

SITE INFORMATION

Report Type: Closure Report 1RP-5166

General Site Information:

Site & Lease No:	Becknell State Com #003H					
Company:	COG Operating LLC					
Section, Township and Range	Unit K	Sec. 05	T 21S	R 33E		
County:	Lea County					
GPS:	32.507012			-103.596756		
Surface Owner:	State					
Directions:	From the intersection of NM-128 and Buck Jackson Rd turn South on Buck Jackson Rd and go .45 miles and turn right and location and arrive on site					

Release Data:

Date Released:	8/15/2018	
Type Release:	PW & Oil	
Source of Contamination:	Flowline Rupture	
Fluid Released:	270 PW bbl, 1 bbl Oil	
Fluids Recovered:	240 PW bbl, .5 bbl Oil	

Official Communication:

Name:	Ike Tavaréz		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@tetrattech.com

Site Characterization

Depth to Groundwater:	>100'
Karst Potential:	Low

Recommended Remedial Action Levels (RRALs)

Benzene	Total BTEX	TPH (GRO+DRO+MRO)	Chlorides
10 mg/kg	50 mg/kg	2,500 mg/kg	20,000 mg/kg



January 14, 2020

Dylan Rose-Coss
Oil Conservation Division, District 1
1625 North French Drive
Hobbs, New Mexico 88240

Re: Closure report for the COG Operating, LLC, Becknell State Com #003H, Unit K, Section 05, Township 21 South, Range 33 East, Eddy County, New Mexico. 1RP-5166

Mr. Rose-Coss:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating, LLC (COG), to evaluate a release that occurred at the Becknell State Com #003H, Unit K, Section 05, Township 21 South, Range 33 East, Eddy County, New Mexico (Site). The spill site coordinates are 32.507012°, -103.596756°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on August 15, 2018, and released approximately 270 barrels of produced water and 1 barrel of crude oil due to a flowline rupture. The release impacted an overall area measuring around 233' x 61'. The C-141 Form is included in Appendix A.

Previous Work Plan

HRL Compliance Solutions Inc., in previously submitted workplan, dated October 26, 2018. The proposed plan included the removal of impacted soil to a depth of 4.0' below surface in the pasture. The SLO approved the plan with conditions to also reclaim the pad area of S-1, S-2 and S-5, in addition to the pasture reclamation.

Site Characterization

A site characterization was performed for the site, and no watercourses, lakebeds, sinkholes, playa lakes, residences, schools, hospitals, institutions, churches, springs, private domestic water wells, springs, wetlands, incorporated municipal boundaries, subsurface mines, or floodplains are located within the specified distances. The site is in a low karst potential area. The nearest well is listed on the New Mexico State Engineers Website in Section 02, approximately 3.5 miles northeast of the site and has a reported depth to groundwater of 100' feet below surface. The groundwater data is shown in Appendix B.

Regulatory

A risk-based evaluation was performed for the Site under 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

Tetra Tech

901 West Wall, Suite 100, Midland, TX 79701

Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

**TETRA TECH**

determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the site characterization, the proposed RRAL for TPH is 1,000 mg/kg (GRO + DRO) and 2,500 mg/kg (GRO + DRO + MRO). Additionally, based on the site characterization, the proposed RRAL for chlorides is 20,000 mg/kg.

Remediation/Reclamation Activities

On October 22-29, 2019, Tetra Tech personnel were onsite to supervise the reclamation activities. The pad area was excavated to a total depth of 2.0' below surface. The pasture area was remediated to a total depth of 4.0' to 4.5' below surface. A total of six (6) sidewall composite samples on the pad area (NSW-1, SSW-1, ESW-1, ESW-2, WSW-1, and WSW-2) and nine (9) sidewall composite samples (NSW-2, SSW-2, SSW-3, ESW-3, ESW-4, ESW-5, WSW-3, WSW-4, and WSW-5) were collected every 200 square feet to ensure proper removal of the impacted soils. The samples were submitted to the laboratory to be analyzed for TPH method 8015 extended, BTEX method 8021B, and Chloride by method 300.0. The sampling results are summarized in Table 1. The excavation depths and sample locations are shown in Figure 4.

Referring to Table 1, the sidewalls samples for the pad area (WSW-1, WSW-2, and ESW-1) were extended to the maximum extent possible and showed high chloride concentrations of 4,290 mg/kg 3,310 mg/kg, and 1,590 mg/kg, respectively. The sidewall of ESW-1 could not be extended due to the pad sloping down towards the pasture. The sidewalls samples for the pasture area (WSW-4 and WSW-5) showed elevated chloride concentrations of 4,680 mg/kg and 680 mg/kg. The sidewall areas were extended to the maximum extent towards the slope and edge of the pad. The remaining sidewall samples showed chloride concentrations below the RRAL's and the reclamation standards.

All confirmation sidewall samples showed benzene, total BTEX, and TPH, below the RRAL's and the reclamation standards.

Approximately 480 cubic yards of material were excavated and transported offsite for proper disposal. The area was then backfilled with clean material to surface grade.

Conclusion

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

Respectfully submitted,
TETRA TECH

Respectfully submitted,
TETRA TECH

A handwritten signature in black ink, appearing to read 'Mike Carmona'.

Mike Carmona
Geologist

Figures



SITE LOCATION



0 10,416.5 20,833

Approximate Scale in Feet



STATE LOCATOR MAP

OVERVIEW MAP

BECKELL STATE COM #3H

Property Located at coordinates 32.507012°,-103.596756°
LEA COUNTY, NEW MEXICO



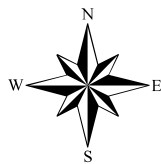
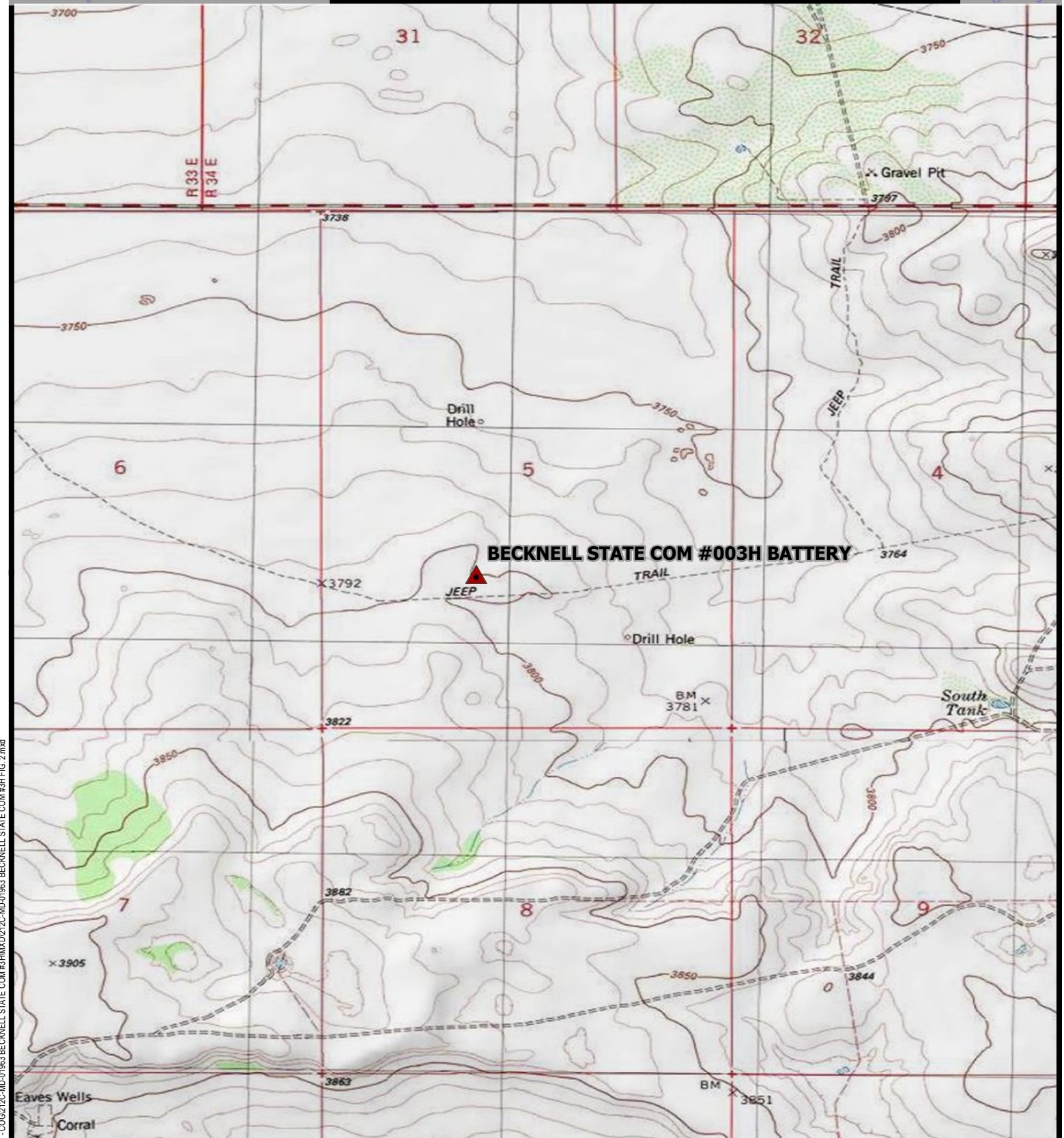
Project #: 212C-MD-01963
Date: 01-09-2020
Drawn By: MLM

FIGURE
1

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT

P, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),

NGCC, (c) OpenStreetMap contributors, and the GIS User Community



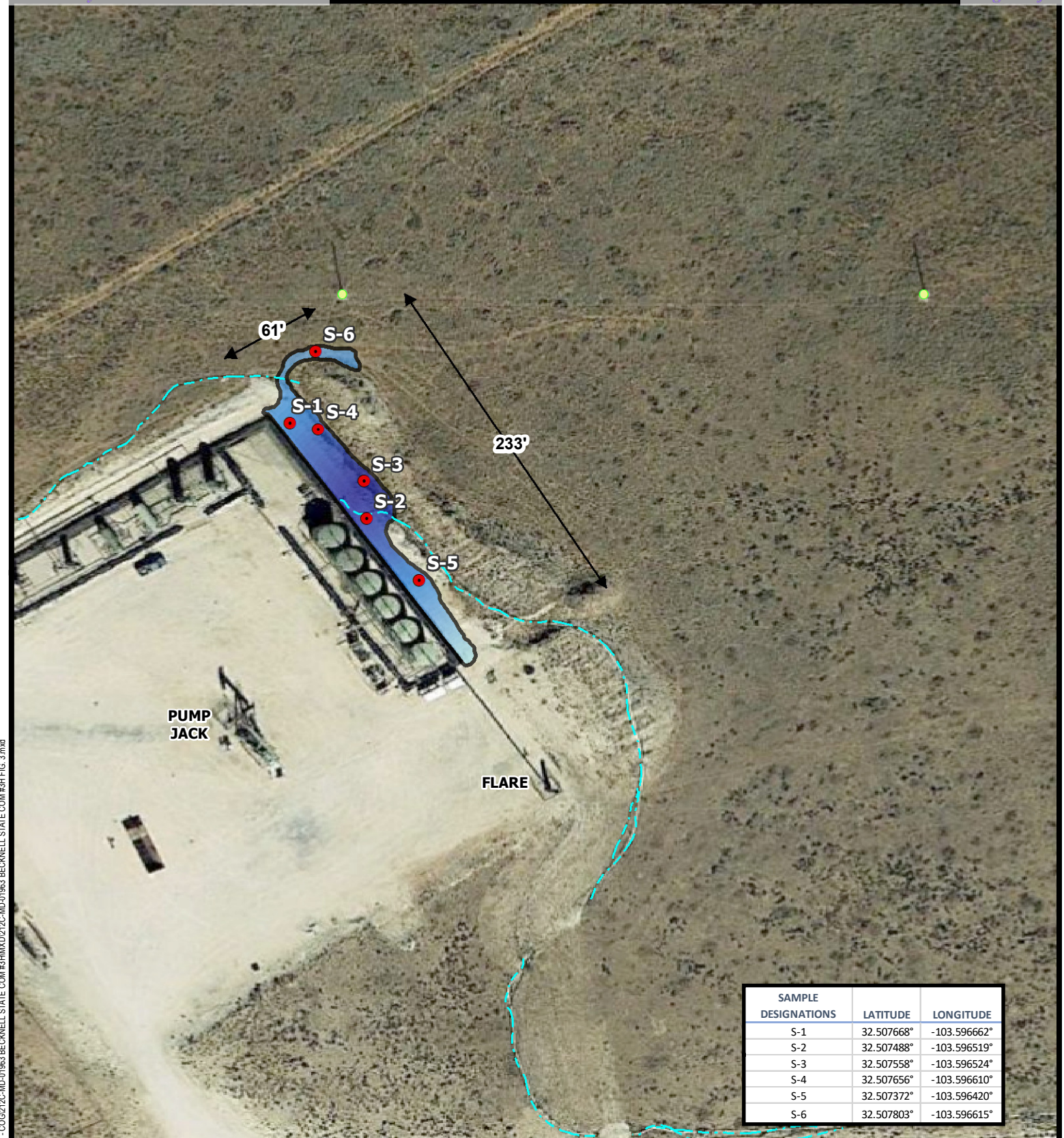
0 1,000 2,000
Approximate Scale in Feet

TOPOGRAPHIC MAP
BECKELL STATE COM #3H
Property Located at coordinates 32.507012°,-103.596756°
LEA COUNTY, NEW MEXICO

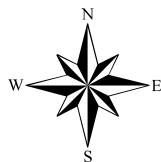


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901 W Wall St Ste. 100,
Midland, TX 79701
(432) 682-4559
Project #: 212C-MD-01963
Date: 01-09-2020
Drawn By: MLM

FIGURE
2



- SAMPLE POINT LOCATIONS
- POWER POLE
- FLOWLINE
- AFFECTED SPILL AREA



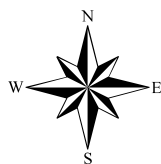
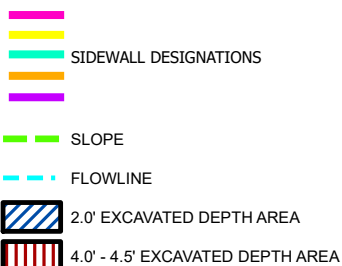
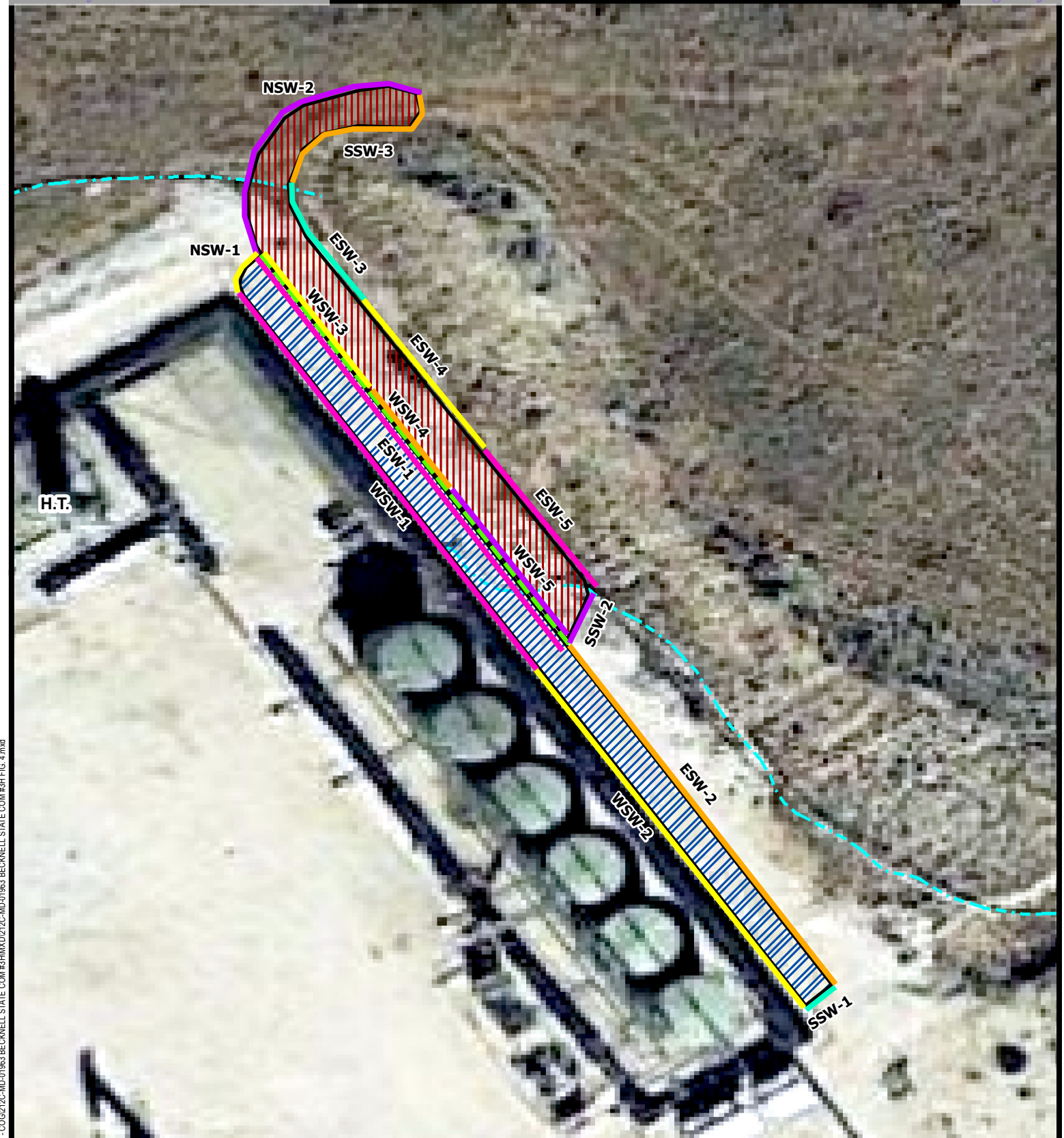
0 45 90
Approximate Scale in Feet

SPILL ASSESSMENT MAP
BECKELL STATE COM #3H
Property Located at coordinates 32.507012°,-103.596756°
LEA COUNTY, NEW MEXICO



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901 W Wall St Ste. 100,
Midland, TX 79701
(432) 682-4559
Project #: 212C-MD-01963
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FIGURE
3



0 15 30
Approximate Scale in Feet

EXCAVATION AREA & DEPTH MAP
BECKELL STATE COM #3H
Property Located at coordinates 32.507012°,-103.596756°
LEA COUNTY, NEW MEXICO



Project #: 212C-MD-01963
Date: 01-09-2020
Drawn By: MLM

FIGURE
4

Tables

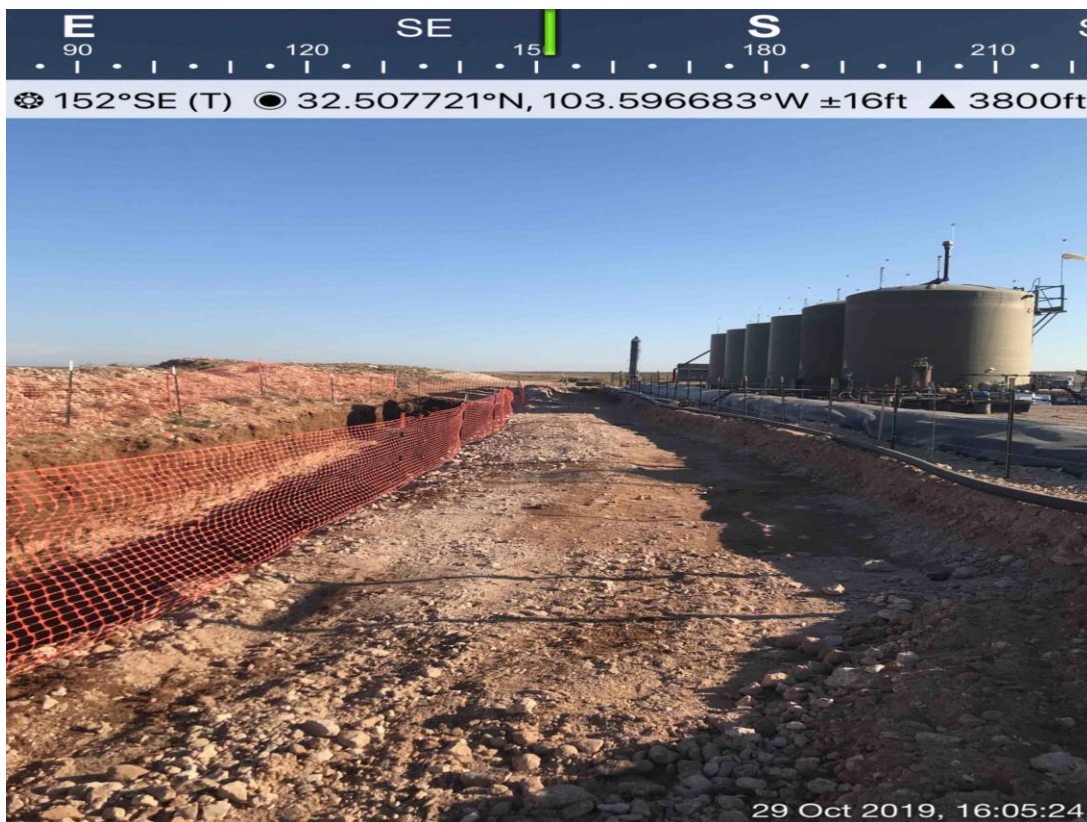
Table 1
COG
Becknell State Com #3H (8.15.18)
Lea County, New Mexico

Sample ID	Sample Date	Excavation Depth (ft)	Soil Status		TPH (mg/kg)					Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	GRO+DRO	ORO	Total						
NSW-1 Comp 2'	10/29/2019	-	X		<50.0	<50.0	<50.0	<50.0	<50.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	64.1
NSW-2 Comp 4'	10/29/2019	-	X		<49.9	<49.9	<49.9	<49.9	<49.9	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	8.54
SSW-1 Comp 2'	10/29/2019	-	X		<50.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	61.7
SSW-2 Comp 4'	10/29/2019	-	X		<49.9	<49.9	<49.9	<49.9	<49.9	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	113
SSW-3 Comp 4'	10/29/2019	-	X		<50.0	<50.0	<50.0	<50.0	<50.0	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	7.75
WSW-1 Comp 2'	10/29/2019	-	X		<49.9	<49.9	<49.9	<49.9	<49.9	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	4,290
WSW-2 Comp 2'	10/29/2019	-	X		<49.9	<49.9	<49.9	<49.9	<49.9	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	3,310
WSW-3 Comp 4'	10/29/2019	-	X		<50.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	61.9
WSW-4 Comp 4'	10/29/2019	-	X		<50.0	<50.0	<50.0	<50.0	<50.0	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	4,680
WSW-5 Comp 4'	10/29/2019	-	X		<49.8	<49.8	<49.8	<49.8	<49.8	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	680
ESW-1 Comp 2'	10/29/2019	-	X		<49.9	<49.9	<49.9	<49.9	<49.9	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	1,590
ESW-2 Comp 2'	10/29/2019	-	X		<50.0	<50.0	<50.0	<50.0	<50.0	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	118
ESW-3 Comp 4'	10/29/2019	-	X		<49.9	<49.9	<49.9	<49.9	<49.9	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	7.41
ESW-4 Comp 4'	10/29/2019	-	X		<50.0	<50.0	<50.0	<50.0	<50.0	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	65.1
ESW-5 Comp 4'	10/29/2019	-	X		<49.9	<49.9	<49.9	<49.9	<49.9	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	65.2

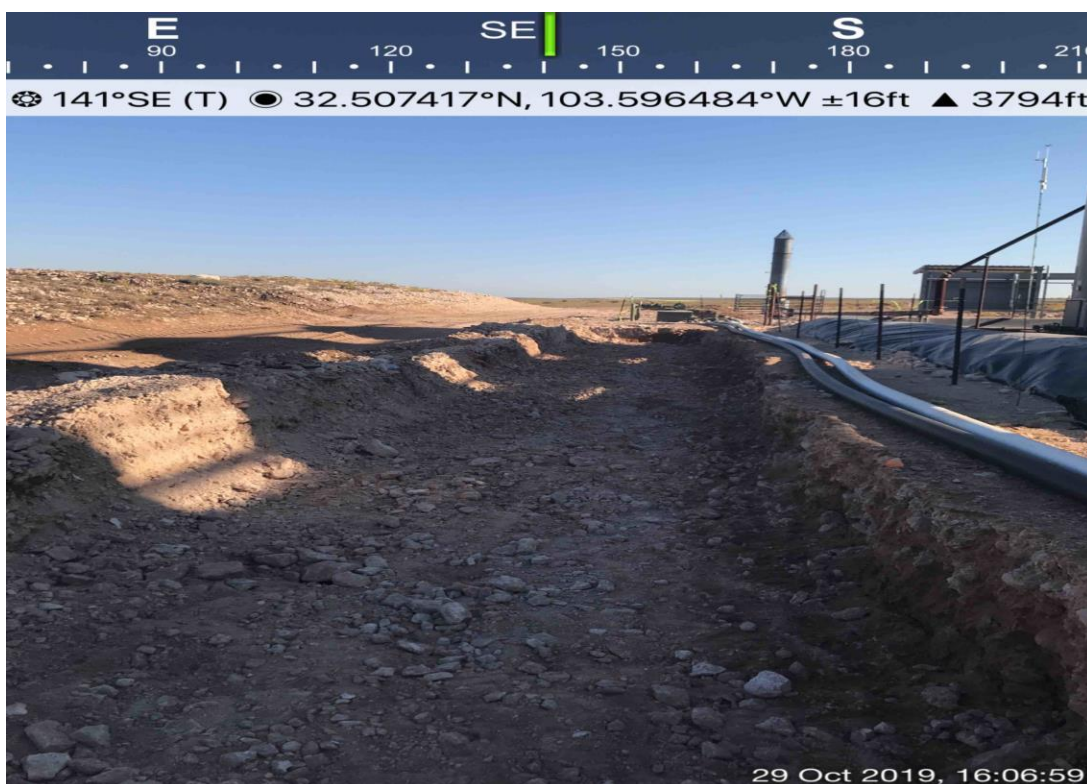
Photos

Concho Becknell St Com #003H

Lea County, New Mexico



View Southeast of Pad Area



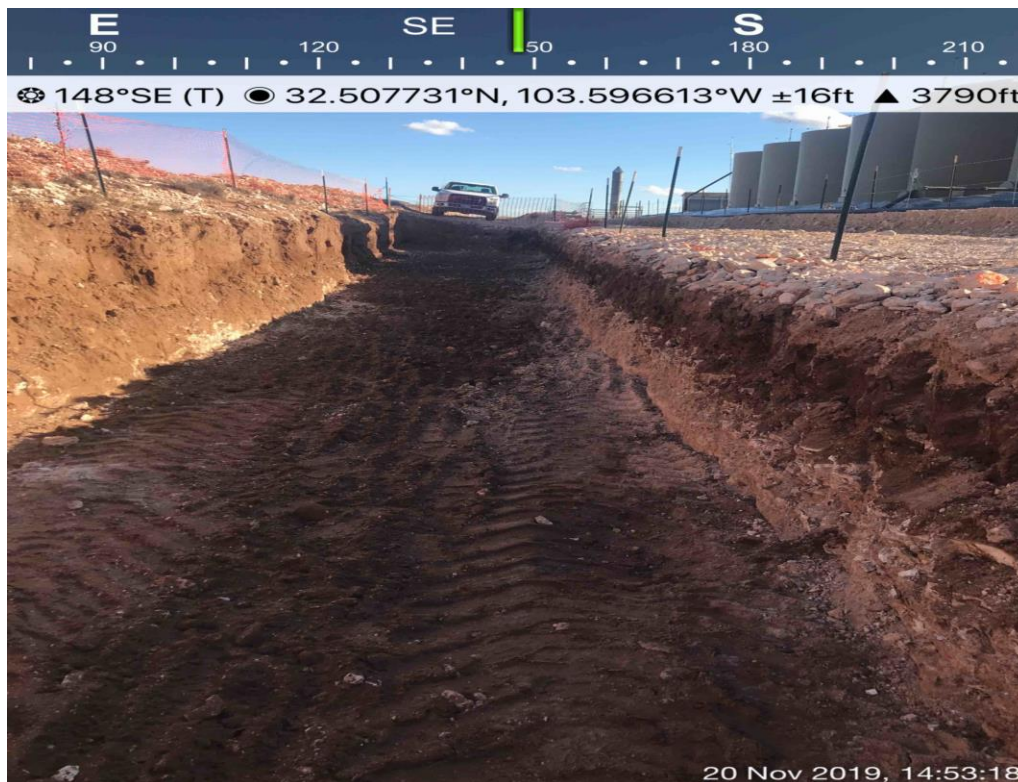
View Southeast, Pad Area

Concho Becknell St Com #003H

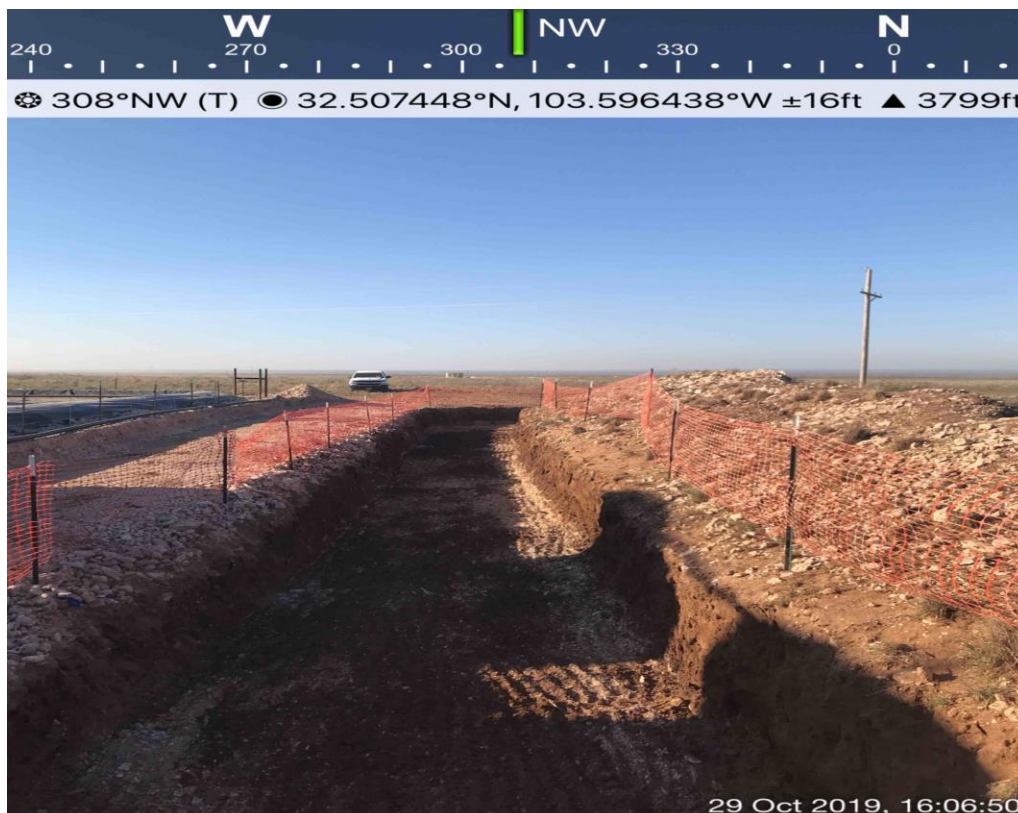
Lea County, New Mexico



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View Southeast of Pasture Area



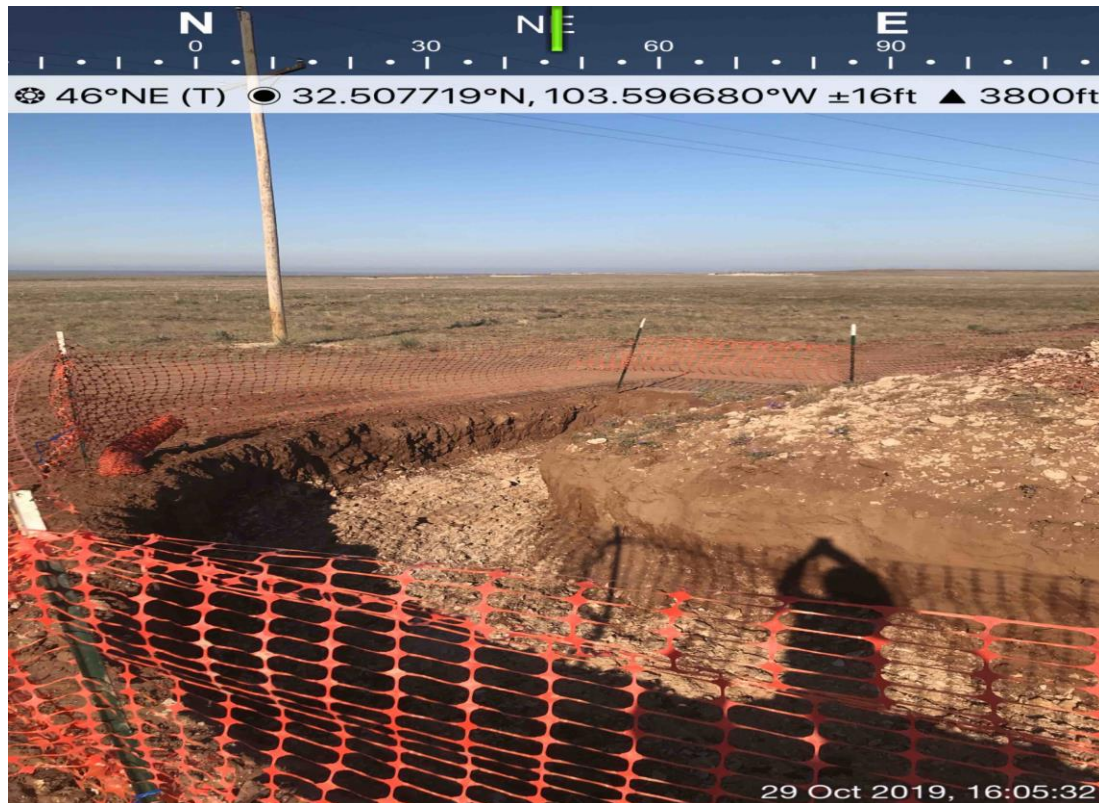
View Northwest, of Pasture Area

Concho Becknell St Com #003H

Lea County, New Mexico



TETRA TECH



View Northeast of Pasture Area



View Southeast, Pad backfill Area

Concho Becknell St Com #003H

Lea County, New Mexico



View Northwest, Backfill of Pasture Area



View Northeast, Backfill of Pasture 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	1RP-5166
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@concho.com	Incident # (assigned by OCD)
Contact mailing address 600 West Illinois Avenue, Midland, TX 79701	

Location of Release Source

Latitude 32.50708 Longitude -103.59671
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Becknell State Com #003H Battery	Site Type Battery
Date Release Discovered 8/15/2018	API# (if applicable) 30-025-41299

Unit Letter	Section	Township	Range	County
K	05	21S	33E	Lea

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

Nature and Volume of Release

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

☒ Crude Oil	Volume Released (bbls) 1	Volume Recovered (bbls) 0.5
☒ Produced Water	Volume Released (bbls) 270	Volume Recovered (bbls) 240
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

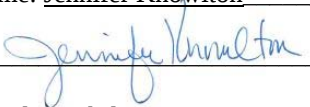
Cause of Release
Ruptured flowline

Incident ID	
District RP	1RP-5166
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? 19.15.29.7(1): Major Release is any release of a volume of 25 barrels or more
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Oliva Yu- NMOCD, Christina Hernandez – NMOCD, Ryann Mann - SLO	

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 <u>not</u> been undertaken, explain why: 	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Jennifer Knowlton</u>	Title: <u>HRL Compliance Solutions, Regional Manager</u>
Signature: <u></u>	Date: _____
email: <u>jknowlton@hrlcomp.com</u>	Telephone: <u>505-238-3588</u>
<u>OCD Only</u>	
Received by: _____	Date: _____

Incident ID	
District RP	1RP-5166
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?	<u>100</u> (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

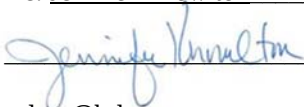
If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, 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

Page 4

Incident ID	
District RP	1RP-5166
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: Jennifer Knowlton Title: HRL Compliance Solutions, Regional Manager
Signature:  Date: _____
email: jknowlton@hrlcomp.com Telephone: 505-238-3588

OCD Only

Received by: _____ Date: _____

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

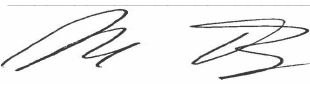
The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled 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: _____ Title: _____

Signature:  _____ Date: _____

email: _____ Telephone: _____

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 Becknell
Lea County, New Mexico

20 South			33 East		
6	5 325 278	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24 +300
30	29	28	27	26	25
31	32	33	34	35	36

20 South			34 East		
6	5	4 125	3	2	1
7	8	9	10	11	12
18	17 128 140	16	15	14 150	13
19	20	21	22	23	24 270
30	29	28	27	26	25
31	32	33	34	35	36

20 South			35 East		
6 56 64	5 64	4	3	2	1
7	8	9	10	11	12 49
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31 65	32	33 89	34	35	36

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

21 South			33 East		
6	5 Site	4	3	2 100	1
7	8	9	10	11 150	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33 179 180	34	35	36

21 South			34 East		
6	5	4 95	3	2	1
7	8 120	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28 140	27	26	25
31	32	33	34	35	36

22 South			32 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14 382 350	13
19 (S) 280	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

22 South			33 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13 391
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

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

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

New Mexico Office of the State Engineer

Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

		POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	DepthWell	DepthWater	Water Column	
POD Number	Code														
CP 00578		CP	LE	4	3	11	21S	33E		636674	3595445*	☐	165	150	15
CP 00579		CP	LE	2	2	02	21S	33E		637438	3598269*	☐	125	100	25
CP 00600 POD1		CP	LE	2	4	25	21S	33E		639152	3591054*	☐	65		
CP 00601 POD1		CP	LE	2	1	28	21S	33E		633502	3591791*	☐	223		
CP 00765 POD1		CP	LE	3	2	13	21S	33E		638698	3594668*	☐	508		
CP 00766 POD1		CP	LE	3	2	13	21S	33E		638698	3594668*	☐	510		
CP 00794 POD1		CP	LE	4	1	18	21S	33E		629976	3594865*	☐	160		
CP 00795 POD1		CP	LE	4	1	18	21S	33E		629976	3594865*	☐	170		
CP 00796 POD1		CP	LE	2	2	4	02	21S	33E	637548	3597564*	☐	102		
CP 00797 POD1		CP	LE	1	2	4	02	21S	33E	637348	3597564*	☐	110		
CP 00801 POD1		CP	LE	3	2	1	11	21S	33E	636555	3596549*	☐	200		
CP 00802 POD1		CP	LE	3	3	2	02	21S	33E	637001	3598672	☐	1154		
CP 00803 POD1		CP	LE	3	2	2	02	21S	33E	637337	3598168*	☐	1100		
CP 00804 POD1		CP	LE	3	2	2	02	21S	33E	637337	3598168*	☐	170		
CP 00854 POD1		CP	LE	1	1	2	33	21S	33E	633879	3590223	☐	950	600	350
CP 01290 POD1		CP	LE	3	1	02	21S	33E		637114	3598855	☐	1250	725	525
CP 01316 POD1		CP	LE	3	2	4	02	21S	33E	637432	3597709	☐	1370		
CP 01317 POD1		CP	LE	1	3	2	02	21S	33E	636884	3598450	☐	1250	1025	225
CP 01349 POD1		CP	LE	2	3	1	27	21S	33E	634782	3591569	☐	1188	572	616
CP 01355 POD1		CP	LE	2	1	3	27	21S	33E	634773	3591061	☐	1192	582	610
CP 01356 POD1		CP	LE	4	2	2	33	21S	33E	634560	3590014	☐	1098	555	543
CP 01357 POD1		CP	LE	4	3	1	27	21S	33E	634782	3591347	☐	1286	578	708
CP 01411 POD1		CP	LE	2	2	34	21S	33E		635968	3590386	☐	1149		
CP 01411 POD2		CP	LE	1	2	34	21S	33E		635534	3590380	☐	1125		

Average Depth to Water: **543 feet**

Minimum Depth: **100 feet**

Maximum Depth: **1025 feet**

Record Count: 24

PLSS Search:

Township: 21S Range: 33E

*UTM location was derived from PLSS - see Help

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

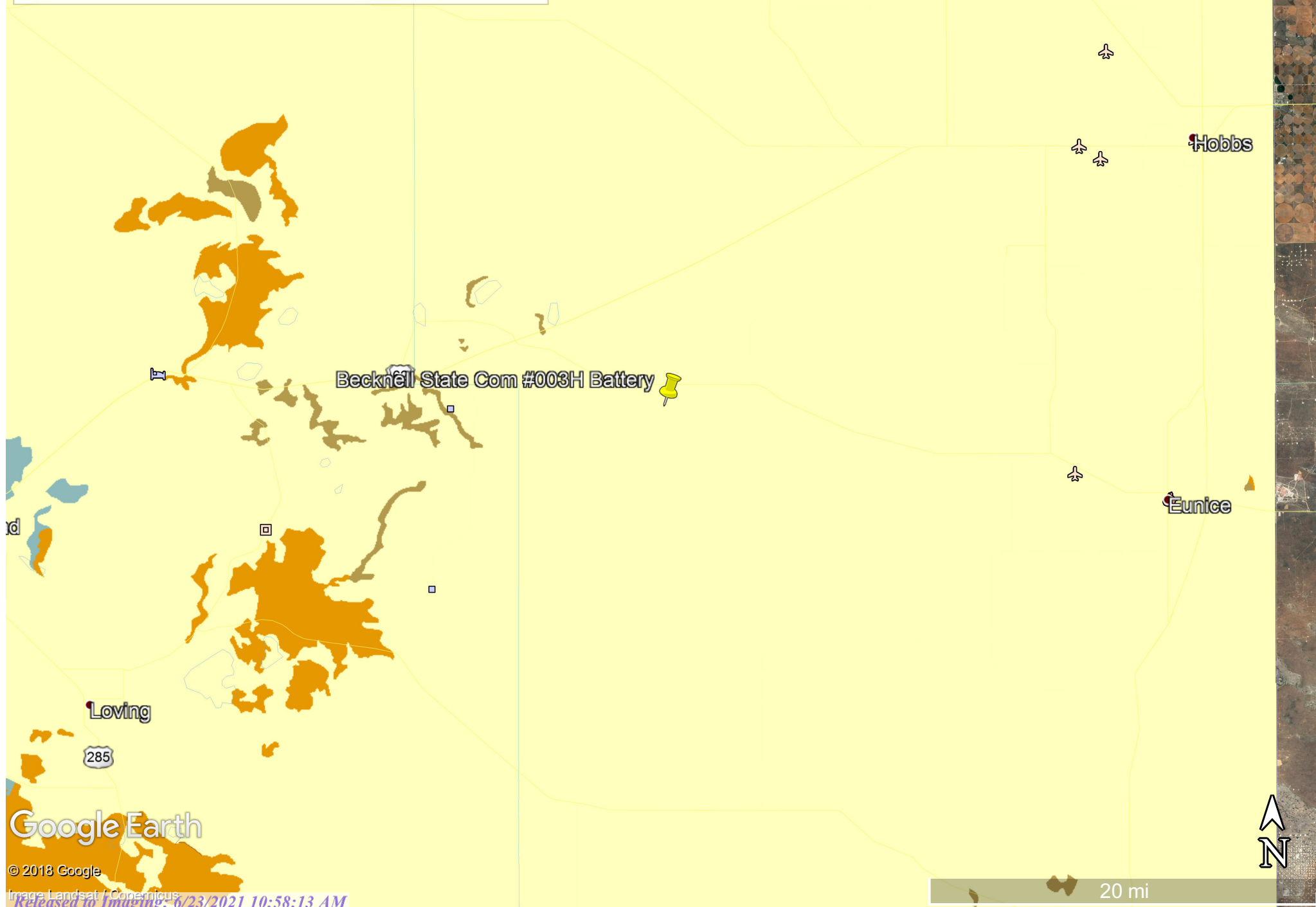
1/14/20 9:18 AM

WATER COLUMN/ AVERAGE DEPTH
TO WATER

Becknell State Com #003H Battery

Karst Map

Legend



Google Earth

© 2018 Google



Becknell State Com #003H Battery

REFERENCE LAYERS

- NFHL Data Available
- FIRM Panel Boundary
- LOMR Boundary

SPECIAL FLOOD HAZARD AREAS

- 1% Annual Chance Flood Hazard
Zone A, AE, A99, AO, AH, AR, V, VE
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD

- 0.2% Annual Chance Flood Hazard
Zone X
- Future Conditions 1% Annual
Chance Flood Hazard Zone X
- Area with Reduced Flood Risk
due to Levee Zone X
- NO SCREEN Areas Outside the 0.2% Annual
Chance Floodplain Zone X
- Areas of Undetermined Flood
Hazard Zone D

CROSS SECTIONS & BFES

- 18.2
17.5 Cross Sections with 1% Annual
Chance Water Surface Elevation
- Coastal Transect
- Coastal Transect Baseline
- Profile Baseline
- Base Flood Elevation

SUPPORTING INFORMATION

- Limit of Study
- Jurisdictional Boundary

Appendix C

Analytical Report 641763

for
Tetra Tech- Midland

Project Manager: Mike Carmona
COG Becknell State Com #3H (8.15.18)

212C-MD-01963

04-NOV-19

Collected By: Client



1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142), North Carolina (681)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



04-NOV-19

Project Manager: **Mike Carmona**

Tetra Tech- Midland

901 West Wall ST

Midland, TX 79701

Reference: XENCO Report No(s): **641763**

COG Becknell State Com #3H (8.15.18)

Project Address: Lea County, New Mexico

Mike Carmona:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 641763. 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. 641763 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads 'Jessica Kramer'.

Jessica Kramer

Project Assistant

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

Certified and approved by numerous States and Agencies.

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

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



Sample Cross Reference 641763



Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
NSW-1 Comp 2'	S	10-29-19 00:00		641763-001
NSW-2 Comp 4'	S	10-29-19 00:00		641763-002
SSW-1 Comp 2'	S	10-29-19 00:00		641763-003
SSW-2 Comp 4'	S	10-29-19 00:00		641763-004
SSW-3 Comp 4'	S	10-29-19 00:00		641763-005
WSW-1 Comp 2'	S	10-29-19 00:00		641763-006
WSW-2 Comp 2'	S	10-29-19 00:00		641763-007
WSW-3 Comp 4'	S	10-29-19 00:00		641763-008
WSW-4 Comp 4'	S	10-29-19 00:00		641763-009
WSW-5 Comp 4'	S	10-29-19 00:00		641763-010
ESW-1 Comp 4'	S	10-29-19 00:00		641763-011
ESW-2 Comp 4'	S	10-29-19 00:00		641763-012
ESW-3 Comp 4'	S	10-29-19 00:00		641763-013
ESW-4 Comp 4'	S	10-29-19 00:00		641763-014
ESW-5 Comp 4'	S	10-29-19 00:00		641763-015



Certificate of Analysis Summary 641763

Tetra Tech- Midland, Midland, TX

Project Name: COG Becknell State Com #3H (8.15.18)



Project Id: 212C-MD-01963
Contact: Mike Carmona
Project Location: Lea County, New Mexico

Date Received in Lab: Thu Oct-31-19 04:34 pm
Report Date: 04-NOV-19
Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	641763-001	641763-002	641763-003	641763-004	641763-005	641763-006
	<i>Field Id:</i>	NSW-1 Comp 2'	NSW-2 Comp 4'	SSW-1 Comp 2'	SSW-2 Comp 4'	SSW-3 Comp 4'	WSW-1 Comp 2'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-29-19 00:00	Oct-29-19 00:00	Oct-29-19 00:00	Oct-29-19 00:00	Oct-29-19 00:00	Oct-29-19 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	Nov-01-19 16:00	Nov-01-19 16:00	Nov-01-19 16:00	Nov-01-19 16:00	Nov-01-19 16:00	Nov-01-19 16:00
	<i>Analyzed:</i>	Nov-03-19 00:01	Nov-03-19 00:22	Nov-03-19 00:42	Nov-03-19 01:02	Nov-03-19 01:22	Nov-03-19 01:42
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00202 0.00202	<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00199 0.00199
Toluene		<0.00202 0.00202	<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00199 0.00199
Ethylbenzene		<0.00202 0.00202	<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00199 0.00199
m,p-Xylenes		<0.00403 0.00403	<0.00397 0.00397	<0.00399 0.00399	<0.00396 0.00396	<0.00398 0.00398	<0.00398 0.00398
o-Xylene		<0.00202 0.00202	<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00199 0.00199
Total Xylenes		<0.00202 0.00202	<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00199 0.00199
Total BTEX		<0.00202 0.00202	<0.00198 0.00198	<0.00200 0.00200	<0.00198 0.00198	<0.00199 0.00199	<0.00199 0.00199
Chloride by EPA 300	<i>Extracted:</i>	Nov-01-19 08:00	Nov-01-19 08:00	Nov-01-19 08:00	Nov-01-19 08:00	Nov-01-19 08:00	Nov-01-19 08:00
	<i>Analyzed:</i>	Nov-01-19 08:50	Nov-01-19 09:10	Nov-01-19 09:17	Nov-01-19 09:23	Nov-01-19 09:30	Nov-01-19 09:49
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		64.1 4.98	8.54 5.04	61.7 5.01	113 4.96	7.75 4.99	4290 25.0
TPH by SW8015 Mod	<i>Extracted:</i>	Nov-01-19 10:00	Nov-01-19 10:00	Nov-01-19 10:00	Nov-01-19 10:00	Nov-01-19 10:00	Nov-01-19 10:00
	<i>Analyzed:</i>	Nov-01-19 12:31	Nov-01-19 13:34	Nov-01-19 13:55	Nov-01-19 14:16	Nov-01-19 14:37	Nov-01-19 14:58
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.9 49.9
Diesel Range Organics (DRO)		<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.9 49.9
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.9 49.9
Total TPH		<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.9 49.9	<50.0 50.0	<49.9 49.9

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

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

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 641763

Tetra Tech- Midland, Midland, TX

Project Name: COG Becknell State Com #3H (8.15.18)



Project Id: 212C-MD-01963
Contact: Mike Carmona
Project Location: Lea County, New Mexico

Date Received in Lab: Thu Oct-31-19 04:34 pm
Report Date: 04-NOV-19
Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	641763-007	641763-008	641763-009	641763-010	641763-011	641763-012
	<i>Field Id:</i>	WSW-2 Comp 2'	WSW-3 Comp 4'	WSW-4 Comp 4'	WSW-5 Comp 4'	ESW-1 Comp 4'	ESW-2 Comp 4'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Oct-29-19 00:00	Oct-29-19 00:00	Oct-29-19 00:00	Oct-29-19 00:00	Oct-29-19 00:00	Oct-29-19 00:00
BTEX by EPA 8021B	<i>Extracted:</i>	Nov-01-19 16:00	Nov-01-19 16:00	Nov-01-19 16:00	Nov-01-19 16:00	Nov-01-19 16:00	Nov-01-19 16:00
	<i>Analyzed:</i>	Nov-03-19 01:02	Nov-03-19 01:22	Nov-03-19 01:43	Nov-03-19 02:03	Nov-03-19 03:21	Nov-03-19 03:41
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00198 0.00198
Toluene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00198 0.00198
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00198 0.00198
m,p-Xylenes		<0.00399 0.00399	<0.00401 0.00401	<0.00399 0.00399	<0.00402 0.00402	<0.00398 0.00398	<0.00396 0.00396
o-Xylene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00198 0.00198
Total Xylenes		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00198 0.00198
Total BTEX		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00198 0.00198
Chloride by EPA 300	<i>Extracted:</i>	Nov-01-19 08:00	Nov-01-19 08:00	Nov-01-19 08:00	Nov-01-19 08:00	Nov-01-19 08:00	Nov-01-19 08:00
	<i>Analyzed:</i>	Nov-01-19 09:56	Nov-01-19 10:02	Nov-01-19 10:08	Nov-01-19 10:21	Nov-01-19 10:15	Nov-01-19 10:40
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		3310 25.1	61.9 4.97	4680 25.0	680 4.97	1590 25.3	118 5.00
TPH by SW8015 Mod	<i>Extracted:</i>	Nov-01-19 10:00	Nov-01-19 10:00	Nov-01-19 10:00	Nov-01-19 10:00	Nov-01-19 10:00	Nov-01-19 10:00
	<i>Analyzed:</i>	Nov-01-19 15:19	Nov-01-19 15:41	Nov-01-19 16:02	Nov-01-19 16:23	Nov-01-19 17:04	Nov-01-19 17:25
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<49.9 49.9	<50.0 50.0	<50.0 50.0	<49.8 49.8	<49.9 49.9	<50.0 50.0
Diesel Range Organics (DRO)		<49.9 49.9	<50.0 50.0	<50.0 50.0	<49.8 49.8	<49.9 49.9	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		<49.9 49.9	<50.0 50.0	<50.0 50.0	<49.8 49.8	<49.9 49.9	<50.0 50.0
Total TPH		<49.9 49.9	<50.0 50.0	<50.0 50.0	<49.8 49.8	<49.9 49.9	<50.0 50.0

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

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

Jessica Kramer

Jessica Kramer
Project Assistant



Certificate of Analysis Summary 641763

Tetra Tech- Midland, Midland, TX

Project Name: COG Becknell State Com #3H (8.15.18)



Project Id: 212C-MD-01963
Contact: Mike Carmona
Project Location: Lea County, New Mexico

Date Received in Lab: Thu Oct-31-19 04:34 pm
Report Date: 04-NOV-19
Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	641763-013	641763-014	641763-015			
	<i>Field Id:</i>	ESW-3 Comp 4'	ESW-4 Comp 4'	ESW-5 Comp 4'			
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL			
	<i>Sampled:</i>	Oct-29-19 00:00	Oct-29-19 00:00	Oct-29-19 00:00			
BTEX by EPA 8021B	<i>Extracted:</i>	Nov-01-19 16:00	Nov-01-19 16:00	Nov-01-19 16:00			
	<i>Analyzed:</i>	Nov-03-19 04:01	Nov-03-19 04:21	Nov-03-19 04:42			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene		<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202			
Toluene		<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202			
Ethylbenzene		<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202			
m,p-Xylenes		<0.00404 0.00404	<0.00403 0.00403	<0.00403 0.00403			
o-Xylene		<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202			
Total Xylenes		<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202			
Total BTEX		<0.00202 0.00202	<0.00202 0.00202	<0.00202 0.00202			
Chloride by EPA 300	<i>Extracted:</i>	Nov-01-19 08:00	Nov-01-19 08:00	Nov-01-19 08:00			
	<i>Analyzed:</i>	Nov-01-19 10:46	Nov-01-19 11:05	Nov-01-19 11:12			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		7.41 4.96	65.1 5.00	65.2 5.04			
TPH by SW8015 Mod	<i>Extracted:</i>	Nov-01-19 10:00	Nov-01-19 10:00	Nov-01-19 10:00			
	<i>Analyzed:</i>	Nov-01-19 17:46	Nov-01-19 18:07	Nov-01-19 18:28			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Gasoline Range Hydrocarbons (GRO)		<49.9 49.9	<50.0 50.0	<49.9 49.9			
Diesel Range Organics (DRO)		<49.9 49.9	<50.0 50.0	<49.9 49.9			
Motor Oil Range Hydrocarbons (MRO)		<49.9 49.9	<50.0 50.0	<49.9 49.9			
Total TPH		<49.9 49.9	<50.0 50.0	<49.9 49.9			

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use.
The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories.
XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented.
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Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Jessica Kramer

Jessica Kramer
Project Assistant

**CASE NARRATIVE****Client Name: Tetra Tech- Midland****Project Name: COG Becknell State Com #3H (8.15.18)**

Project ID: 212C-MD-01963
Work Order Number(s): 641763

Report Date: 04-NOV-19
Date Received: 10/31/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3106375 BTEX by EPA 8021B

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

Lab Sample ID 641763-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).

Benzene, Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 641763-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013, -014, -015.

The Laboratory Control Sample for Toluene, Benzene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.



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Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: **NSW-1 Comp 2'**

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-001

Date Collected: 10.29.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 11.01.19 08.00

Basis: Wet Weight

Seq Number: 3106147

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	64.1	4.98	mg/kg	11.01.19 08.50		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 11.01.19 10.00

Basis: Wet Weight

Seq Number: 3106227

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	11.01.19 12.31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.01.19 12.31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.01.19 12.31	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.01.19 12.31	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	85	%	70-135	11.01.19 12.31		
o-Terphenyl	84-15-1	93	%	70-135	11.01.19 12.31		



Certificate of Analytical Results 641763



Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: NSW-1 Comp 2'

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-001

Date Collected: 10.29.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.01.19 16.00

Basis: Wet Weight

Seq Number: 3106375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.03.19 00.01	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.03.19 00.01	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.03.19 00.01	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	11.03.19 00.01	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	11.03.19 00.01	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	11.03.19 00.01	U	1
Total BTEX		<0.00202	0.00202	mg/kg	11.03.19 00.01	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	99	%	70-130	11.03.19 00.01		
4-Bromofluorobenzene	460-00-4	100	%	70-130	11.03.19 00.01		



Certificate of Analytical Results 641763



Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: NSW-2 Comp 4'

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-002

Date Collected: 10.29.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 11.01.19 08.00

Basis: Wet Weight

Seq Number: 3106147

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8.54	5.04	mg/kg	11.01.19 09.10		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 11.01.19 10.00

Basis: Wet Weight

Seq Number: 3106227

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	11.01.19 13.34	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.01.19 13.34	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.01.19 13.34	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.01.19 13.34	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	79	%	70-135	11.01.19 13.34		
o-Terphenyl	84-15-1	82	%	70-135	11.01.19 13.34		



Certificate of Analytical Results 641763



Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: NSW-2 Comp 4'

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-002

Date Collected: 10.29.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.01.19 16.00

Basis: Wet Weight

Seq Number: 3106375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.03.19 00.22	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.03.19 00.22	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.03.19 00.22	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	11.03.19 00.22	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.03.19 00.22	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.03.19 00.22	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.03.19 00.22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	106	%	70-130	11.03.19 00.22		
1,4-Difluorobenzene	540-36-3	92	%	70-130	11.03.19 00.22		



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Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: SSW-1 Comp 2'

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-003

Date Collected: 10.29.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 11.01.19 08.00

Basis: Wet Weight

Seq Number: 3106147

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	61.7	5.01	mg/kg	11.01.19 09.17		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 11.01.19 10.00

Basis: Wet Weight

Seq Number: 3106227

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	11.01.19 13.55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.01.19 13.55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.01.19 13.55	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.01.19 13.55	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	84	%	70-135	11.01.19 13.55		
o-Terphenyl	84-15-1	89	%	70-135	11.01.19 13.55		



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Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: SSW-1 Comp 2'

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-003

Date Collected: 10.29.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.01.19 16.00

Basis: Wet Weight

Seq Number: 3106375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.03.19 00.42	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.03.19 00.42	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.03.19 00.42	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	11.03.19 00.42	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.03.19 00.42	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.03.19 00.42	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.03.19 00.42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	96	%	70-130	11.03.19 00.42		
4-Bromofluorobenzene	460-00-4	103	%	70-130	11.03.19 00.42		



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Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: SSW-2 Comp 4'

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-004

Date Collected: 10.29.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 11.01.19 08.00

Basis: Wet Weight

Seq Number: 3106147

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	113	4.96	mg/kg	11.01.19 09.23		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 11.01.19 10.00

Basis: Wet Weight

Seq Number: 3106227

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	11.01.19 14.16	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.01.19 14.16	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.01.19 14.16	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.01.19 14.16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	84	%	70-135	11.01.19 14.16		
o-Terphenyl	84-15-1	89	%	70-135	11.01.19 14.16		



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Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: SSW-2 Comp 4'

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-004

Date Collected: 10.29.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.01.19 16.00

Basis: Wet Weight

Seq Number: 3106375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.03.19 01.02	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.03.19 01.02	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.03.19 01.02	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	11.03.19 01.02	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.03.19 01.02	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.03.19 01.02	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.03.19 01.02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	71	%	70-130	11.03.19 01.02		
4-Bromofluorobenzene	460-00-4	111	%	70-130	11.03.19 01.02		



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Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: SSW-3 Comp 4'

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-005

Date Collected: 10.29.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 11.01.19 08.00

Basis: Wet Weight

Seq Number: 3106147

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.75	4.99	mg/kg	11.01.19 09.30		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 11.01.19 10.00

Basis: Wet Weight

Seq Number: 3106227

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	11.01.19 14.37	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.01.19 14.37	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.01.19 14.37	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.01.19 14.37	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	82	%	70-135	11.01.19 14.37		
o-Terphenyl	84-15-1	86	%	70-135	11.01.19 14.37		



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Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: SSW-3 Comp 4'

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-005

Date Collected: 10.29.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.01.19 16.00

Basis: Wet Weight

Seq Number: 3106375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	11.03.19 01.22	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.03.19 01.22	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.03.19 01.22	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.03.19 01.22	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.03.19 01.22	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.03.19 01.22	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.03.19 01.22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	92	%	70-130	11.03.19 01.22		
1,4-Difluorobenzene	540-36-3	79	%	70-130	11.03.19 01.22		



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Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: **WSW-1 Comp 2'**

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-006

Date Collected: 10.29.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 11.01.19 08.00

Basis: Wet Weight

Seq Number: 3106147

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4290	25.0	mg/kg	11.01.19 09.49		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 11.01.19 10.00

Basis: Wet Weight

Seq Number: 3106227

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	11.01.19 14.58	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.01.19 14.58	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.01.19 14.58	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.01.19 14.58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	81	%	70-135	11.01.19 14.58	
o-Terphenyl	84-15-1	86	%	70-135	11.01.19 14.58	



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Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: **WSW-1 Comp 2'**

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-006

Date Collected: 10.29.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.01.19 16.00

Basis: Wet Weight

Seq Number: 3106375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	11.03.19 01.42	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.03.19 01.42	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.03.19 01.42	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.03.19 01.42	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.03.19 01.42	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.03.19 01.42	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.03.19 01.42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	94	%	70-130	11.03.19 01.42		
4-Bromofluorobenzene	460-00-4	109	%	70-130	11.03.19 01.42		



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Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: **WSW-2 Comp 2'**

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-007

Date Collected: 10.29.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 11.01.19 08.00

Basis: Wet Weight

Seq Number: 3106147

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3310	25.1	mg/kg	11.01.19 09.56		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 11.01.19 10.00

Basis: Wet Weight

Seq Number: 3106227

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	11.01.19 15.19	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.01.19 15.19	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.01.19 15.19	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.01.19 15.19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	11.01.19 15.19	
o-Terphenyl	84-15-1	96	%	70-135	11.01.19 15.19	



Certificate of Analytical Results 641763



Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: **WSW-2 Comp 2'**

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-007

Date Collected: 10.29.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.01.19 16.00

Basis: Wet Weight

Seq Number: 3106375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.03.19 01.02	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.03.19 01.02	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.03.19 01.02	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	11.03.19 01.02	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.03.19 01.02	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.03.19 01.02	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.03.19 01.02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	98	%	70-130	11.03.19 01.02		
1,4-Difluorobenzene	540-36-3	100	%	70-130	11.03.19 01.02		



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Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: **WSW-3 Comp 4'**

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-008

Date Collected: 10.29.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 11.01.19 08.00

Basis: Wet Weight

Seq Number: 3106147

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	61.9	4.97	mg/kg	11.01.19 10.02		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 11.01.19 10.00

Basis: Wet Weight

Seq Number: 3106227

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	11.01.19 15.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.01.19 15.41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.01.19 15.41	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.01.19 15.41	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	81	%	70-135	11.01.19 15.41		
o-Terphenyl	84-15-1	87	%	70-135	11.01.19 15.41		



Certificate of Analytical Results 641763



Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: **WSW-3 Comp 4'**

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-008

Date Collected: 10.29.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.01.19 16.00

Basis: Wet Weight

Seq Number: 3106375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.03.19 01.22	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.03.19 01.22	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.03.19 01.22	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	11.03.19 01.22	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.03.19 01.22	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.03.19 01.22	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.03.19 01.22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	99	%	70-130	11.03.19 01.22		
4-Bromofluorobenzene	460-00-4	99	%	70-130	11.03.19 01.22		



Certificate of Analytical Results 641763



Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: **WSW-4 Comp 4'**

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-009

Date Collected: 10.29.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 11.01.19 08.00

Basis: Wet Weight

Seq Number: 3106147

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4680	25.0	mg/kg	11.01.19 10.08		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 11.01.19 10.00

Basis: Wet Weight

Seq Number: 3106227

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	11.01.19 16.02	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.01.19 16.02	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.01.19 16.02	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.01.19 16.02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	99	%	70-135	11.01.19 16.02		
o-Terphenyl	84-15-1	109	%	70-135	11.01.19 16.02		



Certificate of Analytical Results 641763



Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: **WSW-4 Comp 4'**

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-009

Date Collected: 10.29.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.01.19 16.00

Basis: Wet Weight

Seq Number: 3106375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	11.03.19 01.43	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	11.03.19 01.43	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	11.03.19 01.43	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	11.03.19 01.43	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	11.03.19 01.43	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	11.03.19 01.43	U	1
Total BTEX		<0.00200	0.00200	mg/kg	11.03.19 01.43	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	110	%	70-130	11.03.19 01.43		
1,4-Difluorobenzene	540-36-3	94	%	70-130	11.03.19 01.43		



Certificate of Analytical Results 641763



Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: **WSW-5 Comp 4'**

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-010

Date Collected: 10.29.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 11.01.19 08.00

Basis: Wet Weight

Seq Number: 3106147

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	680	4.97	mg/kg	11.01.19 10.21		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 11.01.19 10.00

Basis: Wet Weight

Seq Number: 3106227

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	11.01.19 16.23	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	11.01.19 16.23	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	11.01.19 16.23	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	11.01.19 16.23	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	83	%	70-135	11.01.19 16.23		
o-Terphenyl	84-15-1	88	%	70-135	11.01.19 16.23		



Certificate of Analytical Results 641763



Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: **WSW-5 Comp 4'**

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-010

Date Collected: 10.29.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.01.19 16.00

Basis: Wet Weight

Seq Number: 3106375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	11.03.19 02.03	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	11.03.19 02.03	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	11.03.19 02.03	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	11.03.19 02.03	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	11.03.19 02.03	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	11.03.19 02.03	U	1
Total BTEX		<0.00201	0.00201	mg/kg	11.03.19 02.03	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	96	%	70-130	11.03.19 02.03		
4-Bromofluorobenzene	460-00-4	108	%	70-130	11.03.19 02.03		



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Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: **ESW-1 Comp 4'**

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-011

Date Collected: 10.29.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 11.01.19 08.00

Basis: Wet Weight

Seq Number: 3106147

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1590	25.3	mg/kg	11.01.19 10.15		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 11.01.19 10.00

Basis: Wet Weight

Seq Number: 3106227

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	11.01.19 17.04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.01.19 17.04	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.01.19 17.04	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.01.19 17.04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	86	%	70-135	11.01.19 17.04	
o-Terphenyl	84-15-1	90	%	70-135	11.01.19 17.04	



Certificate of Analytical Results 641763



Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: **ESW-1 Comp 4'**

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-011

Date Collected: 10.29.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.01.19 16.00

Basis: Wet Weight

Seq Number: 3106375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	11.03.19 03.21	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	11.03.19 03.21	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	11.03.19 03.21	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	11.03.19 03.21	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	11.03.19 03.21	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	11.03.19 03.21	U	1
Total BTEX		<0.00199	0.00199	mg/kg	11.03.19 03.21	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	70-130	11.03.19 03.21		
1,4-Difluorobenzene	540-36-3	90	%	70-130	11.03.19 03.21		



Certificate of Analytical Results 641763



Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: **ESW-2 Comp 4'**

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-012

Date Collected: 10.29.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 11.01.19 08.00

Basis: Wet Weight

Seq Number: 3106147

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	118	5.00	mg/kg	11.01.19 10.40		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 11.01.19 10.00

Basis: Wet Weight

Seq Number: 3106227

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	11.01.19 17.25	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.01.19 17.25	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.01.19 17.25	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.01.19 17.25	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	86	%	70-135	11.01.19 17.25		
o-Terphenyl	84-15-1	95	%	70-135	11.01.19 17.25		



Certificate of Analytical Results 641763

Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: ESW-2 Comp 4'

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-012

Date Collected: 10.29.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.01.19 16.00

Basis: Wet Weight

Seq Number: 3106375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	11.03.19 03.41	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	11.03.19 03.41	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	11.03.19 03.41	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	11.03.19 03.41	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	11.03.19 03.41	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	11.03.19 03.41	U	1
Total BTEX		<0.00198	0.00198	mg/kg	11.03.19 03.41	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	102	%	70-130	11.03.19 03.41		
1,4-Difluorobenzene	540-36-3	96	%	70-130	11.03.19 03.41		



Certificate of Analytical Results 641763



Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: ESW-3 Comp 4'

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-013

Date Collected: 10.29.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 11.01.19 08.00

Basis: Wet Weight

Seq Number: 3106147

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.41	4.96	mg/kg	11.01.19 10.46		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 11.01.19 10.00

Basis: Wet Weight

Seq Number: 3106227

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	11.01.19 17.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.01.19 17.46	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.01.19 17.46	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.01.19 17.46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	86	%	70-135	11.01.19 17.46		
o-Terphenyl	84-15-1	95	%	70-135	11.01.19 17.46		



Certificate of Analytical Results 641763



Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: ESW-3 Comp 4'

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-013

Date Collected: 10.29.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.01.19 16.00

Basis: Wet Weight

Seq Number: 3106375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.03.19 04.01	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.03.19 04.01	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.03.19 04.01	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	11.03.19 04.01	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	11.03.19 04.01	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	11.03.19 04.01	U	1
Total BTEX		<0.00202	0.00202	mg/kg	11.03.19 04.01	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	104	%	70-130	11.03.19 04.01		
1,4-Difluorobenzene	540-36-3	97	%	70-130	11.03.19 04.01		



Certificate of Analytical Results 641763



Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: **ESW-4 Comp 4'**

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-014

Date Collected: 10.29.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 11.01.19 08.00

Basis: Wet Weight

Seq Number: 3106147

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	65.1	5.00	mg/kg	11.01.19 11.05		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 11.01.19 10.00

Basis: Wet Weight

Seq Number: 3106227

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	11.01.19 18.07	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	11.01.19 18.07	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	11.01.19 18.07	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	11.01.19 18.07	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	85	%	70-135	11.01.19 18.07	
o-Terphenyl	84-15-1	91	%	70-135	11.01.19 18.07	



Certificate of Analytical Results 641763



Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: **ESW-4 Comp 4'**

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-014

Date Collected: 10.29.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.01.19 16.00

Basis: Wet Weight

Seq Number: 3106375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.03.19 04.21	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.03.19 04.21	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.03.19 04.21	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	11.03.19 04.21	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	11.03.19 04.21	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	11.03.19 04.21	U	1
Total BTEX		<0.00202	0.00202	mg/kg	11.03.19 04.21	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	109	%	70-130	11.03.19 04.21		
1,4-Difluorobenzene	540-36-3	89	%	70-130	11.03.19 04.21		



Certificate of Analytical Results 641763



Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: ESW-5 Comp 4'

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-015

Date Collected: 10.29.19 00.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 11.01.19 08.00

Basis: Wet Weight

Seq Number: 3106147

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	65.2	5.04	mg/kg	11.01.19 11.12		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 11.01.19 10.00

Basis: Wet Weight

Seq Number: 3106227

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	11.01.19 18.28	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	11.01.19 18.28	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	11.01.19 18.28	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	11.01.19 18.28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	81	%	70-135	11.01.19 18.28	
o-Terphenyl	84-15-1	85	%	70-135	11.01.19 18.28	



Certificate of Analytical Results 641763



Tetra Tech- Midland, Midland, TX

COG Becknell State Com #3H (8.15.18)

Sample Id: ESW-5 Comp 4'

Matrix: Soil

Date Received: 10.31.19 16.34

Lab Sample Id: 641763-015

Date Collected: 10.29.19 00.00

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 11.01.19 16.00

Basis: Wet Weight

Seq Number: 3106375

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	11.03.19 04.42	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	11.03.19 04.42	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	11.03.19 04.42	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	11.03.19 04.42	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	11.03.19 04.42	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	11.03.19 04.42	U	1
Total BTEX		<0.00202	0.00202	mg/kg	11.03.19 04.42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	104	%	70-130	11.03.19 04.42		
1,4-Difluorobenzene	540-36-3	96	%	70-130	11.03.19 04.42		



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



Tetra Tech- Midland
COG Becknell State Com #3H (8.15.18)

Analytical Method: Chloride by EPA 300

Seq Number: 3106147

MB Sample Id: 7689378-1-BLK

Matrix: Solid

LCS Sample Id: 7689378-1-BKS

Prep Method: E300P

Date Prep: 11.01.19

LCSD Sample Id: 7689378-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	251	100	252	101	90-110	0	20	mg/kg	11.01.19 08:37	

Analytical Method: Chloride by EPA 300

Seq Number: 3106147

Parent Sample Id: 641763-001

Matrix: Soil

MS Sample Id: 641763-001 S

Prep Method: E300P

Date Prep: 11.01.19

MSD Sample Id: 641763-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	64.1	249	324	104	324	104	90-110	0	20	mg/kg	11.01.19 08:57	

Analytical Method: Chloride by EPA 300

Seq Number: 3106147

Parent Sample Id: 641763-010

Matrix: Soil

MS Sample Id: 641763-010 S

Prep Method: E300P

Date Prep: 11.01.19

MSD Sample Id: 641763-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	680	199	896	109	898	110	90-110	0	20	mg/kg	11.01.19 10:27	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3106227

MB Sample Id: 7689388-1-BLK

Matrix: Solid

LCS Sample Id: 7689388-1-BKS

Prep Method: SW8015P

Date Prep: 11.01.19

LCSD Sample Id: 7689388-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<15.0	1000	870	87	950	95	70-135	9	20	mg/kg	11.01.19 11:49	
Diesel Range Organics (DRO)	<50.0	1000	845	85	960	96	70-135	13	20	mg/kg	11.01.19 11:49	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	88		88		117		70-135	%	11.01.19 11:49
o-Terphenyl	94		90		100		70-135	%	11.01.19 11:49

Analytical Method: TPH by SW8015 Mod

Seq Number: 3106227

Matrix: Solid

MB Sample Id: 7689388-1-BLK

Prep Method: SW8015P

Date Prep: 11.01.19

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	11.01.19 11:28	

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

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

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

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



Tetra Tech- Midland
COG Becknell State Com #3H (8.15.18)

Analytical Method: TPH by SW8015 Mod

Seq Number: 3106227

Parent Sample Id: 641763-001

Matrix: Soil

MS Sample Id: 641763-001 S

Prep Method: SW8015P

Date Prep: 11.01.19

MSD Sample Id: 641763-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<14.9	996	848	85	921	92	70-135	8	20	mg/kg	11.01.19 12:52	
Diesel Range Organics (DRO)	16.7	996	910	90	960	94	70-135	5	20	mg/kg	11.01.19 12:52	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	95		97		70-135	%	11.01.19 12:52
o-Terphenyl	85		96		70-135	%	11.01.19 12:52

Analytical Method: BTEX by EPA 8021B

Seq Number: 3106375

MB Sample Id: 7689434-1-BLK

Matrix: Solid

LCS Sample Id: 7689434-1-BKS

Prep Method: SW5030B

Date Prep: 11.01.19

LCSD Sample Id: 7689434-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.101	101	0.0972	97	70-130	4	35	mg/kg	11.02.19 22:02	
Toluene	<0.00200	0.100	0.0946	95	0.0965	97	70-130	2	35	mg/kg	11.02.19 22:02	
Ethylbenzene	<0.00200	0.100	0.0932	93	0.0987	99	70-130	6	35	mg/kg	11.02.19 22:02	
m,p-Xylenes	<0.00400	0.200	0.187	94	0.199	100	70-130	6	35	mg/kg	11.02.19 22:02	
o-Xylene	<0.00200	0.100	0.0946	95	0.102	102	70-130	8	35	mg/kg	11.02.19 22:02	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	97		99		95		70-130	%	11.02.19 22:02
4-Bromofluorobenzene	95		96		106		70-130	%	11.02.19 22:02

Analytical Method: BTEX by EPA 8021B

Seq Number: 3106375

Parent Sample Id: 641763-001

Matrix: Soil

MS Sample Id: 641763-001 S

Prep Method: SW5030B

Date Prep: 11.01.19

MSD Sample Id: 641763-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0662	66	0.0660	67	70-130	0	35	mg/kg	11.02.19 22:42	X
Toluene	<0.00199	0.0996	0.0600	60	0.0585	59	70-130	3	35	mg/kg	11.02.19 22:42	X
Ethylbenzene	<0.00199	0.0996	0.0646	65	0.0617	62	70-130	5	35	mg/kg	11.02.19 22:42	X
m,p-Xylenes	<0.00398	0.199	0.128	64	0.120	61	70-130	6	35	mg/kg	11.02.19 22:42	X
o-Xylene	<0.00199	0.0996	0.0691	69	0.0663	67	70-130	4	35	mg/kg	11.02.19 22:42	X

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	98		98		70-130	%	11.02.19 22:42
4-Bromofluorobenzene	106		104		70-130	%	11.02.19 22:42

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

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

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

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

Analysis Request of Chain of Custody Record



Tetra Tech, Inc.

901 West Wall, Suite 100
Midland, Texas 79701
Tel (432) 882-4559
Fax (432) 882-3946

Page 1 of 1

10417103

Client Name: COG		Site Manager: Mike Carmona	
Project Name: Becknell State Com #3H (8.15.18)			
Project Location: (county, state) Lea County, New Mexico		Project #: 212C-MD-01963	
Invoice to: COG Ike Tavaréz		Sampler Signature: Devin D	
Receiving Laboratory: Xenco		Sampler Signature: Devin D	
Comments: Include Ike on email with results			

LAB # (LAB USE ONLY)	SAMPLE IDENTIFICATION	SAMPLING		DATE	TIME	MATRIX		PRESERVATIVE METHOD				# CONTAINERS	FILTERED (Y/N)
		YEAR: 2019				WATER	SOIL	HCL	HNO ₃	ICE	None		
	NSW-1 comp 2'			10/29/2019		X		X					1 N
	NSW-2 comp 4'			10/29/2019		X		X					1 N
	SSW-1 comp 2'			10/29/2019		X		X					1 N
	SSW-2 comp 4'			10/29/2019		X		X					1 N
	SSW-3 comp 4'			10/29/2019		X		X					1 N
	WSW-1 comp 2'			10/29/2019		X		X					1 N
	WSW-2 comp 2'			10/29/2019		X		X					1 N
	WSW-3 comp 4'			10/29/2019		X		X					1 N
	WSW-4 comp 4'			10/29/2019		X		X					1 N
	WSW-5 comp 4'			10/29/2019		X		X					1 N

Relinquished by: <i>[Signature]</i> Date: 10.31.19 Time: <i>[Signature]</i>	Received by: <i>[Signature]</i> Date: 10/31 Time: <i>[Signature]</i>
Relinquished by: _____ Date: _____ Time: _____	Received by: _____ Date: _____ Time: _____

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

ORIGINAL COPY

(Circle) HAND DELIVERED EDEX UPS Tracking #:

Analysis Request of Chain of Custody Record



Tetra Tech, Inc.

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

641743

Page

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2

[illegible]

ORIGINAL COPY



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: Tetra Tech- Midland

Date/ Time Received: 10/31/2019 04:34:00 PM

Work Order #: 641763

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist**Comments**

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

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Date: 10/31/2019

Checklist reviewed by:

Jessica Kramer

Date: 11/01/2019

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720

District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 3343

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 3343
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
kcollins	None	6/23/2021