APPROVED
By Olivia Yu at 3:53 pm, Oct 19, 2018

September 13, 2018 Reference No. 11157443

NMOCD approves of the proposed additional delineation for 1RP-5177. Please be advised that more than 1 groundwater monitoring well may be necessary for plume characterization.

Olivia Yu
New Mexico Energy Minerals and Natural Resources Department
Oil Conservation Division
1625 N. French Drive
Hobbs, New Mexico 88240

Dear Ms. Yu:

Re: O-6 Four Inch Pipeline Release
Initial Assessment Summary and
Continued Assessment and Characterization Work Scope
1RP-5177
S27, T20S, R 37E
Lea County, New Mexico

On behalf of ETC Texas Pipeline, Ltd (ETC), GHD Services Inc. (GHD) submits this Initial Assessment Summary and Continued Characterization Work Scope for the O-6 Four Inch Pipeline Release (Site). The release is located approximately 5 miles south of Monument, New Mexico in Section 27, Township 20 south, Range 37 east in Lea County, New Mexico. The Site is regulated by the New Mexico Oil Conservation Division (NMOCD). The surface is privately owned by the Millard Deck Estate.

Based on the most current USGS data, the depth to groundwater in a well located approximately 0.81 miles away from the Site is 40 feet below ground surface (bgs).

1. Initial Assessment

With an estimated groundwater depth in the area of the Site of less than 50 feet bgs, the Site cleanup and closure standards at present are the following:

- Chloride by EPA method 300.0 or SM 4500 Cl B – 600 milligrams per kilogram (mg/kg)
- Total petroleum hydrocarbons (TPH) - gasoline range (GRO) , diesel range (DRO), and oil range (MRO) by EPA SW-646 method 8015M – 100 mg/kg
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA SW-864 method 8021B or 8260B – 10 mg/kg.

The area being assessed is in relation to an open repair bell hole (approximately 18 feet long, by 12 feet wide, by 4 feet deep) associated with a leak on the 0-6 four inch pipeline. Photos of the bell hole are included as Appendix A. Assessment activities began at the Site on March 28, 2018 when samples were collected from the walls of the open bell hole and from a test pit dug within the bell hole to 12 feet bgs. The samples were collected and analyzed for the presence of BTEX by EPA method 8021B, full range TPH by EPA method 8015M, and chloride by SM 4500. An additional sample was collected from the same

test pit at a depth of 20 feet bgs on April 8, 2018. Analytical results from both sampling events indicate that concentrations of BTEX, TPH, and chloride exceeded Site standards. A summary of analytical results is provided as Table 1 and shown on Figure 2.

Two soil borings were advanced to continue vertical assessment to the west and in the area of the release. Both of the soil borings were advanced to 40 feet bgs via a hollow stem auger drill rig operated by EnviroDrill Inc. (EDI) of Albuquerque, New Mexico. The first soil boring, SB, was advanced on May 15, 2018 and located approximately 25 feet northwest and perpendicular to the release point. Soil samples were collected every five feet and analyzed for one or more of the following; BTEX by EPA method 8021B, full range TPH by EPA method 8015M, and chloride by EPA method 300.0. The second soil boring, SB-2, was advanced on July 31, 2018 and located approximately 15 feet northwest and perpendicular to the release point. Soil samples were collected every five feet beginning at 20 feet bgs and analyzed as described above.

Analytical results from samples collected from SB did not indicate the presence of any of the analyzed constituents at concentrations above Site standards. Analytical results from samples collected from SB-2 indicate concentrations of BTEX and TPH above Site standards at 90.4 mg/kg and 1,406 mg/kg, respectively. Both soil borings were backfilled with bentonite grout. A summary of analytical results is provided as Table 1 and shown on Figure 2. Boring logs are included as Appendix B.

Throughout initial assessment, approximately 204 yards of impacted soil were removed from the Site and disposed of at Sundance Services landfarm facility. The open bell hole and test pit were subsequently backfilled with clean soil (see photos in Appendix A).

2. Continued Assessment and Characterization Work Scope

Based on current Site data, horizontal delineation is needed to the north, south, and east of the release. Due to the shallow depth to groundwater (estimated between 40 and 50 feet bgs) there is also the potential for impact to groundwater. GHD proposes to advance 3 additional soil borings at the Site to further assess the vertical and horizontal extent of impacts to soil (see Figure 2). Additionally, it is proposed that a monitoring well be installed near the area of the release to assess potential groundwater impacts (see Figure 2). Further details of proposed work scope tasks are provided below.

2.1 Project Preparation

This task includes preparing this work scope and other project preparation activities that occur after approval, but before fieldwork mobilization:

- Submission of this report and work scope to the NMOCD for their approval.
- Preparation of a project health and safety plan.
- Coordinate with ETC to obtain access from the property owner for installation of the monitoring well.
- Permit the monitoring well with the New Mexico Office of the State Engineer.

2.2 Proposed Soil Boring/Soil Vapor Extraction Well and Monitoring Well Drilling Program

GHD proposes to advance three soil borings with the potential to convert each to a soil vapor extraction (SVE) well and install one, 2-inch diameter groundwater monitoring well (Figure 2). Prior to mobilizing any drilling equipment, a New Mexico 811 utility locate will be completed and appropriate access agreements and permits will be acquired.

Drilling will be performed by EDI using a hollow stem auger drill rig. Proposed soil borings will be advanced to an approximate depth of 30 feet bgs. Proposed locations of the soil borings can be seen on Figure 2. During drilling, discrete soil samples will be collected in 5-foot intervals using a clean 18-inch long split spoon. Soil samples will be field screened using the Petroflag TPH Analyzer System, heated headspace using a calibrated photoionization detector, and for chlorides using HACH Titration Strips. Boring locations may change based on field screening results.

All soil samples will be submitted for the following laboratory analyses:

- BTEX by EPA method 8021B.
- TPH GRO/DRO/MRO by EPA method 8015M.
- Chloride by EPA method SM 4500.

Soil samples will be placed in appropriate laboratory supplied containers and stored on ice in insulated coolers. Soil samples will be submitted to Cardinal Laboratories in Hobbs, New Mexico under chain of custody documentation.

Any cuttings generated during drilling activities will be stock piled on a poly liner for future disposal pending laboratory results.

2.2.1 Monitoring Well and Soil Vapor Extraction Well Construction

The monitoring well will be installed by EDI, a New Mexico-licensed water well driller. Prior to the installation of the groundwater monitoring well, a permit for a well with no consumptive use will be obtained from the New Mexico Office of the State Engineer (NMOSE).

The monitor well will be constructed of 2-inch diameter, flush-threaded, Schedule 40 PVC casing. The well will be constructed with 0.020-inch machine slot well screen. The well screen will be placed from approximately 10 feet bgs to approximately 10 feet below the groundwater interface. The remainder of the well will be completed with 2-inch diameter blank casing. The well screen placed within the vadose zone may be used at a future date to assist with using soil vapor extraction as a remedial method. The total depth of the monitoring well is estimated at approximately 50 to 60 feet bgs.

The borehole annulus will be backfilled with a 10/20 sand filter pack to approximately 2 feet above the top of the screen interval. An approximately 2 foot thick bentonite seal will be placed on top of the sand. The remainder of the well annulus will be grouted to ground surface with a 95 percent Portland cement and 5 percent bentonite powder grout. Each well will be completed with a stick-up lockable well vault. The well

vaults will be placed within a minimum 24-inch by 24-inch by 4-inch thick concrete pad. A lock will be provided for each well vault and kept locked.

Monitoring well construction information will be documented in well record forms submitted to the NMOSE by the drilling subcontractor.

SVE wells will be completed to an approximate depth of 30 feet bgs with 0.020-inch machine slot screen from approximately 10 feet bgs to the bottom of the borehole. The remainder of the well will be completed with two-inch diameter blank casing. The SVE wells will be backfilled and completed as described above for the monitoring well.

2.2.2 Monitoring Well Development

The monitoring well will be developed by removal of sufficient volumes of water to clear the well casing and annulus of sediment. Wells will be developed until geochemical field parameters of pH, temperature, and conductivity stabilize to within 10 percent. Following well development, static water levels will be measured with an oil/water interface probe to assess the presence of any light, non-aqueous phase liquids (LNAPL).

2.3 Initial Groundwater Monitoring

An initial groundwater sample will be collected from the monitor well following installation. Prior to sampling, the monitor well will be gauged using a clean interface probe. The monitor well will be purged by hand bailing using a dedicated, disposable polyethylene bailer. The monitor well will be purged until field parameters including groundwater temperature, pH, TDS, conductivity, and oxidation/reduction potential stabilize to within 10 percent or until three well volumes have been removed. Field parameters will be collected using an appropriate multi-parameter groundwater quality meter. Purge water generated during the monitoring events will be containerized on Site for disposal following analysis.

A groundwater sample will be labeled, placed on ice, and submitted to Cardinal Laboratories for analyses of chloride by EPA Method 300.0 and BTEX by EPA Method 8260.

2.4 Subsurface Assessment Report Preparation

Upon receipt of the soil and groundwater laboratory analytical data, GHD will prepare a characterization report. The report will include a summary of the fieldwork performed, scaled Site maps, photographs with dates and geographic references, depth to water determination, boring logs, and laboratory analytical reports. The report will also include recommendations for any future field efforts.

3. Schedule

GHD will schedule the fieldwork for the proposed scope of work upon receipt of approval from the NMOCD, completion of Site access agreement, and once applicable permits have been obtained from the NMOSE.

Please feel free to contact either of us at 505-884-0672 if you have questions or comments.

Sincerely,

GHD

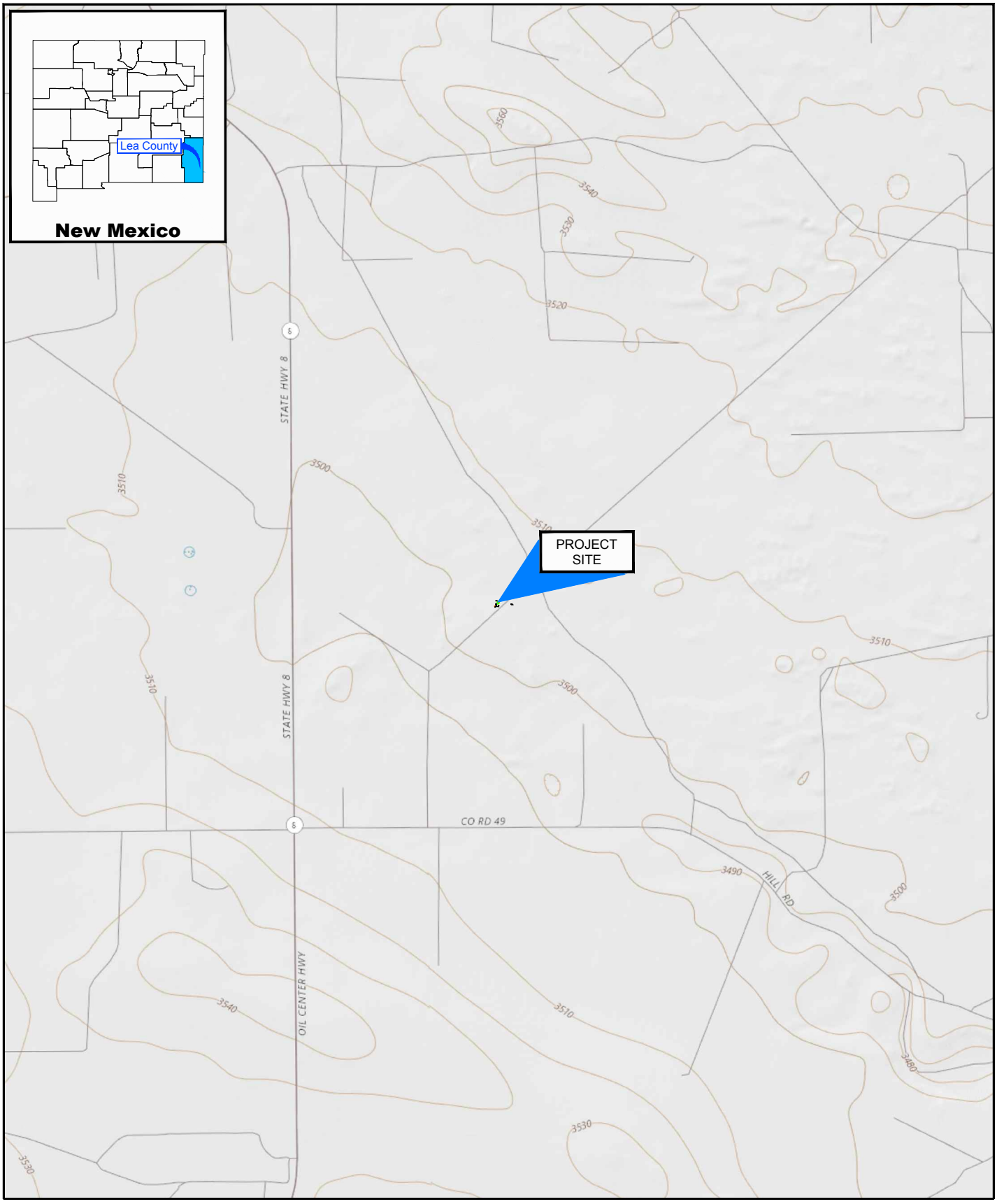
Christine Mathews
Project Manager

Jeff Walker
Senior Project Manager

CM/ji/1

Encl.

Figures



Source: USGS 7.5 Minute Quad "Hobbs SW and Monument South, New Mexico"

Lat/Long: 32.545974° North, 103.246424° West

0 1000 2000ft

Coordinate System:
NAD 1983 (2011) StatePlane-
New Mexico East (US Feet)

ETC TEXAS PIPELINE, LTD.
LEA COUNTY, NEW MEXICO
0-6 PIPELINE RELEASE

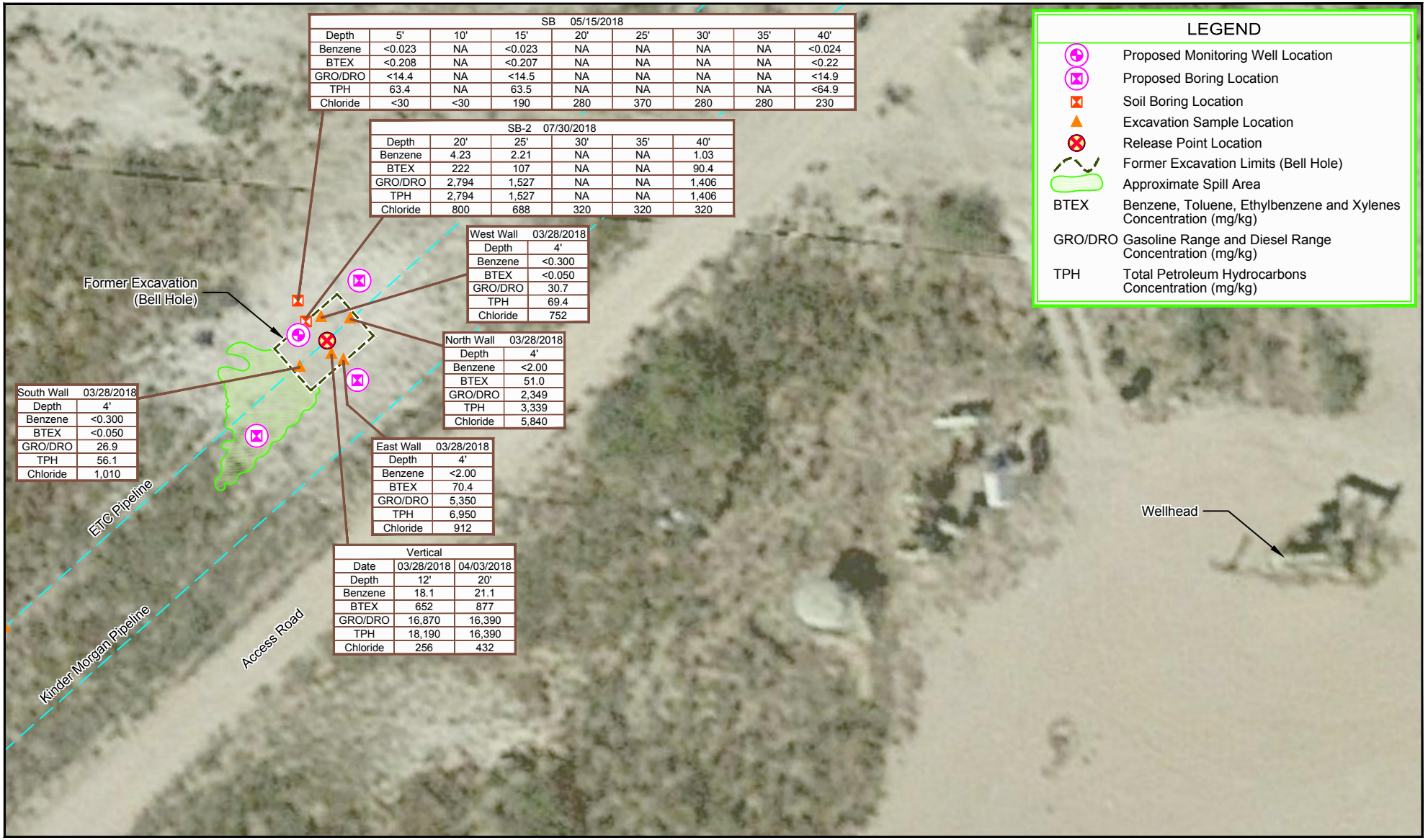
11157443-00

Aug 29, 2018

SITE LOCATION MAP

FIGURE 1

CAD File: I:\CAD\Files\Eight Digit Job Numbers\1115----\11157443-ETC-0-6-1 4inch\11157443-00(000)GN-DL001.dwg



Source: Image © 2018 Google - Imagery Date: November 2, 2017

Lat/Long: 32.545974° North, 103.246424° West

0 15 30ft

Coordinate System:
NAD 1983 (2011) StatePlane-
New Mexico East (US Feet)

GHD

ETC TEXAS PIPELINE, LTD.
LEA COUNTY, NEW MEXICO
0-6 PIPELINE RELEASE

11157443-00

Aug 29, 2018

SITE DETAILS MAP

FIGURE 2

CAD File: I:\CAD\Files\Eight Digit Job Numbers\1115----\11157443-ETC-0-6-1 4inch\11157443-00(000)GN-DL001.dwg

Tables

Table 1

ETC Texas Pipeline, Ltd. - 0-6 Pipeline Release
Section 27, Township 20 South, Range 37 East
Lea County, New Mexico
Soil Analytical Results Summary

Sample ID	Date	Sample Depth (ft.)	Chlorides (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	Total BTEX (mg/kg)	TPH GRO (C6-C-10) (mg/kg)	TPH DRO (C10-C28) (mg/kg)	TPH ORO (C28-C36) (mg/kg)	Total TPH GRO/DRO/ORO (mg/kg)
Vertical 12'	3/28/18	12	256	**18.1**	108	148	377	**652**	11700	5170	1320	**18190**
North 4'	3/28/18	4	**5840**	<2.00	7.68	11.3	32.1	**51.0**	959	1390	990	**3339**
South 4'	3/28/18	4	**1010**	<0.300	<0.050	<0.050	<0.150	<0.050	<10.0	26.9	29.2	56.1
East Wall 4'	3/28/18	4	**912**	<2.00	<2.00	6.79	63.6	**70.4**	2290	3060	1600	**6950**
West Wall 4'	3/28/18	4	**752**	<0.300	<0.050	<0.050	<0.150	<0.050	<10.0	30.7	38.7	69.4
Vertical 20'	4/3/18	20	432	**21.1**	179	213	464	**877**	13500	2890	<100	**16390**
S-11157443-051518-MG-SB-5	5/15/18	5	<30	<0.023	<0.046	<0.046	<0.093	<0.208	<4.6	<9.8	<49	<63.4
S-11157443-051518-MG-SB-10	5/15/18	10	<30	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-11157443-051518-MG-SB-15	5/15/18	15	190	<0.023	<0.046	<0.046	<0.092	<0.207	<4.6	<9.9	<49	<63.4
S-11157443-051518-MG-SB-20	5/15/18	20	280	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-11157443-051518-MG-SB-25	5/15/18	25	370	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-11157443-051518-MG-SB-30	5/15/18	30	280	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-11157443-051518-MG-SB-35	5/15/18	35	280	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-11157443-051518-MG-SB-40	5/15/18	40	230	<0.024	<0.049	<0.049	<0.098	<0.22	<4.9	<10	<50	<64.9
S-11157443-073018-MG-SB-2-20	7/30/18	20	**800**	4.23	47.3	48.7	122	**222**	2,390	404	<50	**2794**
S-11157443-073018-MG-SB-2-25	7/30/18	25	**688**	2.21	19.3	25.1	60.5	**107**	1,230	297	<100	**1527**
S-11157443-073018-MG-SB-2-30	7/30/18	30	320	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-11157443-073018-MG-SB-2-35	7/30/18	35	320	NA	NA	NA	NA	NA	NA	NA	NA	NA
S-11157443-073018-MG-SB-2-40	7/30/18	40	320	1.03	18	23.2	48.2	**90.4**	1,250	156	<50.0	**1406**
NMOCD Remediation Action Levels			***600***	***10***	***NE***	***NE***	***NE***	***50***	***NE***	***NE***	***NE***	***100***

Note: Concentrations that are bold exceed the NMOCD Remediation Action Level

* Samples collected by ETC Field Services (BTEX analyzed by 8260 TCLP and reported in milligrams per liter)
NE = Not Established
mg/Kg = milligrams per Kilogram
-- = Not Applicable
NA = Not Analyzed
BOLD values indicate an exceedance

Appendices

Appendix A
Site Photographs

Photo 1 - Open bell hole and test pit looking southwest.

Photo 2 - Bell hole and test pit backfilled looking southwest.

Site Photographs

Appendix B
Boring Logs

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 0-6 4" ASSESSMENT
PROJECT NUMBER: 11157443
CLIENT: ETC TEXAS PIPELINE, LTD
LOCATION: MONUMENT, NEW MEXICO

HOLE DESIGNATION: SB-1
DATE COMPLETED: 15 May 2018
DRILLING METHOD: HOLLOW STEM AUGER
FIELD PERSONNEL: MICHAEL GANT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE FIELD CI / TPH (ppm)
0	SM-SILTY SAND, very fine grained, well graded, light gray/brown, moist							
				1HSA				<1 / 403
				SB-5				
	- whitish gray, dry at 5.0ft BGS							
				2HSA				<1 / 141
				SB-10				
				3HSA				148 / 206
				SB-15				
	- tan/gray, moist at 15.0ft BGS							
				4HSA				332 / 185
				SB-20				
	- dark tan/gray at 20.0ft BGS		BACKFILLED WITH BENTONITE / CEMENT GROUT					
				5HSA				<1.0 / 181
				SB-25				
	- tan at 25.0ft BGS							
				6HSA				<1.0 / 140
				SB-30				
30	CL-SANDY CLAY, trace gravel, poorly graded, reddish tan, moist	30.00		7HSA				228 / 162
32								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SB-5, SB-10, SB-15, SB-20, SB-25, SB-30)

OVERBURDEN LOG 11157443-WI CL&TPH.GPJ GHD_Corp 5/9/18

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 0-6 4" ASSESSMENT
PROJECT NUMBER: 11157443
CLIENT: ETC TEXAS PIPELINE, LTD
LOCATION: MONUMENT, NEW MEXICO

HOLE DESIGNATION: SB-1
DATE COMPLETED: 15 May 2018
DRILLING METHOD: HOLLOW STEM AUGER
FIELD PERSONNEL: MICHAEL GANT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE FIELD CI / TPH (ppm)
36	CL-SILTY CLAY, few gravel, light reddish tan, poorly graded	35.00		SB-35				
38				8HSA				260 / 159
40	END OF BOREHOLE @ 40.0ft BGS	40.00		SB-40				
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SB-35, SB-40)

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 0-6 4" ASSESSMENT
PROJECT NUMBER: 11157443
CLIENT: ETC TEXAS PIPELINE, LTD
LOCATION: MONUMENT, NEW MEXICO

HOLE DESIGNATION: SB-2
DATE COMPLETED: 31 July 2018
DRILLING METHOD: HOLLOW STEM AUGER
FIELD PERSONNEL: MICHAEL GANT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE FIELD CI / PID (ppm)
2	SM-SILTY SAND, very fine grained, well graded, light gray/brown, moist			1HSA				
4								
6								
8				2HSA				
10								
12				3HSA				
14								
16								
18				4HSA				388 / 49.8
20	CL-SANDY CLAY, with silt, well graded, gray/tan, moist	20.00	BACKFILLED WITH BENTONITE / CEMENT GROUT	SB-2-20				
22				5HSA				224 / 952.2
24	CL-SILTY CLAY, with sand, very fine grained, well graded, gray/tan, moist	25.00		SB-2-25				
26								
28				6HSA				224 / 871.4
30	CL-SANDY CLAY, trace gravel, poorly graded, reddish tan, moist	30.00		SB-2-30				
32				7HSA				224 / 345.8

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SB-2-20, SB-2-25, SB-2-30)

OVERBURDEN LOG 11157443-WI - CL&PID.GPJ GHD_Corp 5/9/18

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

PROJECT NAME: 0-6 4" ASSESSMENT
PROJECT NUMBER: 11157443
CLIENT: ETC TEXAS PIPELINE, LTD
LOCATION: MONUMENT, NEW MEXICO

HOLE DESIGNATION: SB-2
DATE COMPLETED: 31 July 2018
DRILLING METHOD: HOLLOW STEM AUGER
FIELD PERSONNEL: MICHAEL GANT

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft	BOREHOLE	SAMPLE NUMBER	SAMPLE INTERVAL	SAMPLE REC (%)	SAMPLE 'N' VALUE	SAMPLE FIELD CI / PID (ppm)
36	- reddish brown at 35.0ft BGS			SB-2-35				
38				8HSA				136 / 1089.6
40	END OF BOREHOLE @ 40.0ft BGS	40.00		SB-2-40				
42								
44								
46								
48								
50								
52								
54								
56								
58								
60								
62								
64								
66								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS (SB-2-35, SB-2-40)