Graham Cracker 2 State #001H

Work Orders : 605900,

Project ID: 212C-MD-01501

Lab Batch #: 3070282 **Sample:** 7666551-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/19/18 10:53

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0297	0.0300	99	70-130	
4-Bromofluorobenzene	0.0328	0.0300	109	70-130	

Lab Batch #: 3070265 **Sample:** 7666533-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/19/18 12:12

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	120	100	120	70-135	
o-Terphenyl	52.1	50.0	104	70-135	

Lab Batch #: 3070282 **Sample:** 7666551-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/19/18 11:13

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0299	0.0300	100	70-130	
4-Bromofluorobenzene	0.0340	0.0300	113	70-130	

Lab Batch #: 3070265 **Sample:** 7666533-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 11/20/18 07:00

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	124	100	124	70-135	
o-Terphenyl	53.6	50.0	107	70-135	

Lab Batch #: 3070282 **Sample:** 605899-004 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/19/18 11:32

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	0.0365	0.0300	122	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: COG-Graham Cracker 2 State #001H

Work Orders : 605900,

Project ID: 212C-MD-01501

Lab Batch #: 3070265 **Sample:** 605899-004 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/19/18 13:07

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	123	99.9	123	70-135	
o-Terphenyl	53.5	50.0	107	70-135	

Lab Batch #: 3070282 **Sample:** 605899-004 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/19/18 11:52

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0304	0.0300	101	70-130	
4-Bromofluorobenzene	0.0373	0.0300	124	70-130	

Lab Batch #: 3070265 **Sample:** 605899-004 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 11/19/18 13:26

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	114	100	114	70-135	
o-Terphenyl	50.8	50.0	102	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.

BS / BSD Recoveries

Project Name: COG-Graham Cracker 2 State #001H

Work Order #: 605900 **Project ID:** 212C-MD-01501

Analyst: ALJ **Date Prepared:** 11/19/2018 **Date Analyzed:** 11/19/2018

Lab Batch ID: 3070282 **Sample:** 7666551-1-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	<0.00199	0.0996	0.121	121	0.100	0.120	120	1	70-130	35	
Toluene	<0.00199	0.0996	0.105	105	0.100	0.105	105	0	70-130	35	
Ethylbenzene	<0.00199	0.0996	0.112	112	0.100	0.112	112	0	70-130	35	
m,p-Xylenes	<0.00398	0.199	0.219	110	0.200	0.219	110	0	70-130	35	
o-Xylene	<0.00199	0.0996	0.106	106	0.100	0.106	106	0	70-130	35	

Analyst: CHE **Date Prepared:** 11/19/2018 **Date Analyzed:** 11/19/2018

Lab Batch ID: 3070189 **Sample:** 7666465-1-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	<5.00	250	262	105	250	272	109	4	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: COG-Graham Cracker 2 State #001H

Work Order #: 605900 **Project ID:** 212C-MD-01501

Analyst: ARM **Date Prepared:** 11/19/2018 **Date Analyzed:** 11/19/2018

Lab Batch ID: 3070265 **Sample:** 7666533-1-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	1010	101	1000	1010	101	0	70-135	20	
Diesel Range Organics (DRO)	<8.13	1000	1040	104	1000	1080	108	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: COG-Graham Cracker 2 State #001H

Work Order # : 605900 **Project ID:** 212C-MD-01501

Lab Batch ID: 3070282 **QC- Sample ID:** 605899-004 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 11/19/2018 **Date Prepared:** 11/19/2018 **Analyst:** ALJ

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	<0.00339	0.169	0.146	86	0.172	0.182	106	22	70-130	35	
Toluene	<0.000772	0.169	0.128	76	0.172	0.164	95	25	70-130	35	
Ethylbenzene	<0.000957	0.169	0.135	80	0.172	0.178	103	27	70-130	35	
m,p-Xylenes	<0.00172	0.339	0.267	79	0.345	0.350	101	27	70-130	35	
o-Xylene	<0.00339	0.169	0.129	76	0.172	0.171	99	28	70-130	35	

Lab Batch ID: 3070189 **QC- Sample ID:** 605743-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 11/19/2018 **Date Prepared:** 11/19/2018 **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	45.0	251	302	102	251	303	103	0	90-110	20	

Lab Batch ID: 3070189 **QC- Sample ID:** 605914-003 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 11/19/2018 **Date Prepared:** 11/19/2018 **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	327	248	571	98	248	568	97	1	90-110	20	

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

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

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

Form 3 - MS / MSD Recoveries

Project Name: COG-Graham Cracker 2 State #001H

Work Order # : 605900 **Project ID:** 212C-MD-01501

Lab Batch ID: 3070265 **QC- Sample ID:** 605899-004 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 11/19/2018 **Date Prepared:** 11/19/2018 **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)	<7.99	999	1010	101	1000	968	97	4	70-135	20	
Diesel Range Organics (DRO)	<8.12	999	1040	104	1000	1010	101	3	70-135	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

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

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

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

160590

Tetra Tech, Inc.

4000 N. Big Spring Street, Ste
401 Midland, Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

Client Name: COG	**Site Manager:** Clair Gonzales
Project Name: Graham Cracker 2 State #001H	
Project Location: (county, state) Eddy Co, NM	**Project #:** 212C-MD-01501
Invoice to: COG - Ike Taverez	
Receiving Laboratory: Xenco	**Sampler Signature:** Conner Moehring
Comments:	

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING DATE (YEAR: 2018)	SAMPLING TIME	MATRIX: WATER	MATRIX: SOIL	MATRIX:	PRESERVATIVE METHOD: HCL	PRESERVATIVE METHOD: HNO_3	PRESERVATIVE METHOD: ICE	PRESERVATIVE METHOD: None	PRESERVATIVE METHOD:	# CONTAINERS	FILTERED (Y/N)
	AH #1 (0-6")	11/15/2018			X				X			1	N
	AH #2 (0-6")	11/15/2018			X				X			1	N
	AH #3 (0-6")	11/15/2018			X				X			1	N
	AH #4 (0-6")	11/15/2018			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	Chloride Sulfate TDS	General Water Chemistry (see attached list)	Anion/Cation Balance				Hold
X		X												X							
X		X												X							
X		X												X							
X		X												X							

Final 1.000

Page 15 of 16

Relinquished by: Date: 11-19-18 Time: 8:50

Received by: Date: 11/19/18 Time: 0850

Relinquished by: Date: Time:

Received by: Date: Time:

Relinquished by: Date: Time:

Received by: Date: Time:

LAB USE ONLY

Sample Temperature

03/02

REMARKS:

☐ STANDARD

☒ RUSH: Same Day 24 hr 48 hr ~~72 hr~~

☐ Rush Charges Authorized

☐ Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: _____

ORIGINAL COPY

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Tetra Tech- Midland

Date/ Time Received: 11/19/2018 08:50:00 AM

Work Order #: 605900

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

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

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

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 11/19/2018

Brianna Teel

Checklist reviewed by: Date: 11/19/2018

Analytical Report 608911

for

Tetra Tech- Midland

Project Manager: Clair Gonzales

Graham Cracker 2 State #1H (08/22/18)

212C-MD-01501

20-DEC-18

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

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

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

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

20-DEC-18

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

Reference: XENCO Report No(s): **608911**
Graham Cracker 2 State #1H (08/22/18)
Project Address: Eddy County, NM

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) 608911. 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. 608911 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,

Kelsey Brooks
Project Manager

Sample Cross Reference 608911

Tetra Tech- Midland, Midland, TX

Graham Cracker 2 State #1H (08/22/18)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
T-1 1'	S	12-13-18 00:00		608911-001
T-1 2'	S	12-13-18 00:00		608911-002
T-1 3'	S	12-13-18 00:00		608911-003
T-1 4'	S	12-13-18 00:00		608911-004
T-1 6'	S	12-13-18 00:00		608911-005
T-1 8'	S	12-13-18 00:00		608911-006
T-1 10'	S	12-13-18 00:00		608911-007
T-2 1'	S	12-13-18 00:00		608911-008
T-2 2'	S	12-13-18 00:00		608911-009
T-2 3'	S	12-13-18 00:00		608911-010
Background 1'	S	12-13-18 00:00		608911-011
Backgroud 2'	S	12-13-18 00:00		608911-012
Background 3'	S	12-13-18 00:00		608911-013
Backgroud 4'	S	12-13-18 00:00		608911-014
Background 6'	S	12-13-18 00:00		608911-015
T-2 4'	S	12-13-18 00:00		608911-016
T-2 6'	S	12-13-18 00:00		608911-017
T-2 8'	S	12-13-18 00:00		608911-018
T-2 10'	S	12-13-18 00:00		608911-019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3073441 BTEX by EPA 8021B

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

Samples affected are: 608911-001.

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

Batch: LBA-3073512 Chloride by EPA 300

Lab Sample ID 608911-015 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 608911-005, -006, -007, -008, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018, -019.

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

Certificate of Analysis Summary 608911

Tetra Tech- Midland, Midland, TX

Project Name: Graham Cracker 2 State #1H (08/22/18)

Project Id: 212C-MD-01501
Contact: Clair Gonzales
Project Location: Eddy County, NM

Date Received in Lab: Mon Dec-17-18 02:18 pm
Report Date: 20-DEC-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	608911-001		608911-002		608911-003		608911-004		608911-005		608911-006	
	Field Id:	T-1 1'		T-1 2'		T-1 3'		T-1 4'		T-1 6'		T-1 8'	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Dec-13-18 00:00		Dec-13-18 00:00		Dec-13-18 00:00		Dec-13-18 00:00		Dec-13-18 00:00		Dec-13-18 00:00	
BTEX by EPA 8021B	***Extracted:***	Dec-17-18 16:45		Dec-17-18 16:45									
	Analyzed:	Dec-18-18 01:25		Dec-18-18 01:44									
	Units/RL:	mg/kg	RL	mg/kg	RL								
Benzene		<0.00199	0.00199	<0.00200	0.00200								
Toluene		<0.00199	0.00199	<0.00200	0.00200								
Ethylbenzene		<0.00199	0.00199	<0.00200	0.00200								
m,p-Xylenes		<0.00398	0.00398	<0.00400	0.00400								
o-Xylene		<0.00199	0.00199	<0.00200	0.00200								
Total Xylenes		<0.00199	0.00199	<0.00200	0.00200								
Total BTEX		<0.00199	0.00199	<0.00200	0.00200								
Chloride by EPA 300	***Extracted:***	Dec-18-18 16:00		Dec-18-18 16:00		Dec-18-18 16:00		Dec-18-18 16:00		Dec-19-18 09:30		Dec-19-18 09:30	
	Analyzed:	Dec-19-18 01:12		Dec-19-18 01:18		Dec-19-18 01:24		Dec-19-18 01:31		Dec-19-18 11:08		Dec-19-18 11:14	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		1300	24.9	473	4.95	1190	25.0	1340	25.0	1310	25.0	1150	24.8
TPH by SW8015 Mod	***Extracted:***	Dec-18-18 17:00		Dec-18-18 17:00									
	Analyzed:	Dec-19-18 12:41		Dec-19-18 13:00									
	Units/RL:	mg/kg	RL	mg/kg	RL								
Gasoline Range Hydrocarbons (GRO)		<14.9	14.9	<15.0	15.0								
Diesel Range Organics (DRO)		<14.9	14.9	<15.0	15.0								
Motor Oil Range Hydrocarbons (MRO)		<14.9	14.9	<15.0	15.0								
Total TPH		<14.9	14.9	<15.0	15.0								

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 608911

Tetra Tech- Midland, Midland, TX

Project Name: Graham Cracker 2 State #1H (08/22/18)

Project Id: 212C-MD-01501
Contact: Clair Gonzales
Project Location: Eddy County, NM

Date Received in Lab: Mon Dec-17-18 02:18 pm
Report Date: 20-DEC-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	608911-007		608911-008		608911-009		608911-010		608911-011		608911-012	
	Field Id:	T-1 10'		T-2 1'		T-2 2'		T-2 3'		Background 1'		Backgroud 2'	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Dec-13-18 00:00		Dec-13-18 00:00		Dec-13-18 00:00		Dec-13-18 00:00		Dec-13-18 00:00		Dec-13-18 00:00	
BTEX by EPA 8021B	***Extracted:***			Dec-17-18 16:45		Dec-17-18 16:45							
	Analyzed:			Dec-18-18 02:03		Dec-18-18 02:22							
	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:***	Dec-19-18 09:30		Dec-19-18 09:30		Dec-19-18 09:30		Dec-19-18 09:30		Dec-19-18 09:30		Dec-19-18 09:30	
	Analyzed:	Dec-19-18 10:50		Dec-19-18 11:21		Dec-19-18 11:27		Dec-19-18 11:50		Dec-19-18 11:56		Dec-19-18 12:03	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		890	4.97	4070	50.0	2240	25.0	1840	25.0	<4.98	4.98	25.9	4.99
TPH by SW8015 Mod	***Extracted:***			Dec-18-18 17:00		Dec-18-18 17:00							
	Analyzed:			Dec-19-18 14:00		Dec-19-18 14:20							
	Units/RL:			mg/kg	RL	mg/kg	RL						
Gasoline Range Hydrocarbons (GRO)				<15.0	15.0	<15.0	15.0						
Diesel Range Organics (DRO)				39.2	15.0	<15.0	15.0						
Motor Oil Range Hydrocarbons (MRO)				<15.0	15.0	<15.0	15.0						
Total TPH				39.2	15.0	<15.0	15.0						

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 608911

Tetra Tech- Midland, Midland, TX

Project Name: Graham Cracker 2 State #1H (08/22/18)

Project Id: 212C-MD-01501
Contact: Clair Gonzales
Project Location: Eddy County, NM

Date Received in Lab: Mon Dec-17-18 02:18 pm
Report Date: 20-DEC-18
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	608911-013		608911-014		608911-015		608911-016		608911-017		608911-018	
	Field Id:	Background 3'		Backgroud 4'		Background 6'		T-2 4'		T-2 6'		T-2 8'	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Dec-13-18 00:00		Dec-13-18 00:00		Dec-13-18 00:00		Dec-13-18 00:00		Dec-13-18 00:00		Dec-13-18 00:00	
Chloride by EPA 300	***Extracted:***	Dec-19-18 09:30		Dec-19-18 09:30		Dec-19-18 09:30		Dec-19-18 09:30		Dec-19-18 09:30		Dec-19-18 09:30	
	Analyzed:	Dec-19-18 12:09		Dec-19-18 12:15		Dec-19-18 12:21		Dec-19-18 12:40		Dec-19-18 12:46		Dec-19-18 13:09	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		539	5.00	97.0	4.96	500	4.95	573	25.0	314	24.8	334	25.0

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 608911

Tetra Tech- Midland, Midland, TX

Project Name: Graham Cracker 2 State #1H (08/22/18)

Project Id: 212C-MD-01501
Contact: Clair Gonzales
Project Location: Eddy County, NM

Date Received in Lab: Mon Dec-17-18 02:18 pm
Report Date: 20-DEC-18
Project Manager: Kelsey Brooks

Analysis Requested							
	Lab Id:	608911-019					
	Field Id:	T-2 10'					
	Depth:						
	Matrix:	SOIL					
	Sampled:	Dec-13-18 00:00					
Chloride by EPA 300	***Extracted:***	Dec-19-18 09:30					
	Analyzed:	Dec-19-18 13:16					
	Units/RL:	mg/kg	RL				
Chloride		519	24.8				

Kelsey Brooks
Project Manager

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: Graham Cracker 2 State #1H (08/22/18)

Work Orders : 608911,

Project ID: 212C-MD-01501

Lab Batch #: 3073441 **Sample:** 608911-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/18/18 01:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0247	0.0300	82	70-130	
4-Bromofluorobenzene	0.0400	0.0300	133	70-130	**

Lab Batch #: 3073441 **Sample:** 608911-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/18/18 01:44

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0305	0.0300	102	70-130	
4-Bromofluorobenzene	0.0300	0.0300	100	70-130	

Lab Batch #: 3073441 **Sample:** 608911-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/18/18 02:03

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0309	0.0300	103	70-130	
4-Bromofluorobenzene	0.0286	0.0300	95	70-130	

Lab Batch #: 3073441 **Sample:** 608911-009 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/18/18 02:22

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0315	0.0300	105	70-130	
4-Bromofluorobenzene	0.0295	0.0300	98	70-130	

Lab Batch #: 3073492 **Sample:** 608911-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/19/18 12:41

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	90.9	99.6	91	70-135	
o-Terphenyl	45.3	49.8	91	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: Graham Cracker 2 State #1H (08/22/18)

Work Orders : 608911,

Project ID: 212C-MD-01501

Lab Batch #: 3073492 **Sample:** 608911-002 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/19/18 13:00

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	99.0	99.8	99	70-135	
o-Terphenyl	48.9	49.9	98	70-135	

Lab Batch #: 3073492 **Sample:** 608911-008 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/19/18 14:00

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	95.4	99.7	96	70-135	
o-Terphenyl	47.3	49.9	95	70-135	

Lab Batch #: 3073492 **Sample:** 608911-009 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/19/18 14:20

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	88.5	99.9	89	70-135	
o-Terphenyl	44.0	50.0	88	70-135	

Lab Batch #: 3073441 **Sample:** 7668269-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/17/18 21:02

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0299	0.0300	100	70-130	
4-Bromofluorobenzene	0.0241	0.0300	80	70-130	

Lab Batch #: 3073492 **Sample:** 7668387-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/19/18 08:21

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	108	100	108	70-135	
o-Terphenyl	55.1	50.0	110	70-135	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Graham Cracker 2 State #1H (08/22/18)

Work Orders : 608911, **Project ID:** 212C-MD-01501

Lab Batch #: 3073441 **Sample:** 7668269-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/17/18 19:28

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0305	0.0300	102	70-130	
4-Bromofluorobenzene	0.0257	0.0300	86	70-130	

Lab Batch #: 3073492 **Sample:** 7668387-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/19/18 08:41

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	123	100	123	70-135	
o-Terphenyl	64.4	50.0	129	70-135	

Lab Batch #: 3073441 **Sample:** 7668269-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/17/18 19:47

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0305	0.0300	102	70-130	
4-Bromofluorobenzene	0.0259	0.0300	86	70-130	

Lab Batch #: 3073492 **Sample:** 7668387-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 12/19/18 09:01

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	119	100	119	70-135	
o-Terphenyl	59.7	50.0	119	70-135	

Lab Batch #: 3073441 **Sample:** 608945-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/17/18 20:06

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0254	0.0300	85	70-130	
4-Bromofluorobenzene	0.0380	0.0300	127	70-130	

* Surrogate outside of Laboratory QC limits

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

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

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

Form 2 - Surrogate Recoveries

Project Name: Graham Cracker 2 State #1H (08/22/18)

Work Orders : 608911,

Project ID: 212C-MD-01501

Lab Batch #: 3073492 **Sample:** 608795-001 S / MS **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/19/18 09:42

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	121	99.8	121	70-135	
o-Terphenyl	50.9	49.9	102	70-135	

Lab Batch #: 3073441 **Sample:** 608945-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/17/18 20:25

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0303	0.0300	101	70-130	
4-Bromofluorobenzene	0.0262	0.0300	87	70-130	

Lab Batch #: 3073492 **Sample:** 608795-001 SD / MSD **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 12/19/18 10:02

SURROGATE RECOVERY STUDY

TPH by SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	122	99.7	122	70-135	
o-Terphenyl	51.4	49.9	103	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.

BS / BSD Recoveries

Project Name: Graham Cracker 2 State #1H (08/22/18)

Work Order #: 608911 **Project ID:** 212C-MD-01501

Analyst: SCM **Date Prepared:** 12/17/2018 **Date Analyzed:** 12/17/2018

Lab Batch ID: 3073441 **Sample:** 7668269-1-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	<0.000384	0.0998	0.0965	97	0.101	0.0956	95	1	70-130	35	
Toluene	<0.000455	0.0998	0.0892	89	0.101	0.0887	88	1	70-130	35	
Ethylbenzene	<0.000564	0.0998	0.0971	97	0.101	0.0962	95	1	70-130	35	
m,p-Xylenes	<0.00101	0.200	0.176	88	0.201	0.175	87	1	70-130	35	
o-Xylene	<0.000344	0.0998	0.0856	86	0.101	0.0851	84	1	70-130	35	

Analyst: CHE **Date Prepared:** 12/18/2018 **Date Analyzed:** 12/18/2018

Lab Batch ID: 3073354 **Sample:** 7668303-1-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	<5.00	250	256	102	250	273	109	6	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: Graham Cracker 2 State #1H (08/22/18)

Work Order #: 608911 **Project ID:** 212C-MD-01501

Analyst: CHE **Date Prepared:** 12/19/2018 **Date Analyzed:** 12/19/2018

Lab Batch ID: 3073512 **Sample:** 7668352-1-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	<5.00	250	266	106	250	264	106	1	90-110	20	

Analyst: ARM **Date Prepared:** 12/18/2018 **Date Analyzed:** 12/19/2018

Lab Batch ID: 3073492 **Sample:** 7668387-1-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	1070	107	1000	1050	105	2	70-135	20	
Diesel Range Organics (DRO)	<8.13	1000	1180	118	1000	1140	114	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: Graham Cracker 2 State #1H (08/22/18)

Work Order # : 608911 **Project ID:** 212C-MD-01501

Lab Batch ID: 3073441 **QC- Sample ID:** 608945-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 12/17/2018 **Date Prepared:** 12/17/2018 **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	<0.000387	0.101	0.0678	67	0.0996	0.0850	85	23	70-130	35	X
Toluene	<0.000458	0.101	0.0759	75	0.0996	0.0789	79	4	70-130	35	
Ethylbenzene	<0.000568	0.101	0.0886	88	0.0996	0.0836	84	6	70-130	35	
m,p-Xylenes	<0.00102	0.201	0.173	86	0.199	0.151	76	14	70-130	35	
o-Xylene	<0.000346	0.101	0.0869	86	0.0996	0.0736	74	17	70-130	35	

Lab Batch ID: 3073354 **QC- Sample ID:** 608910-017 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 12/18/2018 **Date Prepared:** 12/18/2018 **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	1090	248	1320	93	248	1320	93	0	90-110	20	

Lab Batch ID: 3073354 **QC- Sample ID:** 608910-023 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 12/19/2018 **Date Prepared:** 12/18/2018 **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	65.7	250	312	99	250	307	97	2	90-110	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

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

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

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: Graham Cracker 2 State #1H (08/22/18)

Work Order # : 608911 **Project ID:** 212C-MD-01501

Lab Batch ID: 3073512 **QC- Sample ID:** 608911-007 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 12/19/2018 **Date Prepared:** 12/19/2018 **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	890	249	1140	100	249	1120	92	2	90-110	20	

Lab Batch ID: 3073512 **QC- Sample ID:** 608911-015 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 12/19/2018 **Date Prepared:** 12/19/2018 **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	500	248	733	94	248	720	89	2	90-110	20	X

Lab Batch ID: 3073492 **QC- Sample ID:** 608795-001 S **Batch #:** 1 **Matrix:** Soil

Date Analyzed: 12/19/2018 **Date Prepared:** 12/18/2018 **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)	<7.99	998	975	98	997	987	99	1	70-135	20	
Diesel Range Organics (DRO)	<8.11	998	1050	105	997	1060	106	1	70-135	20	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

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

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

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

608911

Tetra Tech, Inc.

4000 N. Big Spring Street, Ste
401 Midland, Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

Client Name: COG	**Site Manager:** Clair Gonzales
Project Name: Graham Cracker 2 State #1H	
Project Location: (county, state) Eddy County, NM	**Project #:** 212C-MD-01501
Invoice to: COG - Attn: Ike Tavarez	
Receiving Laboratory: Xenco	**Sampler Signature:** John Kell
Comments:	

ANALYSIS REQUEST
(Circle or Specify Method No.)

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING YEAR: DATE	SAMPLING TIME	MATRIX WATER	MATRIX SOIL	MATRIX	PRESERVATIVE METHOD HCL	PRESERVATIVE METHOD HNO_3	PRESERVATIVE METHOD ICE			# CONTAINERS	FILTERED (Y/N)	BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - ORO)	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	Asbestos			Hold
	Background 1'	12/13/2018		X					X			1															X							
	Background 2'	12/13/2018		X					X			1															X							
	Background 3'	12/13/2018		X					X			1															X							
	Background 4'	12/13/2018		X					X			1															X							
	Background 6'	12/13/2018		X					X			1															X							
	T-2 4'	12/13/18							X			1															X							
	T-2 6'	12/13/18							X			1															X							
	T-2 8'	12/13/18							X			1															X							
	T-2 10	12/13/18							X			1															X							

Relinquished by:	Date: 12/17/18	Time: 1419	Received by:
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by:

Received by: Date: 12/17/18 Time: 1418

Received by: Date: Time:

Received by: Date: Time:

LAB USE ONLY

Sample Temperature 3.2 | 3.1 | 1.0

REMARKS:

- [X] RUSH: Same Day 24 hr 48 hr 72 hr
- [ ] Rush Charges Authorized
- [ ] Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #:

ORIGINAL COPY

Final 1.000

Page 18 of 20

Analysis Request of Chain of Custody Record

168911 Page 1 of 2

Tetra Tech, Inc.

4000 N. Big Spring Street, Ste
401 Midland,Texas 79705
Tel (432) 682-4559
Fax (432) 682-3946

Client Name:	COG	**Site Manager:**	Clair Gonzales
Project Name:	Graham Cracker 2 State #1H (08/22/18)		
Project Location: (county, state)	Eddy County, NM	**Project #:**	212C-MD-01501
Invoice to:	COG - Attn: Ike Tavarez		
Receiving Laboratory:	Xenco	**Sampler Signature:**	John Kell

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

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:	PRESERVATIVE METHOD:	# CONTAINERS	FILTERED (Y/N)	BTEX 8021B BTEX 8260B	TPH TX1005 (Ext to C35)	TPH 8015M (GRO - DRO - ORO)	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	Asbestos			Hold
	T-1 1'	12/13/2018		X					X			1		X		X												X						
	T-1 2'	12/13/2018		X					X			1		X		X												X						
	T-1 3'	12/13/2018		X					X			1																X						
	T-1 4	12/13/2018		X					X			1																X						
	T-1 6	12/13/2018		X					X			1																X						
	T-1 8	12/13/2018		X					X			1																X						
	T-1 10	12/13/2018		X					X			1																X						
	T-2 1	12/13/2018		X					X			1		X		X												X						
	T-2 2	12/13/2018		X					X			1		X		X												X						
	T-2 3	12/13/2018		X					x			1																X						

Relinquished by: Dawn Mosley	Date: 12/17/18	Time: 1418	Received by: [signature]
Relinquished by:	Date:	Time:	Received by:
Relinquished by:	Date:	Time:	Received by:

Date: 12/17/18 Time: 1418

LAB USE ONLY
Sample Temperature 3.2 | 3.1 KB

REMARKS:
- [X] RUSH: Same Day 24 hr 48 hr (72 hr)
- [ ] Rush Charges Authorized
- [ ] Special Report Limits or TRRP Report

(Circle) HAND DELIVERED FEDEX UPS Tracking #: _____

ORIGINAL COPY

Final 1.000

Page 19 of 20

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: Tetra Tech- Midland

Date/ Time Received: 12/17/2018 02:18:00 PM

Work Order #: 608911

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)?	3.1
#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: 12/17/2018

Brianna Teel

Checklist reviewed by: Kelsey Brooks Date: 12/18/2018

Kelsey Brooks