



HOLLY ENERGY PARTNERS

APPROVED

By CHernandez at 4:51 pm, Jan 17, 2019

November 1, 2018

Sent via e-mail to Olivia.Yu@state.nm.us

Ms. Olivia Yu
Environmental Specialist
New Mexico Oil Conservation Division – District 1
1625 N. French Drive
Hobbs, New Mexico 88240

RE: Soil Assessment Report – WTX to EMSU Battery to Byrd Pump Crude Oil Release
1RP-5154

Dear Ms. Yu,

Please find the enclosed Soil Assessment Report for the WTX to EMSU Battery to Byrd Pump Crude Oil Release Site.

Should you have any questions or concerns, please contact me at 214-954-6668 or mark.shemaria@hollyenergy.com.

Sincerely,

Mark Shemaria
Senior Manager Regulatory &EHS

Enclosure



Soil Assessment Report

WTX to EMSU Battery Release Site

1RP-5154

Unit P, Section 11, Township 20, Range 36

Lea County, New Mexico

Holly Energy Partners





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1. Introduction

On behalf of Holly Energy Partners (HEP), GHD Services Inc. (GHD) has prepared this report summarizing soil boring installation and sampling activities at the WTX to EMSU Battery Release Site (hereafter referred to as the "Site"). The Site is located in Unit P, Section 11, Township 20, Range 36, approximately 3.2 miles southwest of Monument in eastern Lea County, New Mexico. The coordinates of the release location are Latitude 32.583989 and Longitude -103.317743. The location of the Site is presented on Figure 1 and Site details are shown on Figure 2.

2. Background

According to the New Mexico Oil Conservation Division (NMOCD) Release Notification and Corrective Action Form C-141 submitted to the agency by HEP, the release occurred on July 11, 2018 and was reported to Ms. Olivia Yu, Hobbs District 1 NMOCD office on August 10, 2018 (see attached C-141 included in Appendix A). Remediation Permit (RP) 1RP-5154 was assigned to this release incident by the NMOCD Hobbs office.

The release was initially detected during an air patrol fly over. The release was determined to have originated from a pinhole leak in the bottom of a 6" pipe. HEP personnel shut down the pipe segment and the initial release volume was estimated at less than one barrel, therefore under reportable limits. After further investigation, the volume of the spill was reported as greater than 5 barrels of crude oil, of which 0.5 barrels were recovered with a vacuum truck.

HEP began excavation activities inclusive of an exploratory trench along the pipeline to a depth of approximately three feet below ground surface (bgs) on July 11 and 17, 2018, and an exploratory deeper excavation south of the pipeline on July 23, 2018 and continued on August 6, 2018 to try and determine the vertical extent of soil impact (see Figure 2). Excavation activities were halted on August 6, 2018 because it was found that the affected area was larger and impact to soil was deeper (17 feet bgs) than originally estimated. The excavated material was used to backfill the exploratory excavation areas. The surface landowner (Klien) and the mineral owner (Bureau of Land Management (BLM)) have been notified.

3. NMOCD Closure Requirement Criteria for Soils

Subsurface investigation activities were completed in accordance with the revised and reissued Guidelines for Remediation of Leaks, Spills, and Releases Rule 19.15.29 New Mexico Administrative Code (NMAC) from the NMOCD issued on August 14, 2018. The following criteria from Table 1 (below) within NMAC 19.15.29.12 was utilized to determine site-specific screening limits:



Minimum depth below any point within the horizontal boundary of the release to ground water less than 10,000 mg/l TDS	Constituent	Limit*
≤ 50 feet	Chloride**	600 mg/kg
	TPH	
	(GRO+DRO+MRO)	100 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

* Numerical limits or natural background level, whichever is greater.

** This applies to release of produced water or other fluids which may contain chloride.

Information available from various sources including the Petroleum Recovery Research Center (PRRC) Mapping Portal, currently managed groundwater site(s) data by GHD, and the United States Geological Survey (USGS) Current Water Database for the Nation, concludes:

1. the depth to groundwater at the Site is less than 50-feet bgs;
2. the site is not within 300 feet of any continuously flowing watercourse;
3. the site is not within 200 feet of any lakebed, sinkhole or playa lake;
4. the site is not within 300 feet of an occupied permanent residence, school, etc.;
5. the site is not within 500 feet of a spring or private, domestic fresh water well;
6. the site is not within 1,000 feet of any fresh water well or spring;
7. the site is not within incorporated municipal boundaries or within a defined municipal fresh water well field;
8. the site is not within 300 feet of a wetland;
9. the site is not within an area overlying a subsurface mine;
10. the site is not within an unstable area; and
11. the site is not within a 100-year floodplain.

Consequently, the anticipated site-specific screening limits based on currently available data to be applied to this location by the NMOCD based on the revised Rule are 10 mg/kg for benzene, 50 mg/kg for total benzene, toluene, ethylbenzene, and total xylenes (BTEX), 100 mg/kg for total petroleum hydrocarbon (TPH), and 600 mg/kg for chloride.

Additionally, per NMAC19.15.29.13 (Restoration, Reclamation, and Re-vegetation), the impacted area must be remediated a minimum of 4-feet bgs with non-waste containing, uncontaminated, earthen material with chloride concentrations less than 600 mg/kg. Soil cover must consist of topsoil at a thickness comparable to background topsoil thicknesses, or one foot of suitable earthen material capable of establishing and maintaining vegetation at the site. Reclamation is considered complete when all disturbed areas have established vegetative cover with a life-form ratio of plus or



minus 50 percent of pre-remedial levels, and plant cover of a minimum of 70 percent of previous levels, excluding noxious weeds.

4. 2018 Soil Assessment

Four (4) soil borings (SB-1 through SB-4) were advanced at the Site in September 2018 to assess hydrocarbon and chloride concentrations in soil near the release point. Prior to mobilizing drilling equipment to the Site, the boring locations were marked and utility notifications were submitted. Boring locations were hand augured to a depth of approximately 5 feet bgs. A hollow stemmed auger (HSA) drilling rig operated by GHD subcontractor Envirotech Drilling, a New Mexico-licensed water well driller, advanced three (3) borings to total depths of 35 feet bgs, and one (1) soil boring (SB-3) to a total depth of 25 feet bgs (refusal was encountered at 25 feet bgs). During drilling, a GHD geological technician observed, visually inspected, and logged soil cuttings at 5-foot intervals and recorded subsurface lithology in accordance with the Unified Soil Classification System (USCS) on boring logs. Soil boring logs are included in Appendix B.

Soil samples were field screened for volatile organic compounds (VOCs) using a photoionization detector (PID) calibrated with isobutylene. A portion of each soil sample was placed in a ZipLoc® bag, allowed to sit for approximately 5 minutes, and then field screened for VOCs with the PID.

Three soil samples were collected for laboratory analysis from each of the three 35 foot bgs boreholes (SB-1, SB-2, and SB-4), and two soil samples were collected from the 25 foot bgs borehole (SB-3). These included a sample from the shallow soil (less than 5 ft.), the sample with highest PID reading (if elevated readings were detected), and the sample from the terminal depth of each borehole. The soil samples were sent to Xenco Laboratories (Xenco) in Midland, Texas for analysis BTEX via EPA Test Method 8021B, TPH by EPA Method 8015 Modified, and chloride by EPA Method 300.

4.1 Soil Analytical Results

Analytical results are summarized in Table 1 and the distribution of analytical results is presented in map view on Figure 2. Soil analytical results for benzene and total BTEX in all borings were below the NMOCD screening criteria (10 and 50 mg/kg, respectively). TPH was detected above the NMOCD screening criteria for total TPH (100 mg/kg) within SB-1 at a depth of 34-35 feet bgs (1,240 mg/kg), but not in the two shallower soil samples collected from SB-1. Chloride was reported at a concentration of 625 mg/kg within SB-1 at a depth of 20-21 feet bgs. This concentration slightly exceeds the NMOCD screening criteria of 600 mg/kg for chloride. All other samples were below the NMOCD screening criteria for their respective constituents.

The laboratory analytical reports are provided in Appendix C.



5. Summary of Findings

Findings of the soil assessment conducted at the Site in 2018 are summarized below:

- Soil analytical results for benzene and total BTEX in all borings were below the NMOCD screening criteria (10 and 50 mg/kg, respectively).
- TPH was reported at a concentration of 1,240 mg/kg within SB-1 at 34-35 feet bgs. This concentration exceeds the NMOCD screening criteria of 100 mg/kg for TPH.
- Chloride was reported at a concentration slightly above the NMOCD screening criteria of 600 mg/kg in the soil sample collected from SB-1 at 20-21 feet bgs (625 mg/kg).
- All other soil samples were below the NMOCD screening criteria for their respective constituents.

6. Conclusions

Analytical results associated with assessment activities conducted in September 2018 indicate the horizontal and vertical extents of the TPH and chloride impact in soil have not been fully delineated.

7. Subsequent Assessment Activities

Additional proposed soil and groundwater assessment activities are summarized in the Supplemental Assessment Work Plan included in Appendix D of this report.

All of Which is Respectfully Submitted,

GHD

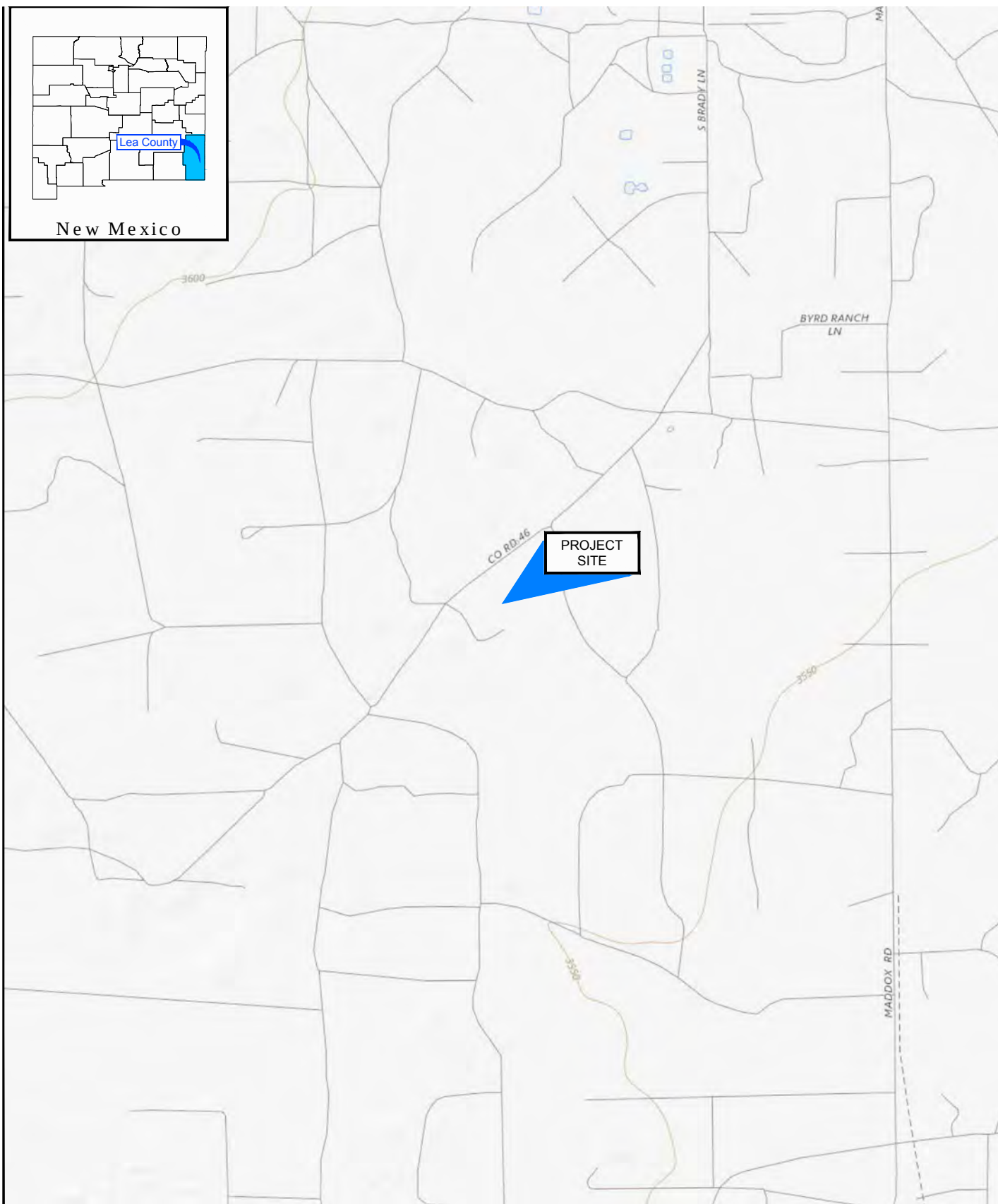
A handwritten signature in black ink, appearing to read "Scott Foord", written over a horizontal line.

Scott Foord, P.G.,
Project Manager

A handwritten signature in black ink, appearing to read "James T. Harden", written over a horizontal line.

James Harden, P.G.,
Senior Project Manager

Figures



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

Lat/Long: 32.583989° North, 103.317743° West

0 1000 2000ft

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



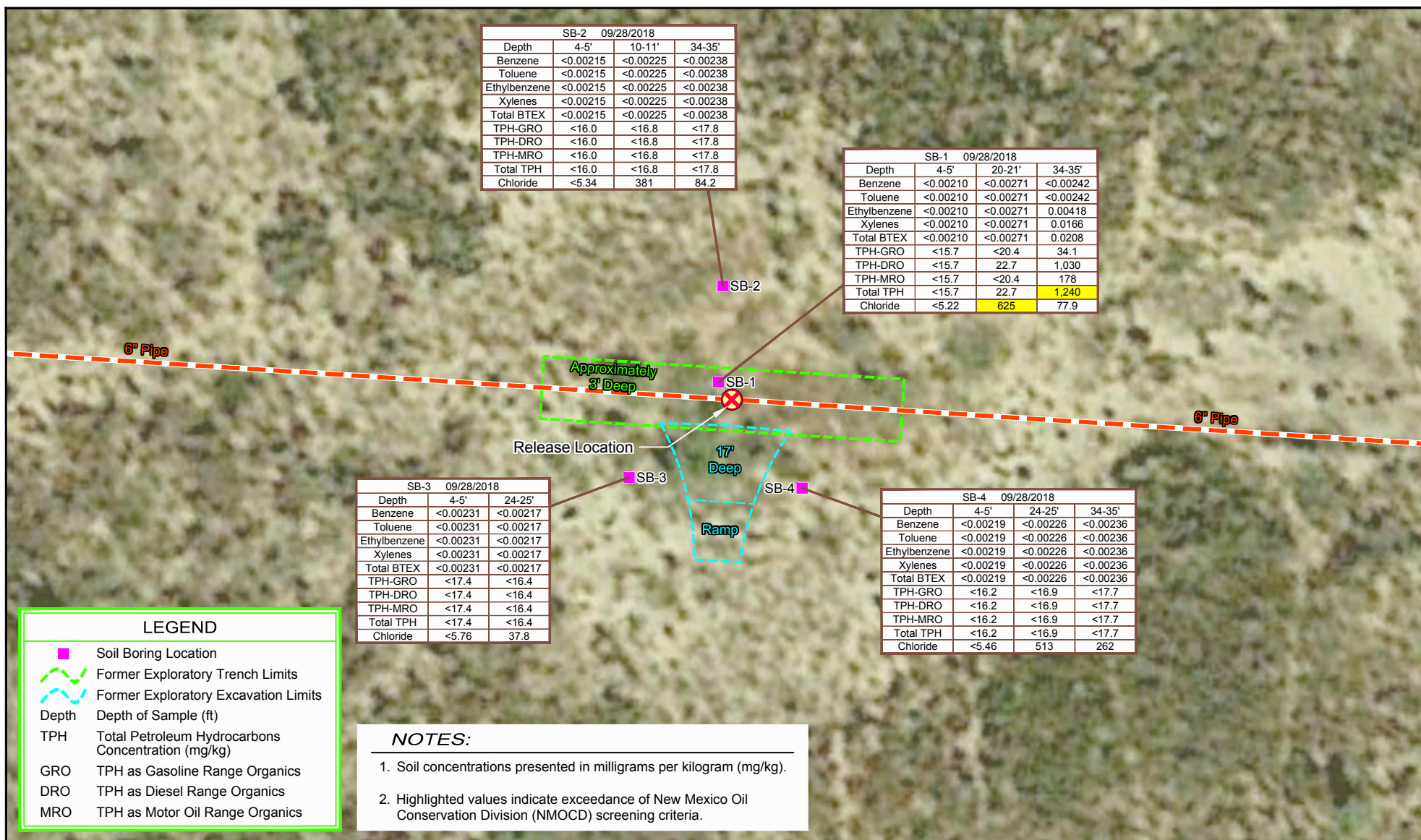
HOLLY ENERGY PARTNERS
MONUMENT, LEA COUNTY, NEW MEXICO
WTX TO EMSU BATTERY RELEASE SITE

11182283-01

Oct 19, 2018

SITE LOCATION MAP

FIGURE 1



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

Lat/Long: 32.583989° North, 103.317743° West

0 10 20ft
Approximate Scale



HOLLY ENERGY PARTNERS
MONUMENT, LEA COUNTY, NEW MEXICO
WTX TO EMSU BATTERY RELEASE SITE
SOIL BORING LOCATION AND
ANALYTICAL RESULTS MAP

11182283-01
Oct 31, 2018

FIGURE 2

Tables

TABLE 1
SUMMARY OF SOIL ANALYTICAL RESULTS
HOLLY ENERGY PARTNERS
WTX TO EMSU BATTERY RELEASE
LEA COUNTY, NEW MEXICO

Sample ID	Depth (feet)	Date	Benzene	Toluene	Ethylbenzene	Xylenes	Total BTEX	TPH				Chloride
								TPH-GRO	TPH-DRO	TPH-MRO	Total	
NMOCD Screening Criteria			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
			10	--	--	--	50	--	--	--	100	600
SB-1	4-5	9/28/2018	< 0.00210	< 0.00210	< 0.00210	< 0.00210	< 0.00210	< 15.7	< 15.7	< 15.7	< 15.7	< 5.22
	20-21	9/28/2018	< 0.00271	< 0.00271	< 0.00271	< 0.00271	< 0.00271	< 20.4	22.7	< 20.4	22.7	625
	34-35	9/28/2018	<0.00242	<0.00242	0.00418	0.0166	0.0208	34.1	1030	178	1240	77.9
SB-2	4-5	9/28/2018	< 0.00215	< 0.00215	< 0.00215	< 0.00215	< 0.00215	< 16.0	< 16.0	< 16.0	< 16.0	< 5.34
	10-11	9/28/2018	< 0.00225	< 0.00225	< 0.00225	< 0.00225	< 0.00225	< 16.8	< 16.8	< 16.8	< 16.8	381
	34-35	9/28/2018	< 0.00238	< 0.00238	< 0.00238	< 0.00238	< 0.00238	< 17.8	< 17.8	< 17.8	< 17.8	84.2
SB-3	4-5	9/28/2018	< 0.00231	< 0.00231	< 0.00231	< 0.00231	< 0.00231	< 17.4	< 17.4	< 17.4	< 17.4	<5.76
	24-25	9/28/2018	< 0.00217	< 0.00217	< 0.00217	< 0.00217	< 0.00217	< 16.4	< 16.4	< 16.4	< 16.4	37.8
SB-4	4-5	9/28/2018	< 0.00219	< 0.00219	< 0.00219	< 0.00219	< 0.00219	< 16.2	< 16.2	< 16.2	< 16.2	< 5.46
	24-25	9/28/2018	< 0.00226	< 0.00226	< 0.00226	< 0.00226	< 0.00226	< 16.9	< 16.9	< 16.9	< 16.9	513
	34-35	9/28/2018	< 0.00236	< 0.00236	< 0.00236	< 0.00236	< 0.00236	< 17.7	< 17.7	< 17.7	< 17.7	262

Notes:

1. Highlighted values indicate exceedance of NMOCD regulatory limits
2. Bolded values indicate a detection above the reporting limit
3. < = Value less than Reporting Limit (RL)
4. TPH = Total petroleum hydrocarbons
5. GRO/DRO/MRO = Gasoline/Diesel/ Motor Oil Range Organics
6. NMOCD = New Mexico Oil Conservation Division
7. NMOCD screening criteria based on depth to groundwater less than 50'

Appendices

Appendix A

Approved Soil Delineation Work Plan and C-141



APPROVED

By Olivia Yu at 11:10 am, Sep 10, 2018

August 17, 2018

Sent via e-mail to Olivia.Yu@state.nm.us

Ms. Olivia Yu
Environmental Specialist
New Mexico Oil Conservation Division – District 1
1625 N. French Drive
Hobbs, New Mexico 88240

NMOCD approves of the
proposed delineation plan
for 1RP-5154.

And

Ms. Yolanda Jimenez
Bureau of Land Management
301 Dinosaur Trail
Santa Fe, New Mexico 87508

RE: Soil Delineation Work Plan – WTX to EMSU Battery to Byrd Pump Crude Oil Release

Dear Ms. Yu and Ms. Jimenez,

Please find the enclosed Soil Delineation Work Plan for the WTX to EMSU Battery to Byrd Pump Crude Oil Release Site. We look forward to receiving your approval for implementation of delineation activities.

Should you have any questions or concerns, please contact me at 214-954-6668 or mark.shemaria@hollyenergy.com.

Sincerely,

Mark Shemaria
Senior Manager Regulatory &EHS

Enclosure



August 16, 2018

Reference No. 11181401

Ms. Olivia Yu
Environmental Specialist, District 1
Oil Conservation Division, EMNRD
1625 N French Dr.
Hobbs, New Mexico 88240

Ms. Yolanda Jimenez
Bureau of Land Management
301 Dinosaur Trail
Santa Fe, New Mexico 87508

**Re: Soil Delineation Work Plan
WTX to EMSU Battery to Byrd Pump Crude Oil Release
Unit P, Section 11, Township 20, Range 36
Lea County, New Mexico**

Dear Ms. Yu and Ms. Jimenez:

On behalf of Holly Energy Partners (HEP), GHD Services (GHD) is pleased to present this Soil Delineation Work Plan to the New Mexico Oil Conservation Division (NMOCD) and Bureau of Land Management (BLM) outlining our proposed approach to delineation activities for the WTX to EMSU Battery to Byrd Pump Crude Oil Release Site (hereafter referred to as the "Site").

1. Project Information and Background

The Site is located in Unit P, Section 11, Township 20, Range 36, approximately 3.2 miles southwest of Monument in eastern Lea County, New Mexico. The coordinates of the release location are – Latitude 32.583989, Longitude -103.317743. According to the NMOCD Release Notification and Corrective Action Form C-141 submitted to the agency by HEP, the release occurred on July 11, 2018 and was reported to Ms. Olivia Yu, Hobbs District 1 NMOCD office on August 10, 2018 (see attached C-141).

The release was initially detected during an air patrol fly over. The release was determined to have originated from a pinhole leak in the bottom of a pipe. HEP personnel shut down the pipe segment and the initial release volume was estimated at less than one barrel, therefore under reportable limits. HEP began excavation activities and determined that the affected area was larger than previously thought. The volume of the spill was reported as greater than 5 barrels of crude oil, of which 0.5 barrels were recovered. Excavation activities were halted on August 6, 2018 due to the discovery that the affected area was larger than originally estimated and impact to soil was deeper than anticipated (17 feet below ground surface (bgs)). The surface land owner (Klien) and the mineral owner (BLM) have been notified.



2. Soil Delineation

Depth to groundwater at the site is anticipated to be less than 50 feet bgs. As such, GHD will advance four (4) soil borings to delineate the petroleum hydrocarbon impact to soil in the vicinity of the release to total depths of approximately 35 feet below ground surface (bgs), groundwater is believed to be approximately 40-45 feet bgs at this location (see Figure 1). The following sections outline basic project details that will be completed by GHD and GHD subcontractors:

Field Program

The field program will consist of the following:

Soil Boring Installation:

- Prior to mobilizing the drilling equipment to the Site, a site visit will be performed by GHD to mark the proposed boring locations for New Mexico 811 notification. A One Call ticket will be initiated by the driller to identify subsurface hazards within the proposed drilling areas;
- Findings will be confirmed following the One Call notification and marking;
- An air-rotary drilling rig, operated by a licensed State of New Mexico water well driller, will be utilized to advance the proposed borings;
- A geologist will record the subsurface lithology and sample data on soil boring logs. At a minimum, soil samples will be collected with split-spoon samplers decontaminated between each sampling interval, initially 2-foot intervals to a depth of 10 feet bgs, then at 5-foot intervals to the maximum termination depth of 35 feet bgs;
- Soil samples collected from each sampling interval will be visually inspected, logged, and recorded for stratigraphy in accordance with the Unified Soil Classification System (USCS), and field screened for volatile organic compounds (VOCs) using a photoionization detector (PID) calibrated with isobutylene. A portion of each soil sample will be placed in a ZipLoc® bag, allowed to sit for approximately 5 minutes, and then field screened for VOCs with the PID;
- Up to three soil samples will be collected for laboratory analysis from each borehole. These will include the sample with highest PID reading and the sample from the terminal depth of each borehole. One additional sample will be collected from within each borehole;
- Selected soil samples will be submitted for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) via EPA Test Method 8021B, total petroleum hydrocarbon (TPH) by EPA Method 8015 Modified, and chloride by EPA Method 300;
- After completion of drilling and sampling activities to the target depths, each soil boring will be backfilled using a bentonite/cement slurry to the surface;



- Investigation Derived Waste (IDW - soil cuttings) generated from drilling and sampling activities will be contained in 55-gallon drums, staged on-site, and properly disposed following evaluation of soil sample analytical results and waste profiling; and
- Borings will not be advanced into the groundwater table; therefore, a plugging plan will not be required by the New Mexico State Engineer's Office.

Health and Safety Considerations

Personal protective equipment, including fire-retardant clothing, steel-toed work boots, gloves, safety glasses, H2S monitoring, and hard hats will be required during all field tasks. The project health and safety plan will be prepared, reviewed and signed by on-Site personnel, subcontractors, and authorized visitors, and maintained at the Site. A project kick-off/tail-gate safety meeting will be conducted with the field team prior to implementation of field activities each day.

Quality Assurance/ Quality Control soil sampling will be completed in accordance with our standard Quality Assurance/ Quality Control procedures designed to minimize cross-contamination between samples and to provide reliable laboratory results.

Reporting

A letter report summarizing assessment activities will be submitted to the NMOCD. The letter report will include a Site description, project history, description of field events, a discussion of results, and recommendations for a path forward.

The report will include:

- A scaled Site plan showing the locations of the soil borings and other Site features;
- Soil boring logs;
- Tabulation of field screening and laboratory analytical results;
- Copies of landfill manifests;
- Geotagged photographic documentation of field activities; and
- Assessment results and recommended path forward.

3. Work Plan Approval Request

GHD is prepared to initiate the proposed work plan activities immediately upon NMOCD and BLM concurrence. If you have any questions or comments with regards to this work plan, please do not hesitate to contact our Houston office at (713) 734-3090. Your timely response to this correspondence is appreciated.



Sincerely,

GHD

A handwritten signature in black ink, appearing to read "Scott Foord", with a long horizontal flourish extending to the right.

Scott Foord
Project Manager

SF/sh/1

Encl.

Attachments: C-141 Form

Figure 1 – Proposed Soil Boring Location Map

A handwritten signature in black ink, appearing to read "Raaj Patel", with a stylized flourish at the end.

Raaj Patel
Program Manager

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

Form C-141
Revised April 3, 2017

Submit 1 Copy to appropriate District Office in
accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company - Holly Energy Partners (HEP)	Contact - Melanie Nolan
Address 1602 W. Main, Artesia NM 88210	Telephone No. - 214-6058303
Facility Name - WTX to EMSU Battery to Byrd Pump Segment	Facility Type - Pipeline

Surface Owner - Private - Klein	Mineral Owner Federal	API No.
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LOCATION OF RELEASE

Unit Letter P	Section 11	Township 20	Range 36	Feet from the	North/South Line	Feet from the	East/West Line	County Lea
-------------------------	---------------	----------------	-------------	---------------	------------------	---------------	----------------	---------------

Latitude **32.583989** Longitude **-103.317743** NAD83

NATURE OF RELEASE

Type of Release - Crude Oil	Volume of Release - Greater than 5 barrels	Volume Recovered - 1/2 barrel
Source of Release - Pinhole leak in bottom of pipe	Date and Hour of Occurrence - 7/11/18 1310	Date and Hour of Discovery
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	
If a Watercourse was Impacted, Describe Fully.*		

RECEIVED

By Olivia Yu at 11:33 am, Aug 10, 2018

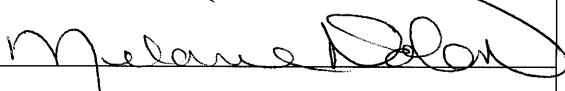
Describe Cause of Problem and Remedial Action Taken.*

Air Patrol flying over West Texas Crude district spotted a leak west of Monument Jct. HEP personnel confirmed leak and shut down pipe segment. At initial encounter the release was determined to be less than a barrel of crude. Pipe repair was completed and initial excavation of contaminated soil started. Initially release was not reported due to initial estimates being under reportable limits. On 8/6/18 excavation was halted due to discovery that initial area affected is larger than previously thought. Current estimates of what has been excavated are around the 5 barrel amount but no confirmation of exact amount at this time. Surface owner has been notified of release and our Right-of-Way department is in communication with them.

Describe Area Affected and Cleanup Action Taken.* HEP is in process of hiring an outside consulting firm to perform delineation of release site in order to develop a comprehensive remediation to address the clean-up.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD 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 NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD 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.

OIL CONSERVATION DIVISION

Signature: 

Printed Name: Melanie A. Nolan

Approved by Environmental Specialist: 

Title: Environmental Specialist I

Approval Date: **8/10/2018**

Expiration Date:

E-mail Address: Melanie.Nolan@hollyenergy.com

Conditions of Approval:

Attached ☒

Date: 8/10/2018

Phone: 575-748-8972

see attached directive

* Attach Additional Sheets If Necessary

fOY1822242653

1RP-5154

nOY1822242858

pOY1822242910

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 8/10/2018 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 1RP-5154 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC. [emphasis added]

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 1 office in Hobbs on or before 9/10/2018. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.
- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.
- Nominal detection limits for field and laboratory analyses must be provided.
- Composite sampling is not generally allowed.
- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

- Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

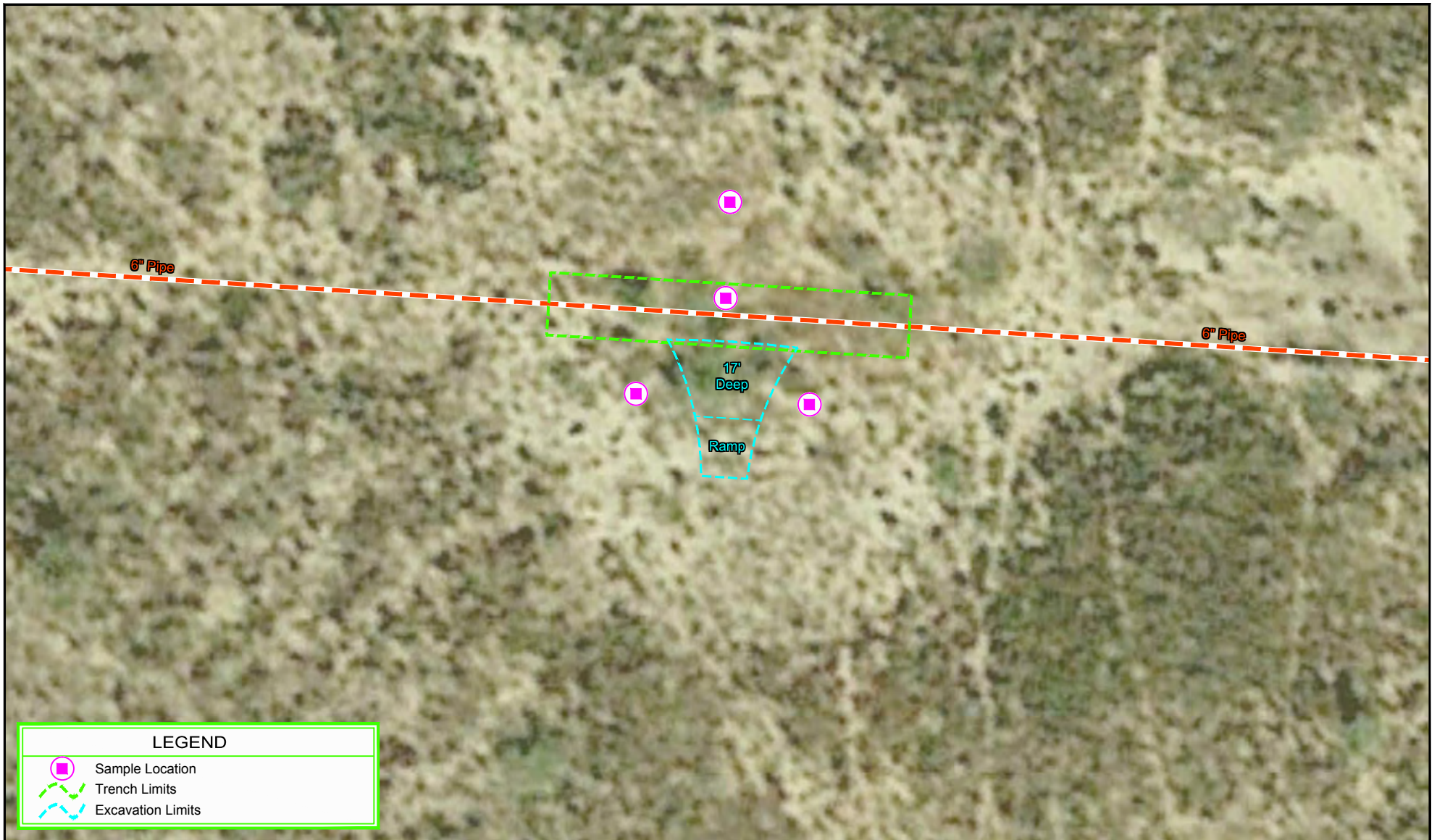
- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.

Jim Griswold

OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us



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

Lat/Long: 32.583989° North, 103.317743° West

0 10 20ft
Approximate Scale



HOLLY ENERGY PARTNERS
MONUMENT, LEA COUNTY, NEW MEXICO
WTX TO EMSU BATTERY RELEASE SITE

PROPOSED SOIL BORING LOCATIONS

11181401-00
Aug 14, 2018

FIGURE 1

Appendix B Boring Logs



STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: WTX EMSU Battery Release Site
PROJECT NUMBER: 11182283
CLIENT: Holly Energy Pipeline
LOCATION: Lea County, New Mexico
Envirotech Drilling

HOLE DESIGNATION: SB-1
DATE COMPLETED: 28 September 2018
DRILLING METHOD: Hand Auger, HSA
FIELD PERSONNEL: Tom Kalinowski

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			DEPTH (ft)	INTERVAL	REC (ft)	PP (tsf)	VOC (ppm)
2	Sand-Silty, Brown, Moist						
4			4-5	HA	1.0		0
6	Caliche-White, Dry	5.00					0
8							0
10	Caliche-White, Dry	10.00					0
12	Fine Sand-Silty tan, moist	12.00					0
14							0
16	Caliche-White, Dry	15.00					0.4
18							0.4
20	Fine Sand-Silty Dark Brown, Moist	20.00	20-21	X	1.0		6.0
22							6.0
24							5.7
26	Fine Sand-Some caliche, white, dry	25.00					5.7
28							6.1
30	Fine Sand-Brown, Moist	30.00					6.1
32							6.1
34	Fine Sand- Some clay-Brown, white, orange	33.00					11.8
36	END OF BOREHOLE @ 35.0ft BGS	35.00	34-35	X	1.0		11.8
38							

NOTES: Stratigraphy descriptions are based on drill cuttings

LABORATORY ANALYSIS



This log should not be used separately from the original report.



STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: WTX EMSU Battery Release Site
PROJECT NUMBER: 11182283
CLIENT: Holly Energy Pipeline
LOCATION: Lea County, New Mexico
Envirotech Drilling

HOLE DESIGNATION: SB-2
DATE COMPLETED: 28 September 2018
DRILLING METHOD: Hand Auger, HSA
FIELD PERSONNEL: Tom Kalinowski

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			DEPTH (ft)	INTERVAL	REC (ft)	PP (tsf)	VOC (ppm)
2	Fine Sand-Silty, Brown, White, Dry						0
4		5.00	4-5	HA	1.0		0
6	Fine Sand-Silty, Brown, White, Dry						5.2
8							
10	Fine Sand- Silty, Brown, Dry, Fine gravel	10.00	10-11	X	1.0		17.9
12	Caliche-White, Dry	12.00					5.8
14							
16	Caliche-White, Dry	15.00					0.8
18	Fine Sand, Light Tan, Dry	16.00					0.3
20							
22	Fine Sand, Caliche, White, Dry	20.00					6.5
24							
26	Fine Sand, Silty, Light Tan, Dry	25.00					0.2
28							
30	Fine Sand, Silty, Some clay, Brown, Very Moist	30.00					
32							
34		35.00	34-35	X	1.0		2.3
36	END OF BOREHOLE @ 35.0ft BGS						
38							

NOTES: Stratigraphy descriptions are based on drill cuttings

LABORATORY ANALYSIS



This log should not be used separately from the original report.



STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: WTX EMSU Battery Release Site
PROJECT NUMBER: 11182283
CLIENT: Holly Energy Pipeline
LOCATION: Lea County, New Mexico
Envirotech Drilling

HOLE DESIGNATION: SB-3
DATE COMPLETED: 28 September 2018
DRILLING METHOD: Hand Auger, HSA
FIELD PERSONNEL: Tom Kalinowski

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			DEPTH (ft)	INTERVAL	REC (ft)	PP (tsf)	VOC (ppm)
2	Fine Sand, Silty Brown to White Dry						0
4		5.00	4-5	HA	1.0		0
6	Fine Sand, Silty White, Dry						0
8							0
10	Caliche-White, Dry	10.00					0
12							0
14							0
16	Fine Sand-Silty, Some Caliche, Brown, White, Dry	15.00					0
18							0
20	Caliche-White, Dry	20.00					0
22							0
24		25.00	24-25	X	1.0		0
26	END OF BOREHOLE @ 25.0ft BGS						
28							
30							
32							
34							
36							
38							

NOTES: Stratigraphy descriptions are based on drill cuttings

LABORATORY ANALYSIS



This log should not be used separately from the original report.



STRATIGRAPHIC LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: WTX EMSU Battery Release Site
PROJECT NUMBER: 11182283
CLIENT: Holly Energy Pipeline
LOCATION: Lea County, New Mexico
Envirotech Drilling

HOLE DESIGNATION: SB-4
DATE COMPLETED: 28 September 2018
DRILLING METHOD: Hand Auger, HSA
FIELD PERSONNEL: Tom Kalinowski

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	DEPTH ft BGS	SAMPLE				
			DEPTH (ft)	INTERVAL	REC (ft)	PP (tsf)	VOC (ppm)
2	Fine Sand-Silty, Brown to White, Dry						0
4		5.00	4-5	HA	1.0		0
6	Fine Sand-Silty, Brown, Dry						0
8							0
10	Fine Sand-Silty, Brown, Dry	10.00					0
12							0
14							0
16	Fine Sand-Silty, Brown, Dry	15.00					0
18	Caliche-White, Dry	17.00					0
20	Caliche-White, Dry	20.00					0
22							0
24			24-25	X	1.0		0
26	Fine Sand-Silty, Brown, Dry	25.00					0
28	Caliche-White, Dry	27.00					0
30	Fine Sand-Silty, Reddish Brown, Dry	30.00					0
32							0
34		35.00	34-35	X	1.0		0
36	END OF BOREHOLE @ 35.0ft BGS						
38							
NOTES: Stratigraphy descriptions are based on drill cuttings LABORATORY ANALYSIS 							

OVERBURDEN LOG HOLLY ENERGY PIPELINE.GPJ CRA CORP.GDT 18/10/18

This log should not be used separately from the original report.

Appendix C

Certified Analytical Reports



October 4, 2018

Scott Foord
GHD Services, INC- Midland
2135 S Loop 250 W Midland, TX 79703

Please find the attached Confirmation of Sample Receipt for samples received by our laboratory on 10/03/2018. The samples have been logged in for a 7 Days turnaround with results due 10/12/2018. The following is our understanding of your project requirements as described on the enclosed chain of custody form. To ensure that your needs are met, please take a moment to verify that:

1. The number and type of samples received are correct.
2. The analytical methods specified are correct.
3. Due dates for analytical results are correct.
4. Address, phone and fax information are correct.

Your samples will be retained for a period of 60 business days following receipt of the samples. After that time, they will be properly disposed of without further notice, unless there is an acknowledged written request. We reserve the right to return any unused samples, extracts or related solutions that have been identified as hazardous waste, are controlled substances under regulated protocols or have sample sizes exceeding standard analytical practices.

If there are any questions, please do not hesitate to contact your Project Manager and reference work order number **601287**

The following samples were received on Oct 03,2018 and will be analyzed as follows:

Client:	GHD Services, INC- Midland	Turnaround:	7 Days
Lab PM:	Debbie Simmons	Results Due:	Oct-12-2018 17:00
Project ID:	11182283-2018-001	Report to	Scott Foord
Project Name:	WTX EMSU Battery Release Site		
Location:			
QC Package:	Texas Level II Results per Page - Summary Cover		
EDD Type:			

Client Sample ID	Depth	Lab ID	Method Name (Analysis)	Matrix	Sampled
SB-1-S-4-5-180928	4-5	601287-001	Percent Moisture	Soil	09/28/18 09:15
SB-1-S-4-5-180928	4-5	601287-001	Chloride by EPA 300	Soil	09/28/18 09:15
SB-1-S-4-5-180928	4-5	601287-001	TPH By SW8015 Mod	Soil	09/28/18 09:15
SB-1-S-4-5-180928	4-5	601287-001	BTEX by EPA 8021B	Soil	09/28/18 09:15
SB-1-S-20-21-180928	20-21	601287-002	Percent Moisture	Soil	09/28/18 10:10
SB-1-S-20-21-180928	20-21	601287-002	Chloride by EPA 300	Soil	09/28/18 10:10
SB-1-S-20-21-180928	20-21	601287-002	TPH By SW8015 Mod	Soil	09/28/18 10:10
SB-1-S-20-21-180928	20-21	601287-002	BTEX by EPA 8021B	Soil	09/28/18 10:10
SB-1-S-34-35-180928	34-35	601287-003	Percent Moisture	Soil	09/28/18 10:35
SB-1-S-34-35-180928	34-35	601287-003	Chloride by EPA 300	Soil	09/28/18 10:35
SB-1-S-34-35-180928	34-35	601287-003	TPH By SW8015 Mod	Soil	09/28/18 10:35
SB-1-S-34-35-180928	34-35	601287-003	BTEX by EPA 8021B	Soil	09/28/18 10:35
SB-2-S-4-5-180928	4-5	601287-004	Percent Moisture	Soil	09/28/18 11:10
SB-2-S-4-5-180928	4-5	601287-004	Chloride by EPA 300	Soil	09/28/18 11:10
SB-2-S-4-5-180928	4-5	601287-004	TPH By SW8015 Mod	Soil	09/28/18 11:10
SB-2-S-4-5-180928	4-5	601287-004	BTEX by EPA 8021B	Soil	09/28/18 11:10
SB-2-S-10-11-180928	10-11	601287-005	Percent Moisture	Soil	09/28/18 12:05
SB-2-S-10-11-180928	10-11	601287-005	Chloride by EPA 300	Soil	09/28/18 12:05
SB-2-S-10-11-180928	10-11	601287-005	TPH By SW8015 Mod	Soil	09/28/18 12:05
SB-2-S-10-11-180928	10-11	601287-005	BTEX by EPA 8021B	Soil	09/28/18 12:05
SB-2-S-34-35-180928	34-35	601287-006	Percent Moisture	Soil	09/28/18 12:15
SB-2-S-34-35-180928	34-35	601287-006	Chloride by EPA 300	Soil	09/28/18 12:15
SB-2-S-34-35-180928	34-35	601287-006	TPH By SW8015 Mod	Soil	09/28/18 12:15
SB-2-S-34-35-180928	34-35	601287-006	BTEX by EPA 8021B	Soil	09/28/18 12:15
SB-3-S-4-5-180928	4-5	601287-007	Percent Moisture	Soil	09/28/18 12:45
SB-3-S-4-5-180928	4-5	601287-007	Chloride by EPA 300	Soil	09/28/18 12:45
SB-3-S-4-5-180928	4-5	601287-007	TPH By SW8015 Mod	Soil	09/28/18 12:45
SB-3-S-4-5-180928	4-5	601287-007	BTEX by EPA 8021B	Soil	09/28/18 12:45
SB-3-S-24-25-180928	24-25	601287-008	Percent Moisture	Soil	09/28/18 14:00
SB-3-S-24-25-180928	24-25	601287-008	Chloride by EPA 300	Soil	09/28/18 14:00
SB-3-S-24-25-180928	24-25	601287-008	TPH By SW8015 Mod	Soil	09/28/18 14:00
SB-3-S-24-25-180928	24-25	601287-008	BTEX by EPA 8021B	Soil	09/28/18 14:00
SB-4-S-4-5-180928	4-5	601287-009	Percent Moisture	Soil	09/28/18 15:10
SB-4-S-4-5-180928	4-5	601287-009	Chloride by EPA 300	Soil	09/28/18 15:10
SB-4-S-4-5-180928	4-5	601287-009	TPH By SW8015 Mod	Soil	09/28/18 15:10

Client: GHD Services, INC- Midland**Lab PM:** Debbie Simmons**Project ID:** 11182283-2018-001**Project Name:** WTX EMSU Battery Release Site**Location:****QC Package:** Texas Level II Results per Page - Summary Cover**EDD Type:****Turnaround:** 7 Days**Results Due:** Oct-12-2018 17:00**Report to** Scott Foord

Client Sample ID	Depth	Lab ID	Method Name (Analysis)	Matrix	Sampled
SB-4-S-4-5-180928	4-5	601287-009	BTEX by EPA 8021B	Soil	09/28/18 15:10
SB-4-S-24-25-180928	24-25	601287-010	Percent Moisture	Soil	09/28/18 16:20
SB-4-S-24-25-180928	24-25	601287-010	Chloride by EPA 300	Soil	09/28/18 16:20
SB-4-S-24-25-180928	24-25	601287-010	TPH By SW8015 Mod	Soil	09/28/18 16:20
SB-4-S-24-25-180928	24-25	601287-010	BTEX by EPA 8021B	Soil	09/28/18 16:20
SB-1-S-34-35-180928	34-35	601287-011	Percent Moisture	Soil	09/28/18 17:00
SB-1-S-34-35-180928	34-35	601287-011	Chloride by EPA 300	Soil	09/28/18 17:00
SB-1-S-34-35-180928	34-35	601287-011	TPH By SW8015 Mod	Soil	09/28/18 17:00
SB-1-S-34-35-180928	34-35	601287-011	BTEX by EPA 8021B	Soil	09/28/18 17:00

Special Instructions:



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: GHD Services, INC- Midland

Date/ Time Received: 10/03/2018 04:48:00 PM

Work Order #: 601287

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)?	5.3
#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:

Katie Lowe

Date: 10/04/2018

Checklist reviewed by:

Debbie Simmons

Date: 10/04/2018



Certificate of Analysis Summary 601287

GHD Services, INC- Midland, Midland, TX

Project Name: WTX EMSU Battery Release Site



Project Id: 11182283-2018-001

Contact: Scott Foord

Project Location:

Date Received in Lab: Wed Oct-03-18 04:48 pm

Report Date: 16-OCT-18

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	601287-001	601287-002	601287-003	601287-004	601287-005	601287-006
	Field Id:	SB-1-S-4-5-180928	SB-1-S-20-21-180928	SB-1-S-34-35-180928	SB-2-S-4-5-180928	SB-2-S-10-11-180928	SB-2-S-34-35-180928
	Depth:	4-5	20-21	34-35	4-5	10-11	34-35
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	Sep-28-18 09:15	Sep-28-18 10:10	Sep-28-18 10:35	Sep-28-18 11:10	Sep-28-18 12:05	Sep-28-18 12:15
BTEX by EPA 8021B	Extracted:	Oct-09-18 17:00	Oct-09-18 17:00	Oct-09-18 17:00	Oct-09-18 17:00	Oct-09-18 17:00	Oct-09-18 17:00
	Analyzed:	Oct-12-18 02:30	Oct-12-18 02:52	Oct-12-18 03:13	Oct-12-18 03:34	Oct-12-18 03:56	Oct-12-18 04:19
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00210 0.00210	<0.00271 0.00271	<0.00242 0.00242	<0.00215 0.00215	<0.00225 0.00225	<0.00238 0.00238
Toluene		<0.00210 0.00210	<0.00271 0.00271	<0.00242 0.00242	<0.00215 0.00215	<0.00225 0.00225	<0.00238 0.00238
Ethylbenzene		<0.00210 0.00210	<0.00271 0.00271	0.00418 0.00242	<0.00215 0.00215	<0.00225 0.00225	<0.00238 0.00238
m,p-Xylenes		<0.00419 0.00419	<0.00542 0.00542	0.0166 0.00483	<0.00431 0.00431	<0.00450 0.00450	<0.00475 0.00475
o-Xylene		<0.00210 0.00210	<0.00271 0.00271	<0.00242 0.00242	<0.00215 0.00215	<0.00225 0.00225	<0.00238 0.00238
Total Xylenes		<0.00210 0.00210	<0.00271 0.00271	0.0166 0.00242	<0.00215 0.00215	<0.00225 0.00225	<0.00238 0.00238
Total BTEX		<0.00210 0.00210	<0.00271 0.00271	0.0208 0.00242	<0.00215 0.00215	<0.00225 0.00225	<0.00238 0.00238
Chloride by EPA 300	Extracted:	Oct-05-18 08:30	Oct-05-18 08:30	Oct-05-18 08:30	Oct-05-18 08:30	Oct-05-18 08:30	Oct-05-18 08:30
	Analyzed:	Oct-05-18 09:23	Oct-05-18 10:37	Oct-05-18 10:42	Oct-05-18 10:59	Oct-05-18 11:05	Oct-05-18 11:22
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<5.22 5.22	625 6.82	77.9 6.00	<5.34 5.34	381 5.61	84.2 5.91
Percent Moisture	Extracted:						
	Analyzed:	Oct-04-18 11:00	Oct-04-18 11:00	Oct-04-18 11:00	Oct-04-18 11:00	Oct-04-18 11:00	Oct-04-18 11:00
	Units/RL:	% RL	% RL	% RL	% RL	% RL	% RL
Percent Moisture		4.76	26.7	17.2	6.78	10.7	16.2
TPH By SW8015 Mod	Extracted:	Oct-05-18 11:00	Oct-05-18 11:00	Oct-05-18 11:00	Oct-05-18 11:00	Oct-05-18 11:00	Oct-05-18 11:00
	Analyzed:	Oct-05-18 12:00	Oct-05-18 12:58	Oct-05-18 13:17	Oct-05-18 13:36	Oct-05-18 13:55	Oct-05-18 14:15
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.7 15.7	<20.4 20.4	34.1 18.1	<16.0 16.0	<16.8 16.8	<17.8 17.8
Diesel Range Organics (DRO)		<15.7 15.7	22.7 20.4	1030 18.1	<16.0 16.0	<16.8 16.8	<17.8 17.8
Motor Oil Range Hydrocarbons (MRO)		<15.7 15.7	<20.4 20.4	178 18.1	<16.0 16.0	<16.8 16.8	<17.8 17.8
Total TPH		<15.7 15.7	22.7 20.4	1240 18.1	<16.0 16.0	<16.8 16.8	<17.8 17.8

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 - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Version: 1.9%

Debbie Simmons
Project Manager



Certificate of Analysis Summary 601287

GHD Services, INC- Midland, Midland, TX

Project Name: WTX EMSU Battery Release Site



Project Id: 11182283-2018-001

Contact: Scott Foord

Project Location:

Date Received in Lab: Wed Oct-03-18 04:48 pm

Report Date: 16-OCT-18

Project Manager: Debbie Simmons

Analysis Requested	Lab Id:	601287-007	601287-008	601287-009	601287-010	601287-011	
	Field Id:	SB-3-S-4-5-180928	SB-3-S-24-25-180928	SB-4-S-4-5-180928	SB-4-S-24-25-180928	SB-4-S-34-35-180928	
	Depth:	4-5	24-25	4-5	24-25	34-35	
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	
	Sampled:	Sep-28-18 12:45	Sep-28-18 14:00	Sep-28-18 15:10	Sep-28-18 16:20	Sep-28-18 17:00	
BTEX by EPA 8021B	Extracted:	Oct-09-18 17:00	Oct-09-18 17:00	Oct-09-18 17:00	Oct-09-18 17:00	Oct-09-18 17:00	
	Analyzed:	Oct-12-18 04:40	Oct-12-18 05:02	Oct-12-18 05:23	Oct-12-18 06:26	Oct-12-18 06:47	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Benzene		<0.00231 0.00231	<0.00217 0.00217	<0.00219 0.00219	<0.00226 0.00226	<0.00236 0.00236	
Toluene		<0.00231 0.00231	<0.00217 0.00217	<0.00219 0.00219	<0.00226 0.00226	<0.00236 0.00236	
Ethylbenzene		<0.00231 0.00231	<0.00217 0.00217	<0.00219 0.00219	<0.00226 0.00226	<0.00236 0.00236	
m,p-Xylenes		<0.00463 0.00463	<0.00435 0.00435	<0.00437 0.00437	<0.00452 0.00452	<0.00471 0.00471	
o-Xylene		<0.00231 0.00231	<0.00217 0.00217	<0.00219 0.00219	<0.00226 0.00226	<0.00236 0.00236	
Total Xylenes		<0.00231 0.00231	<0.00217 0.00217	<0.00219 0.00219	<0.00226 0.00226	<0.00236 0.00236	
Total BTEX		<0.00231 0.00231	<0.00217 0.00217	<0.00219 0.00219	<0.00226 0.00226	<0.00236 0.00236	
Chloride by EPA 300	Extracted:	Oct-05-18 08:30	Oct-05-18 08:30	Oct-05-18 08:30	Oct-05-18 08:30	Oct-05-18 08:30	
	Analyzed:	Oct-05-18 11:28	Oct-05-18 11:33	Oct-05-18 11:39	Oct-05-18 11:45	Oct-05-18 11:50	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Chloride		<5.76 5.76	37.8 5.54	<5.46 5.46	513 5.59	262 5.89	
Percent Moisture	Extracted:						
	Analyzed:	Oct-04-18 11:00	Oct-04-18 11:00	Oct-04-18 11:00	Oct-04-18 11:00	Oct-04-18 11:00	
	Units/RL:	% RL	% RL	% RL	% RL	% RL	
Percent Moisture		14.1	8.87	7.77	11.2	15.3	
TPH By SW8015 Mod	Extracted:	Oct-05-18 11:00	Oct-05-18 11:00	Oct-05-18 11:00	Oct-05-18 11:00	Oct-05-18 11:00	
	Analyzed:	Oct-05-18 14:34	Oct-05-18 14:54	Oct-05-18 15:14	Oct-05-18 15:33	Oct-05-18 16:32	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Gasoline Range Hydrocarbons (GRO)		<17.4 17.4	<16.4 16.4	<16.2 16.2	<16.9 16.9	<17.7 17.7	
Diesel Range Organics (DRO)		<17.4 17.4	<16.4 16.4	<16.2 16.2	<16.9 16.9	<17.7 17.7	
Motor Oil Range Hydrocarbons (MRO)		<17.4 17.4	<16.4 16.4	<16.2 16.2	<16.9 16.9	<17.7 17.7	
Total TPH		<17.4 17.4	<16.4 16.4	<16.2 16.2	<16.9 16.9	<17.7 17.7	

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 - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Version: 1.9%

Debbie Simmons
Project Manager

Analytical Report 601287

for GHD Services, INC- Midland

Project Manager: Scott Foord

WTX EMSU Battery Release Site

11182283-2018-001

16-OCT-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):

Texas (T104704215-18-27), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):

Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-13)

Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-17)

Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)

Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)

Xenco-Atlanta (LELAP Lab ID #04176)

Xenco-Tampa: Florida (E87429)

Xenco-Lakeland: Florida (E84098)



16-OCT-18

Project Manager: **Scott Foord**
GHD Services, INC- Midland
2135 S Loop 250 W
Midland, TX 79703

Reference: XENCO Report No(s): **601287**
WTX EMSU Battery Release Site
Project Address:

Scott Foord:

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) 601287. 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. 601287 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,

Debbie Simmons

Project Manager

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 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SB-1-S-4-5-180928	S	09-28-18 09:15	4 - 5	601287-001
SB-1-S-20-21-180928	S	09-28-18 10:10	20 - 21	601287-002
SB-1-S-34-35-180928	S	09-28-18 10:35	34 - 35	601287-003
SB-2-S-4-5-180928	S	09-28-18 11:10	4 - 5	601287-004
SB-2-S-10-11-180928	S	09-28-18 12:05	10 - 11	601287-005
SB-2-S-34-35-180928	S	09-28-18 12:15	34 - 35	601287-006
SB-3-S-4-5-180928	S	09-28-18 12:45	4 - 5	601287-007
SB-3-S-24-25-180928	S	09-28-18 14:00	24 - 25	601287-008
SB-4-S-4-5-180928	S	09-28-18 15:10	4 - 5	601287-009
SB-4-S-24-25-180928	S	09-28-18 16:20	24 - 25	601287-010
SB-4-S-34-35-180928	S	09-28-18 17:00	34 - 35	601287-011



CASE NARRATIVE

Client Name: *GHD Services, INC- Midland*

Project Name: *WTX EMSU Battery Release Site*

Project ID: 11182283-2018-001
Work Order Number(s): 601287

Report Date: 16-OCT-18
Date Received: 10/03/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3066220 BTEX by EPA 8021B

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



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-1-S-4-5-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-001

Date Collected: 09.28.18 09.15

Sample Depth: 4 - 5

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture: 4.76

Analyst: SCM

Date Prep: 10.05.18 08.30

Basis: Dry Weight

Seq Number: 3065622

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.22	5.22	mg/kg	10.05.18 09.23	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture: 4.76

Analyst: ARM

Date Prep: 10.05.18 11.00

Basis: Dry Weight

Seq Number: 3065664

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.7	15.7	mg/kg	10.05.18 12.00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.7	15.7	mg/kg	10.05.18 12.00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.7	15.7	mg/kg	10.05.18 12.00	U	1
Total TPH	PHC635	<15.7	15.7	mg/kg	10.05.18 12.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	10.05.18 12.00	
o-Terphenyl	84-15-1	98	%	70-135	10.05.18 12.00	



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-1-S-4-5-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-001

Date Collected: 09.28.18 09.15

Sample Depth: 4 - 5

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture: 4.76

Analyst: ALJ

Date Prep: 10.09.18 17.00

Basis: Dry Weight

Seq Number: 3066220

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00210	0.00210	mg/kg	10.12.18 02.30	U	1
Toluene	108-88-3	<0.00210	0.00210	mg/kg	10.12.18 02.30	U	1
Ethylbenzene	100-41-4	<0.00210	0.00210	mg/kg	10.12.18 02.30	U	1
m,p-Xylenes	179601-23-1	<0.00419	0.00419	mg/kg	10.12.18 02.30	U	1
o-Xylene	95-47-6	<0.00210	0.00210	mg/kg	10.12.18 02.30	U	1
Total Xylenes	1330-20-7	<0.00210	0.00210	mg/kg	10.12.18 02.30	U	1
Total BTEX		<0.00210	0.00210	mg/kg	10.12.18 02.30	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	98	%	70-130	10.12.18 02.30		
1,4-Difluorobenzene	540-36-3	110	%	70-130	10.12.18 02.30		



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-1-S-20-21-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-002

Date Collected: 09.28.18 10.10

Sample Depth: 20 - 21

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture: 26.72

Analyst: SCM

Date Prep: 10.05.18 08.30

Basis: Dry Weight

Seq Number: 3065622

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	625	6.82	mg/kg	10.05.18 10.37		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture: 26.72

Analyst: ARM

Date Prep: 10.05.18 11.00

Basis: Dry Weight

Seq Number: 3065664

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<20.4	20.4	mg/kg	10.05.18 12.58	U	1
Diesel Range Organics (DRO)	C10C28DRO	22.7	20.4	mg/kg	10.05.18 12.58		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<20.4	20.4	mg/kg	10.05.18 12.58	U	1
Total TPH	PHC635	22.7	20.4	mg/kg	10.05.18 12.58		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	10.05.18 12.58	
o-Terphenyl	84-15-1	97	%	70-135	10.05.18 12.58	



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-1-S-20-21-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-002

Date Collected: 09.28.18 10.10

Sample Depth: 20 - 21

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture: 26.72

Analyst: ALJ

Date Prep: 10.09.18 17.00

Basis: Dry Weight

Seq Number: 3066220

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00271	0.00271	mg/kg	10.12.18 02.52	U	1
Toluene	108-88-3	<0.00271	0.00271	mg/kg	10.12.18 02.52	U	1
Ethylbenzene	100-41-4	<0.00271	0.00271	mg/kg	10.12.18 02.52	U	1
m,p-Xylenes	179601-23-1	<0.00542	0.00542	mg/kg	10.12.18 02.52	U	1
o-Xylene	95-47-6	<0.00271	0.00271	mg/kg	10.12.18 02.52	U	1
Total Xylenes	1330-20-7	<0.00271	0.00271	mg/kg	10.12.18 02.52	U	1
Total BTEX		<0.00271	0.00271	mg/kg	10.12.18 02.52	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	76		%	70-130	10.12.18 02.52	
1,4-Difluorobenzene	540-36-3	109		%	70-130	10.12.18 02.52	



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-1-S-34-35-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-003

Date Collected: 09.28.18 10.35

Sample Depth: 34 - 35

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture: 17.23

Analyst: SCM

Date Prep: 10.05.18 08.30

Basis: Dry Weight

Seq Number: 3065622

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	77.9	6.00	mg/kg	10.05.18 10.42		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture: 17.23

Analyst: ARM

Date Prep: 10.05.18 11.00

Basis: Dry Weight

Seq Number: 3065664

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	34.1	18.1	mg/kg	10.05.18 13.17		1
Diesel Range Organics (DRO)	C10C28DRO	1030	18.1	mg/kg	10.05.18 13.17		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	178	18.1	mg/kg	10.05.18 13.17		1
Total TPH	PHC635	1240	18.1	mg/kg	10.05.18 13.17		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	99	%	70-135	10.05.18 13.17		
o-Terphenyl	84-15-1	104	%	70-135	10.05.18 13.17		



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-1-S-34-35-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-003

Date Collected: 09.28.18 10.35

Sample Depth: 34 - 35

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture: 17.23

Analyst: ALJ

Date Prep: 10.09.18 17.00

Basis: Dry Weight

Seq Number: 3066220

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00242	0.00242	mg/kg	10.12.18 03.13	U	1
Toluene	108-88-3	<0.00242	0.00242	mg/kg	10.12.18 03.13	U	1
Ethylbenzene	100-41-4	0.00418	0.00242	mg/kg	10.12.18 03.13		1
m,p-Xylenes	179601-23-1	0.0166	0.00483	mg/kg	10.12.18 03.13		1
o-Xylene	95-47-6	<0.00242	0.00242	mg/kg	10.12.18 03.13	U	1
Total Xylenes	1330-20-7	0.0166	0.00242	mg/kg	10.12.18 03.13		1
Total BTEX		0.0208	0.00242	mg/kg	10.12.18 03.13		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	120		%	70-130	10.12.18 03.13	
1,4-Difluorobenzene	540-36-3	110		%	70-130	10.12.18 03.13	



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-2-S-4-5-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-004

Date Collected: 09.28.18 11.10

Sample Depth: 4 - 5

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture: 6.78

Analyst: SCM

Date Prep: 10.05.18 08.30

Basis: Dry Weight

Seq Number: 3065622

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.34	5.34	mg/kg	10.05.18 10.59	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture: 6.78

Analyst: ARM

Date Prep: 10.05.18 11.00

Basis: Dry Weight

Seq Number: 3065664

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<16.0	16.0	mg/kg	10.05.18 13.36	U	1
Diesel Range Organics (DRO)	C10C28DRO	<16.0	16.0	mg/kg	10.05.18 13.36	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<16.0	16.0	mg/kg	10.05.18 13.36	U	1
Total TPH	PHC635	<16.0	16.0	mg/kg	10.05.18 13.36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	10.05.18 13.36	
o-Terphenyl	84-15-1	95	%	70-135	10.05.18 13.36	



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-2-S-4-5-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-004

Date Collected: 09.28.18 11.10

Sample Depth: 4 - 5

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture: 6.78

Analyst: ALJ

Date Prep: 10.09.18 17.00

Basis: Dry Weight

Seq Number: 3066220

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00215	0.00215	mg/kg	10.12.18 03.34	U	1
Toluene	108-88-3	<0.00215	0.00215	mg/kg	10.12.18 03.34	U	1
Ethylbenzene	100-41-4	<0.00215	0.00215	mg/kg	10.12.18 03.34	U	1
m,p-Xylenes	179601-23-1	<0.00431	0.00431	mg/kg	10.12.18 03.34	U	1
o-Xylene	95-47-6	<0.00215	0.00215	mg/kg	10.12.18 03.34	U	1
Total Xylenes	1330-20-7	<0.00215	0.00215	mg/kg	10.12.18 03.34	U	1
Total BTEX		<0.00215	0.00215	mg/kg	10.12.18 03.34	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	70-130	10.12.18 03.34		
1,4-Difluorobenzene	540-36-3	109	%	70-130	10.12.18 03.34		



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-2-S-10-11-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-005

Date Collected: 09.28.18 12.05

Sample Depth: 10 - 11

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture: 10.67

Analyst: SCM

Date Prep: 10.05.18 08.30

Basis: Dry Weight

Seq Number: 3065622

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	381	5.61	mg/kg	10.05.18 11.05		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture: 10.67

Analyst: ARM

Date Prep: 10.05.18 11.00

Basis: Dry Weight

Seq Number: 3065664

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<16.8	16.8	mg/kg	10.05.18 13.55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<16.8	16.8	mg/kg	10.05.18 13.55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<16.8	16.8	mg/kg	10.05.18 13.55	U	1
Total TPH	PHC635	<16.8	16.8	mg/kg	10.05.18 13.55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	10.05.18 13.55	
o-Terphenyl	84-15-1	94	%	70-135	10.05.18 13.55	



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-2-S-10-11-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-005

Date Collected: 09.28.18 12.05

Sample Depth: 10 - 11

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture: 10.67

Analyst: ALJ

Date Prep: 10.09.18 17.00

Basis: Dry Weight

Seq Number: 3066220

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00225	0.00225	mg/kg	10.12.18 03.56	U	1
Toluene	108-88-3	<0.00225	0.00225	mg/kg	10.12.18 03.56	U	1
Ethylbenzene	100-41-4	<0.00225	0.00225	mg/kg	10.12.18 03.56	U	1
m,p-Xylenes	179601-23-1	<0.00450	0.00450	mg/kg	10.12.18 03.56	U	1
o-Xylene	95-47-6	<0.00225	0.00225	mg/kg	10.12.18 03.56	U	1
Total Xylenes	1330-20-7	<0.00225	0.00225	mg/kg	10.12.18 03.56	U	1
Total BTEX		<0.00225	0.00225	mg/kg	10.12.18 03.56	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	103	%	70-130	10.12.18 03.56		
4-Bromofluorobenzene	460-00-4	92	%	70-130	10.12.18 03.56		



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-2-S-34-35-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-006

Date Collected: 09.28.18 12.15

Sample Depth: 34 - 35

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture: 16.17

Analyst: SCM

Date Prep: 10.05.18 08.30

Basis: Dry Weight

Seq Number: 3065622

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	84.2	5.91	mg/kg	10.05.18 11.22		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture: 16.17

Analyst: ARM

Date Prep: 10.05.18 11.00

Basis: Dry Weight

Seq Number: 3065664

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<17.8	17.8	mg/kg	10.05.18 14.15	U	1
Diesel Range Organics (DRO)	C10C28DRO	<17.8	17.8	mg/kg	10.05.18 14.15	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<17.8	17.8	mg/kg	10.05.18 14.15	U	1
Total TPH	PHC635	<17.8	17.8	mg/kg	10.05.18 14.15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	10.05.18 14.15	
o-Terphenyl	84-15-1	95	%	70-135	10.05.18 14.15	



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-2-S-34-35-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-006

Date Collected: 09.28.18 12.15

Sample Depth: 34 - 35

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture: 16.17

Analyst: ALJ

Date Prep: 10.09.18 17.00

Basis: Dry Weight

Seq Number: 3066220

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00238	0.00238	mg/kg	10.12.18 04.19	U	1
Toluene	108-88-3	<0.00238	0.00238	mg/kg	10.12.18 04.19	U	1
Ethylbenzene	100-41-4	<0.00238	0.00238	mg/kg	10.12.18 04.19	U	1
m,p-Xylenes	179601-23-1	<0.00475	0.00475	mg/kg	10.12.18 04.19	U	1
o-Xylene	95-47-6	<0.00238	0.00238	mg/kg	10.12.18 04.19	U	1
Total Xylenes	1330-20-7	<0.00238	0.00238	mg/kg	10.12.18 04.19	U	1
Total BTEX		<0.00238	0.00238	mg/kg	10.12.18 04.19	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	87	%	70-130	10.12.18 04.19		
1,4-Difluorobenzene	540-36-3	99	%	70-130	10.12.18 04.19		



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-3-S-4-5-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-007

Date Collected: 09.28.18 12.45

Sample Depth: 4 - 5

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture: 14.09

Analyst: SCM

Date Prep: 10.05.18 08.30

Basis: Dry Weight

Seq Number: 3065622

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.76	5.76	mg/kg	10.05.18 11.28	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture: 14.09

Analyst: ARM

Date Prep: 10.05.18 11.00

Basis: Dry Weight

Seq Number: 3065664

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<17.4	17.4	mg/kg	10.05.18 14.34	U	1
Diesel Range Organics (DRO)	C10C28DRO	<17.4	17.4	mg/kg	10.05.18 14.34	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<17.4	17.4	mg/kg	10.05.18 14.34	U	1
Total TPH	PHC635	<17.4	17.4	mg/kg	10.05.18 14.34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	10.05.18 14.34	
o-Terphenyl	84-15-1	93	%	70-135	10.05.18 14.34	



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-3-S-4-5-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-007

Date Collected: 09.28.18 12.45

Sample Depth: 4 - 5

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture: 14.09

Analyst: ALJ

Date Prep: 10.09.18 17.00

Basis: Dry Weight

Seq Number: 3066220

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00231	0.00231	mg/kg	10.12.18 04.40	U	1
Toluene	108-88-3	<0.00231	0.00231	mg/kg	10.12.18 04.40	U	1
Ethylbenzene	100-41-4	<0.00231	0.00231	mg/kg	10.12.18 04.40	U	1
m,p-Xylenes	179601-23-1	<0.00463	0.00463	mg/kg	10.12.18 04.40	U	1
o-Xylene	95-47-6	<0.00231	0.00231	mg/kg	10.12.18 04.40	U	1
Total Xylenes	1330-20-7	<0.00231	0.00231	mg/kg	10.12.18 04.40	U	1
Total BTEX		<0.00231	0.00231	mg/kg	10.12.18 04.40	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	93	%	70-130	10.12.18 04.40		
1,4-Difluorobenzene	540-36-3	109	%	70-130	10.12.18 04.40		



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-3-S-24-25-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-008

Date Collected: 09.28.18 14.00

Sample Depth: 24 - 25

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture: 8.87

Analyst: SCM

Date Prep: 10.05.18 08.30

Basis: Dry Weight

Seq Number: 3065622

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	37.8	5.54	mg/kg	10.05.18 11.33		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture: 8.87

Analyst: ARM

Date Prep: 10.05.18 11.00

Basis: Dry Weight

Seq Number: 3065664

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<16.4	16.4	mg/kg	10.05.18 14.54	U	1
Diesel Range Organics (DRO)	C10C28DRO	<16.4	16.4	mg/kg	10.05.18 14.54	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<16.4	16.4	mg/kg	10.05.18 14.54	U	1
Total TPH	PHC635	<16.4	16.4	mg/kg	10.05.18 14.54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	10.05.18 14.54	
o-Terphenyl	84-15-1	96	%	70-135	10.05.18 14.54	



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-3-S-24-25-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-008

Date Collected: 09.28.18 14.00

Sample Depth: 24 - 25

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture: 8.87

Analyst: ALJ

Date Prep: 10.09.18 17.00

Basis: Dry Weight

Seq Number: 3066220

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00217	0.00217	mg/kg	10.12.18 05.02	U	1
Toluene	108-88-3	<0.00217	0.00217	mg/kg	10.12.18 05.02	U	1
Ethylbenzene	100-41-4	<0.00217	0.00217	mg/kg	10.12.18 05.02	U	1
m,p-Xylenes	179601-23-1	<0.00435	0.00435	mg/kg	10.12.18 05.02	U	1
o-Xylene	95-47-6	<0.00217	0.00217	mg/kg	10.12.18 05.02	U	1
Total Xylenes	1330-20-7	<0.00217	0.00217	mg/kg	10.12.18 05.02	U	1
Total BTEX		<0.00217	0.00217	mg/kg	10.12.18 05.02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	70-130	10.12.18 05.02		
1,4-Difluorobenzene	540-36-3	108	%	70-130	10.12.18 05.02		



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-4-S-4-5-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-009

Date Collected: 09.28.18 15.10

Sample Depth: 4 - 5

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture: 7.77

Analyst: SCM

Date Prep: 10.05.18 08.30

Basis: Dry Weight

Seq Number: 3065622

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.46	5.46	mg/kg	10.05.18 11.39	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture: 7.77

Analyst: ARM

Date Prep: 10.05.18 11.00

Basis: Dry Weight

Seq Number: 3065664

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<16.2	16.2	mg/kg	10.05.18 15.14	U	1
Diesel Range Organics (DRO)	C10C28DRO	<16.2	16.2	mg/kg	10.05.18 15.14	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<16.2	16.2	mg/kg	10.05.18 15.14	U	1
Total TPH	PHC635	<16.2	16.2	mg/kg	10.05.18 15.14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	10.05.18 15.14	
o-Terphenyl	84-15-1	94	%	70-135	10.05.18 15.14	



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-4-S-4-5-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-009

Date Collected: 09.28.18 15.10

Sample Depth: 4 - 5

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture: 7.77

Analyst: ALJ

Date Prep: 10.09.18 17.00

Basis: Dry Weight

Seq Number: 3066220

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00219	0.00219	mg/kg	10.12.18 05.23	U	1
Toluene	108-88-3	<0.00219	0.00219	mg/kg	10.12.18 05.23	U	1
Ethylbenzene	100-41-4	<0.00219	0.00219	mg/kg	10.12.18 05.23	U	1
m,p-Xylenes	179601-23-1	<0.00437	0.00437	mg/kg	10.12.18 05.23	U	1
o-Xylene	95-47-6	<0.00219	0.00219	mg/kg	10.12.18 05.23	U	1
Total Xylenes	1330-20-7	<0.00219	0.00219	mg/kg	10.12.18 05.23	U	1
Total BTEX		<0.00219	0.00219	mg/kg	10.12.18 05.23	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	105	%	70-130	10.12.18 05.23		
1,4-Difluorobenzene	540-36-3	104	%	70-130	10.12.18 05.23		



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-4-S-24-25-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-010

Date Collected: 09.28.18 16.20

Sample Depth: 24 - 25

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture: 11.21

Analyst: SCM

Date Prep: 10.05.18 08.30

Basis: Dry Weight

Seq Number: 3065622

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	513	5.59	mg/kg	10.05.18 11.45		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture: 11.21

Analyst: ARM

Date Prep: 10.05.18 11.00

Basis: Dry Weight

Seq Number: 3065664

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<16.9	16.9	mg/kg	10.05.18 15.33	U	1
Diesel Range Organics (DRO)	C10C28DRO	<16.9	16.9	mg/kg	10.05.18 15.33	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<16.9	16.9	mg/kg	10.05.18 15.33	U	1
Total TPH	PHC635	<16.9	16.9	mg/kg	10.05.18 15.33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	10.05.18 15.33	
o-Terphenyl	84-15-1	96	%	70-135	10.05.18 15.33	



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-4-S-24-25-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-010

Date Collected: 09.28.18 16.20

Sample Depth: 24 - 25

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture: 11.21

Analyst: ALJ

Date Prep: 10.09.18 17.00

Basis: Dry Weight

Seq Number: 3066220

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00226	0.00226	mg/kg	10.12.18 06.26	U	1
Toluene	108-88-3	<0.00226	0.00226	mg/kg	10.12.18 06.26	U	1
Ethylbenzene	100-41-4	<0.00226	0.00226	mg/kg	10.12.18 06.26	U	1
m,p-Xylenes	179601-23-1	<0.00452	0.00452	mg/kg	10.12.18 06.26	U	1
o-Xylene	95-47-6	<0.00226	0.00226	mg/kg	10.12.18 06.26	U	1
Total Xylenes	1330-20-7	<0.00226	0.00226	mg/kg	10.12.18 06.26	U	1
Total BTEX		<0.00226	0.00226	mg/kg	10.12.18 06.26	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	70-130	10.12.18 06.26		
1,4-Difluorobenzene	540-36-3	109	%	70-130	10.12.18 06.26		



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-4-S-34-35-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-011

Date Collected: 09.28.18 17.00

Sample Depth: 34 - 35

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture: 15.29

Analyst: SCM

Date Prep: 10.05.18 08.30

Basis: Dry Weight

Seq Number: 3065622

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	262	5.89	mg/kg	10.05.18 11.50		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture: 15.29

Analyst: ARM

Date Prep: 10.05.18 11.00

Basis: Dry Weight

Seq Number: 3065664

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<17.7	17.7	mg/kg	10.05.18 16.32	U	1
Diesel Range Organics (DRO)	C10C28DRO	<17.7	17.7	mg/kg	10.05.18 16.32	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<17.7	17.7	mg/kg	10.05.18 16.32	U	1
Total TPH	PHC635	<17.7	17.7	mg/kg	10.05.18 16.32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	10.05.18 16.32	
o-Terphenyl	84-15-1	92	%	70-135	10.05.18 16.32	



Certificate of Analytical Results 601287



GHD Services, INC- Midland, Midland, TX

WTX EMSU Battery Release Site

Sample Id: **SB-4-S-34-35-180928**

Matrix: Soil

Date Received: 10.03.18 16.48

Lab Sample Id: 601287-011

Date Collected: 09.28.18 17.00

Sample Depth: 34 - 35

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture: 15.29

Analyst: ALJ

Date Prep: 10.09.18 17.00

Basis: Dry Weight

Seq Number: 3066220

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00236	0.00236	mg/kg	10.12.18 06.47	U	1
Toluene	108-88-3	<0.00236	0.00236	mg/kg	10.12.18 06.47	U	1
Ethylbenzene	100-41-4	<0.00236	0.00236	mg/kg	10.12.18 06.47	U	1
m,p-Xylenes	179601-23-1	<0.00471	0.00471	mg/kg	10.12.18 06.47	U	1
o-Xylene	95-47-6	<0.00236	0.00236	mg/kg	10.12.18 06.47	U	1
Total Xylenes	1330-20-7	<0.00236	0.00236	mg/kg	10.12.18 06.47	U	1
Total BTEX		<0.00236	0.00236	mg/kg	10.12.18 06.47	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	70-130	10.12.18 06.47		
1,4-Difluorobenzene	540-36-3	103	%	70-130	10.12.18 06.47		

- 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



QC Summary 601287

GHD Services, INC- Midland WTX EMSU Battery Release Site

Analytical Method: Chloride by EPA 300

Seq Number: 3065622

MB Sample Id: 7663581-1-BLK

Matrix: Solid

LCS Sample Id: 7663581-1-BKS

Prep Method: E300P

Date Prep: 10.05.18

LCSD Sample Id: 7663581-1-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	252	101	252	101	90-110	0	20	mg/kg	10.05.18 09:12	

Analytical Method: Chloride by EPA 300

Seq Number: 3065622

Parent Sample Id: 601287-001

Matrix: Soil

MS Sample Id: 601287-001 S

Prep Method: E300P

Date Prep: 10.05.18

MSD Sample Id: 601287-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.896	261	263	101	265	102	90-110	1	20	mg/kg	10.05.18 09:29	

Analytical Method: Chloride by EPA 300

Seq Number: 3065622

Parent Sample Id: 601287-003

Matrix: Soil

MS Sample Id: 601287-003 S

Prep Method: E300P

Date Prep: 10.05.18

MSD Sample Id: 601287-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	77.9	300	394	105	394	105	90-110	0	20	mg/kg	10.05.18 10:48	

Analytical Method: Percent Moisture

Seq Number: 3065426

Matrix: Solid

MB Sample Id: 3065426-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Percent Moisture	<	%	10.04.18 11:00	

Analytical Method: Percent Moisture

Seq Number: 3065426

Matrix: Soil

Parent Sample Id: 601287-011

MD Sample Id: 601287-011 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	15.3	15.5	1	20	%	10.04.18 11:00	

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



QC Summary 601287

GHD Services, INC- Midland WTX EMSU Battery Release Site

Analytical Method: Percent Moisture

Seq Number: 3065426

Parent Sample Id: 601298-001

Matrix: Soil

MD Sample Id: 601298-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Percent Moisture	4.49	4.37	3	20	%	10.04.18 11:00	

Analytical Method: TPH By SW8015 Mod

Seq Number: 3065664

MB Sample Id: 7663662-1-BLK

Matrix: Solid

LCS Sample Id: 7663662-1-BKS

Prep Method: TX1005P

Date Prep: 10.05.18

LCSD Sample Id: 7663662-1-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)	<8.00	1000	994	99	938	94	70-135	6	20	mg/kg	10.05.18 11:21	
Diesel Range Organics (DRO)	<8.13	1000	1070	107	1000	100	70-135	7	20	mg/kg	10.05.18 11:21	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	97		125		111		70-135	%	10.05.18 11:21
o-Terphenyl	103		110		101		70-135	%	10.05.18 11:21

Analytical Method: TPH By SW8015 Mod

Seq Number: 3065664

Parent Sample Id: 601287-001

Matrix: Soil

MS Sample Id: 601287-001 S

Prep Method: TX1005P

Date Prep: 10.05.18

MSD Sample Id: 601287-001 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)	<8.39	1050	937	89	926	88	70-135	1	20	mg/kg	10.05.18 12:19	
Diesel Range Organics (DRO)	<8.53	1050	1050	100	1060	101	70-135	1	20	mg/kg	10.05.18 12:19	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	115		108		70-135	%	10.05.18 12:19
o-Terphenyl	103		100		70-135	%	10.05.18 12:19

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

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

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



QC Summary 601287

GHD Services, INC- Midland WTX EMSU Battery Release Site

Analytical Method: BTEX by EPA 8021B

Seq Number: 3066220

MB Sample Id: 7664062-1-BLK

Matrix: Solid

LCS Sample Id: 7664062-1-BKS

Prep Method: SW5030B

Date Prep: 10.09.18

LCSD Sample Id: 7664062-1-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	0.0998	0.0905	91	0.0838	84	70-130	8	35	mg/kg	10.12.18 00:00	
Toluene	<0.00200	0.0998	0.0824	83	0.0847	85	70-130	3	35	mg/kg	10.12.18 00:00	
Ethylbenzene	<0.00200	0.0998	0.0991	99	0.0993	99	70-130	0	35	mg/kg	10.12.18 00:00	
m,p-Xylenes	<0.00399	0.200	0.193	97	0.220	109	70-130	13	35	mg/kg	10.12.18 00:00	
o-Xylene	<0.00200	0.0998	0.0931	93	0.113	113	70-130	19	35	mg/kg	10.12.18 00:00	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	111		103		100		70-130	%	10.12.18 00:00
4-Bromofluorobenzene	94		111		88		70-130	%	10.12.18 00:00

Analytical Method: BTEX by EPA 8021B

Seq Number: 3066220

Parent Sample Id: 601475-011

Matrix: Soil

MS Sample Id: 601475-011 S

Prep Method: SW5030B

Date Prep: 10.09.18

MSD Sample Id: 601475-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0741	74	0.0694	69	70-130	7	35	mg/kg	10.12.18 00:43	X
Toluene	<0.00200	0.100	0.0650	65	0.0601	60	70-130	8	35	mg/kg	10.12.18 00:43	X
Ethylbenzene	<0.00200	0.100	0.0762	76	0.0644	64	70-130	17	35	mg/kg	10.12.18 00:43	X
m,p-Xylenes	<0.00400	0.200	0.145	73	0.128	63	70-130	12	35	mg/kg	10.12.18 00:43	X
o-Xylene	<0.00200	0.100	0.0764	76	0.0670	66	70-130	13	35	mg/kg	10.12.18 00:43	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	112		120		70-130	%	10.12.18 00:43
4-Bromofluorobenzene	108		111		70-130	%	10.12.18 00:43

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



Work Order No: 601287

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Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)

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Page 1 of 1

Project Manager:	Scott Foord	Bill to: (if different)	
Company Name:	GHD	Company Name:	
Address:	2135 S. Loop 250 West	Address:	
City, State ZIP:	Midland, TX. 79703	City, State ZIP:	
Phone:	713-724-3967	Email:	Scott.Foord@ghd.com & Christopher.Knight@ghd.com

Work Order Comments		
Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐ State of Project:		
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐		
Deliverables: EDD ☐ ADaPT ☐ Other:		

Project Name:	WTX to EMSU Battery Release Site	Turn Around	ANALYSIS REQUEST													Work Order Notes
Project Number:	11182283-2018-001	Routine ☒														
P.O. Number:		Rush:														
Sampler's Name:		Due Date:														

SAMPLE RECEIPT	Temp Blank:	Yes	No	Wet Ice:	Yes	No
Temperature (°C):	-3			Thermometer/D		
Received Intact:	Yes	No				
Cooler Custody Seals:	Yes	No	N/A	Correction Factor:	0 - 0	
Sample Custody Seals:	Yes	No	N/A	Total Containers:		

[illegible]

Total 200.7 / 6010	200.8 / 6020:	8RCRA 13PPM Texas 11	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	SiO2	Na	Sr	Ti	Sn	U	V	Zn	
<i>Circle Method(s) and Metal(s) to be analyzed</i>		TCLP / SPLP 6010:	8RCRA	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Ti	U											1631 / 245.1 / 7470 / 7471 :	Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)		Received by: (Signature)		Date/Time	Relinquished by: (Signature)		Received by: (Signature)		Date/Time
1				6/3/1078	2				
3					4				
5					6				

Final 1.000

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XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: GHD Services, INC- Midland

Date/ Time Received: 10/03/2018 04:48:00 PM

Work Order #: 601287

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)?	5.3
#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:

Katie Lowe

Date: 10/04/2018

Checklist reviewed by:

Debbie Simmons

Date: 10/04/2018

Appendix D

Supplemental Assessment Work Plan



November 1, 2018

Reference No. 11182283

Ms. Olivia Yu
Environmental Specialist
New Mexico Oil Conservation Division – District 1
1625 N. French Drive
Hobbs, New Mexico 88240

Dear Ms. Yu:

**Re: Supplemental Assessment Work Plan
WTX to EMSU Battery to Byrd Pump Crude Oil Release (1RP-5154)
Lea County, New Mexico**

1. Project Information

The Site is located in Unit P, Section 11, Township 20, Range 36, approximately 3.2 miles southwest of Monument in eastern Lea County, New Mexico. The coordinates of the release location are Latitude 32.583989 and Longitude -103.317743. According to the New Mexico Oil Conservation Division (NMOCD) Release Notification and Corrective Action Form C-141 submitted to the agency by Holly Energy Partners (HEP), the release occurred on July 11, 2018 and was reported to Ms. Olivia Yu, Hobbs District 1 NMOCD office on August 10, 2018.

HEP began excavation activities inclusive of an exploratory trench along the pipeline to a depth of approximately three feet below ground surface (bgs) on July 11 and 17, 2018, and an exploratory deeper excavation south of the pipeline on July 23, 2018 and continued on August 6, 2018 to try and determine the vertical extent of soil impact (see Figure 1). Excavation activities were halted on August 6, 2018 because it was found that the affected area was larger and impact to soil was deeper (17 feet below ground surface (bgs)) than originally anticipated. The excavated material was used to backfill the exploratory excavation areas.

Subsurface investigation activities were completed in accordance with the revised and reissued Guidelines for Remediation of Leaks, Spills, and Releases Rule 19.15.29 New Mexico Administrative Code (NMAC) from the NMOCD issued on August 14, 2018. The following criteria from Table 1 (below) within NMAC 19.15.29.12 was utilized to determine site-specific screening limits:

Minimum depth below any point within the horizontal boundary of the release to ground water less than 10,000 mg/l TDS	Constituent	Limit*
≤ 50 feet	Chloride**	600 mg/kg
	TPH (GRO+DRO+MRO)	100 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

* Numerical limits or natural background level, whichever is greater.



** This applies to release of produced water or other fluids which may contain chloride.

Information available from various sources including the Petroleum Recovery Research Center (PRRC) Mapping Portal, currently managed groundwater site(s) data by GHD, and the United States Geological Survey (USGS) Current Water Database for the Nation, concludes:

1. the depth to groundwater at the Site is less than 50-feet bgs;
2. the site is not within 300 feet of any continuously flowing watercourse;
3. the site is not within 200 feet of any lakebed, sinkhole or playa lake;
4. the site is not within 300 feet of an occupied permanent residence, school, etc.;
5. the site is not within 500 feet of a spring or private, domestic fresh water well;
6. the site is not within 1,000 feet of any fresh water well or spring;
7. the site is not within incorporated municipal boundaries or within a defined municipal fresh water well field;
8. the site is not within 300 feet of a wetland;
9. the site is not within an area overlying a subsurface mine;
10. the site is not within an unstable area; and
11. the site is not within a 100-year floodplain.

Consequently, the anticipated site-specific screening limits based on currently available data to be applied to this location by the NMOCD based on the revised Rule are 10 mg/kg for benzene, 50 mg/kg for total benzene, toluene, ethylbenzene, and total xylenes (BTEX), 100 mg/kg for total petroleum hydrocarbon (TPH), and 600 mg/kg for chloride.

Additionally, per NMAC19.15.29.13 (Restoration, Reclamation, and Re-vegetation), the impacted area must be remediated a minimum of 4-feet bgs with non-waste containing, uncontaminated, earthen material with chloride concentrations less than 600 mg/kg. Soil cover must consist of topsoil at a thickness comparable to background topsoil thicknesses, or one foot of suitable earthen material capable of establishing and maintaining vegetation at the site. Reclamation is considered complete when all disturbed areas have established vegetative cover with a life-form ratio of plus or minus 50 percent of pre-remedial levels, and plant cover of a minimum of 70 percent of previous levels, excluding noxious weeds.

Four (4) soil borings (SB-1 through SB-4) were advanced at the Site in September 2018 to assess hydrocarbon and chloride concentrations in soil near the release point. Soil analytical results for benzene and total BTEX in all borings were below the NMOCD screening criteria (10 and 50 mg/kg, respectively). TPH was detected above the NMOCD screening criteria for total TPH (100 mg/kg) within SB-1 at a depth of 34-35 feet bgs (1,240 mg/kg), but not in the two shallower soil samples collected from SB-1. Chloride was reported at a concentration of 625 mg/kg within SB-1 at a depth of 20-21 feet bgs. This concentration slightly exceeds the NMOCD screening criteria of 600 mg/kg for chloride. All other samples were below the NMOCD screening criteria for their respective constituents.



Analytical results associated with assessment activities conducted in September 2018 indicate the horizontal and vertical extents of the TPH and chloride impact in soil have not been fully delineated. Additionally, there is a potential for impact to groundwater at the Site.

2. Scope of Work

Recommended supplemental assessment activities are detailed below.

2.1 Soil Boring and Monitoring Well Installation Activities

GHD is proposing the installation of three soil borings that will be completed as 4-inch diameter monitoring wells (MW-1 through MW-3) to further screen soil and groundwater for BTEX, TPH, and chloride impact, and three additional soil borings (SB-2 through SB-4) to further delineate TPH and chloride impact detected in soil samples collected from former soil boring SB-1. One additional 4-inch diameter monitoring well (MW-4) will be installed north (assumed upgradient) of SB-1 to assess background/upgradient groundwater conditions at the Site. One soil boring/monitoring well will be installed in the previously excavated area to further assess soil and groundwater conditions in that location. GHD will prepare a permit application and associated fees for the required New Mexico Office of the State Engineer (NMOSE) monitoring well permits. Proposed soil boring and monitoring well locations are depicted on Figure 1.

Prior to mobilizing drilling equipment to the Site, a utility notification will be made at least 48-hours prior to mobilization. The monitoring well locations will be cleared to 5-feet bgs or refusal with a hand auger prior to drilling activities. Each monitoring well and soil boring will be drilled with an air rotary drill rig. The rig will be operated by a New Mexico licensed water well driller.

The three soil borings will be installed to approximately 35 feet bgs (just above the groundwater table). The four monitoring wells will be installed extending approximately 10 feet into the groundwater table (estimated at approximately 35 feet bgs). The total depth of the monitoring wells are estimated at approximately 45 feet bgs. A GHD geologist will record the subsurface lithology and any sample data on the well construction diagram/soil boring logs. Soil samples will be collected at 5-foot intervals with a split spoon sampler. Soil samples will be field screened for chloride concentrations using Hach Chloride Titration strips and evaluated by the field geologist during the sampling event. Soils will also be field screened for organic vapors using a calibrated photoionization detector (PID).

Selected soil samples will be submitted for analysis of BTEX by EPA Method SW 8021B, chlorides by EPA Method 300, and TPH by EPA Method SW8015 Modified. The nature of any sampling of soils will be based on results of the chloride and PID field screening and the professional judgment of the GHD geologist with the intent to establish the depth at which soil concentrations are below the Site screening criteria. Soil sampling will be completed in accordance with our standard Quality Assurance/ Quality Control (QA/QC) procedures designed to minimize cross-contamination between samples and to provide reliable laboratory results. The total depth and construction of the wells and nature of any soil sampling will be based on the professional judgment of the GHD geologist. Soil samples will not be collected from the upgradient monitoring well borehole.

The newly installed monitoring wells will be surveyed by a State licensed surveyor. The ground surface elevation of each soil boring, including the top of casing and top of pad elevations from the monitoring wells, will be determined to the nearest hundredth of a foot.



2.2 2018 Groundwater Monitoring Activities

The newly installed monitoring wells will be sampled following installation and development. Prior to purging and sampling, static fluid levels will be measured with an electric interface probe to the nearest hundredth of a foot. After recording fluid levels, monitoring wells will be profiled using a conductivity meter. Subsequent to well gauging, the monitoring wells will be purged using EPA-approved low-flow methodology.

Groundwater samples will be placed on ice in insulated coolers and chilled to a temperature of approximately 4°C (40°F). The coolers will then be sealed for shipment and proper chain-of-custody documentation will accompany the samples for analysis of BTEX by EPA Method 8021B, TPH diesel range organics (DRO)/gasoline range organics (GRO)/motor oil range organics (MRO) by Method SW8015B, chlorides by EPA Method 300, and total dissolved solids (TDS) by Method SM2540C.

2.3 Reporting

Following completion of the field activities detailed above, a report summarizing the results of the assessment will be prepared for submittal. The report will include a Site description, project history, description of field events, a discussion of results, and recommendations (if any). Groundwater gauging data will be tabulated and a gradient map will be prepared and included in this report. Soil and groundwater analytical results collected will be tabulated in data tables and presented graphically using concentration maps. Soil boring logs and monitoring well construction logs will also be included.

If you have any questions, please contact us at 713-734-3090.

Sincerely,

GHD

Scott Foord, P.G.
Project Manager

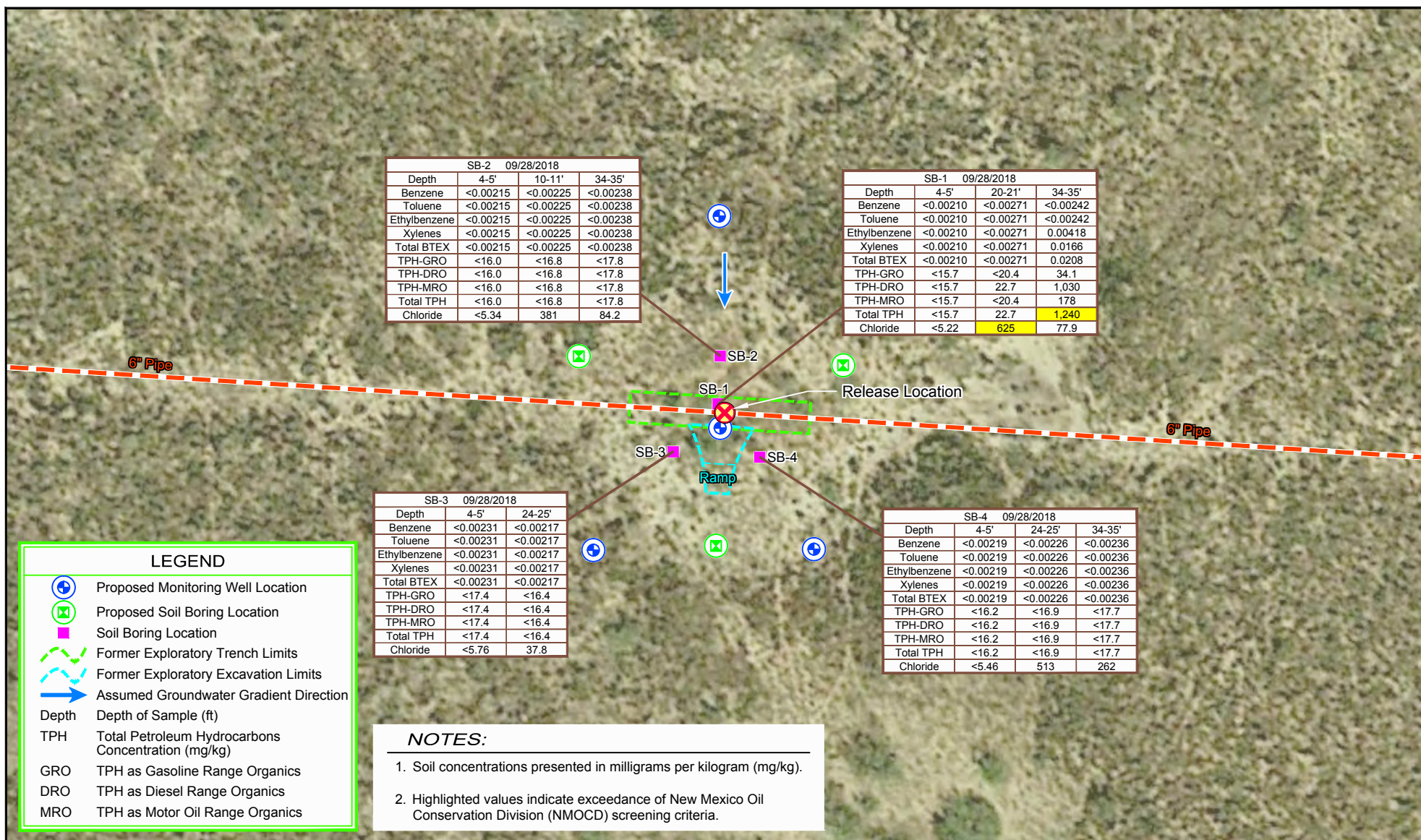
James Harden, P.G.
Senior Project Manager

SF/mss/1

Encl.

Attachment: Figure 1 – Proposed Soil Boring and Monitoring Well Locations

Figure



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

Lat/Long: 32.583989° North, 103.317743° West

0 20 40ft
Approximate Scale



HOLLY ENERGY PARTNERS
MONUMENT, LEA COUNTY, NEW MEXICO
WTX TO EMSU BATTERY RELEASE SITE
PROPOSED SOIL BORING AND
MONITORING WELL LOCATION MAP

11182283-01
Oct 31, 2018

FIGURE 1



about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

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