



April 11, 2017

Reference No. 11135241

Dean Ericson
ETC Field Services LLC
600 N. Marienfeld
Suite 700
Midland, TX 79701

INFORMATION ONLY

Dear Mr. Ericson:

**Re: 0-6-1 Four Inch Line Release
Work Plan to Perform Site Assessment
1RP-4643
S20, T20S, R 37E
Lea County, New Mexico**

GHD Services Inc. (GHD) appreciates the opportunity to submit this proposed work plan to ETC Field Services LLC (ETC) for the assessment of the 0-6-1 Four Inch Pipeline release. The release location (Site) is located approximately 4.6 miles south of Monument, New Mexico in Section 20, Township 20 south, Range 37 east in Lea County, New Mexico. The site is regulated by the New Mexico Oil Conservation Division (NMOCD). Based on the New Mexico State Land Office (NMSLO) website, the surface is by the State of New Mexico. If this is the case, then approval for remediation will need to be obtained from the NMSLO.

A site visit was performed by Mr. Bernard Bockisch with GHD on March 8, 2017. At the time of the site visit, the release area had been excavated and repaired with a patch. A second excavation had been advanced to a depth of approximately 15 ft bgs at a location approximately 30 feet east of the release area. Information provided by ETC personnel during the site visit is as follows:

- The area had been wet for approximately 6 months.
- Approximately 50 barrels (bbls) of fluid had been removed.
- The release occurred from the failure of a previous pipeline patch.
- Soils appeared to be poorly graded sands with very little secondary cementation (caliche) observed within the upper 15 feet of the soil column.

Based on the most current USGS data, the depth to groundwater in a well located approximately 0.22 miles south of the site is 25 feet (ft) below ground surface (bgs). While reviewing aerial photographs, it appears that there may have been a historical release located to the northeast of the Site.

1. Scope of Work

Based on the currently provided site data, the vertical and horizontal extent of the release area needs to be further assessed. Due to the shallow depth to groundwater (approximately 25 ft bgs), length of time the



release had occurred (approximately 6 months) and soil type (poorly graded sands), there is the potential for an impact to groundwater. GHD proposes to advance soil borings at the site to assess the vertical and horizontal extent of contamination in the soil. During the assessment, a monitor well would be installed if field screening data indicated that an impact to the groundwater was probable.

1.1 Project Preparation

This task includes preparing this proposal and other project preparation activities that occur after approval, but before fieldwork mobilization.

- Submission of this work plan (without the costs) to the NMOCD (and NMSLO, if necessary) for their approval.
- Preparation of a project health and safety plan.
- Coordinate with ETC to have underground utilities marked.
- Coordinate with ETC to obtain access from the property owner, if necessary.
- Obtain a water easement from the NMSLO.

1.2 Site Visit

A GHD Senior Project Manager performed a site visit to assess site conditions and propose a cost effective path forward for the project. The site visit was performed on March 8, 2017 and included a meeting with the NMOCD District 1 regulator, Ms. Olivia Yu. Ms. Yu verbally agreed to this proposed scope of work.

1.3 Proposed Soil Boring and Monitoring Well Drilling Program

GHD proposes to advance up to five investigational soil borings and install up to one, 2-inch diameter groundwater monitoring wells. The monitoring well will only be installed in the event that field data indicates that there is the potential for an impact to groundwater. The location of the proposed borings and monitoring well will be determined in the field based on site conditions. Prior to mobilizing any drilling equipment, a New Mexico 811 utility locate will be completed.

Drilling will be performed by EnviroDrill, Inc. (EDI) of Albuquerque, New Mexico. Proposed soil borings will be advanced to an approximate depth of 25 ft bgs. Drilling will be performed using a hollow stem auger drill rig. During drilling, discrete soil samples will be collected in 5-foot intervals using a clean 18-in. long split spoon. Soil samples will be field screened using the Petroflag TPH Analyzer System, heated headspace using a calibrated photoionization detector, and for chlorides using HACH Titration Strips.

Two soil samples, the sample exhibiting the highest hydrocarbon concentrations and the sample above the water table will be submitted for the following laboratory analyses:

- Benzene, toluene, ethylbenzene and xylene (BTEX) by EPA Method 8021.



- Gasoline, diesel, and motor oil range (GRO/DRO/MRO) total petroleum hydrocarbons (TPH) by EPA Method 8015.

All of the soil samples will be analyzed for chlorides by EPA Method 300. Soil samples will be placed in appropriate laboratory supplied containers and preserved on ice in insulated coolers. Soil samples will be submitted to Cardinal Laboratories in Hobbs, New Mexico under chain of custody documentation.

Soil cuttings generated during the drilling activities will be placed in the on-site stock pile or on plastic for future disposal based on the laboratory results.

1.3.1 Monitoring Well Construction

If field screening indicates that a groundwater sample is necessary, a monitoring well will be drilled and installed by EnviroDrill, Inc, a New Mexico-licensed water well driller. Drilling will be performed using hollow stem auger methods. Prior to the installation of the groundwater monitoring well, the appropriate permit will be obtained from the New Mexico Office of the State Engineer (NMOSE).

The monitor well will be constructed of 2-inch (in.) diameter, flush-threaded, Schedule 40 PVC casing. The well will be constructed with 0.020-in. machine slot well screen. The well screen will be placed from the bottom of boring, extending to approximately 10 ft below ground surface. The remainder of the well will be completed with 2-in. diameter blank casing. The well screen placed within the vadose zone may be used at a future date to assist with using soil vapor extraction as a remedial method. The total depth of the monitoring well is estimated at approximately 35 ft bgs.

The borehole annulus will be backfilled with a 10/20 sand filter pack to approximately 2 ft above the top of the screen interval. An approximately 2 ft thick bentonite seal will be placed on top of the sand. The remainder of the well annulus will be grouted to ground surface with a 95 percent Portland cement and 5 percent bentonite powder grout. Each well will be completed with a stick-up lockable well vault. The well vaults will be placed within a minimum 24-in. by 24-in. by 4-in. thick concrete pad. A lock will be provided for each well vault and kept locked.

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

1.3.2 Monitoring Well Development

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



1.4 Initial Groundwater Monitoring

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

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

1.5 Subsurface Assessment Report Preparation

Upon receipt of the soil and groundwater laboratory analytical data, GHD will prepare an assessment report. The report will include a summary of the fieldwork performed, site drawing showing sampling locations, photographs, and the laboratory analysis reports. The report will also include recommendations for any future field efforts. The report will be submitted to the NMOCD and NMSLO on behalf of ETC.

2. Schedule

GHD will schedule the field work for this project upon receipt of approval from the NMOCD and applicable permits from the NMSLO and NMOSE. Please feel free to contact either of us at 505-884-0672 if you have questions or comments.

Sincerely,

GHD

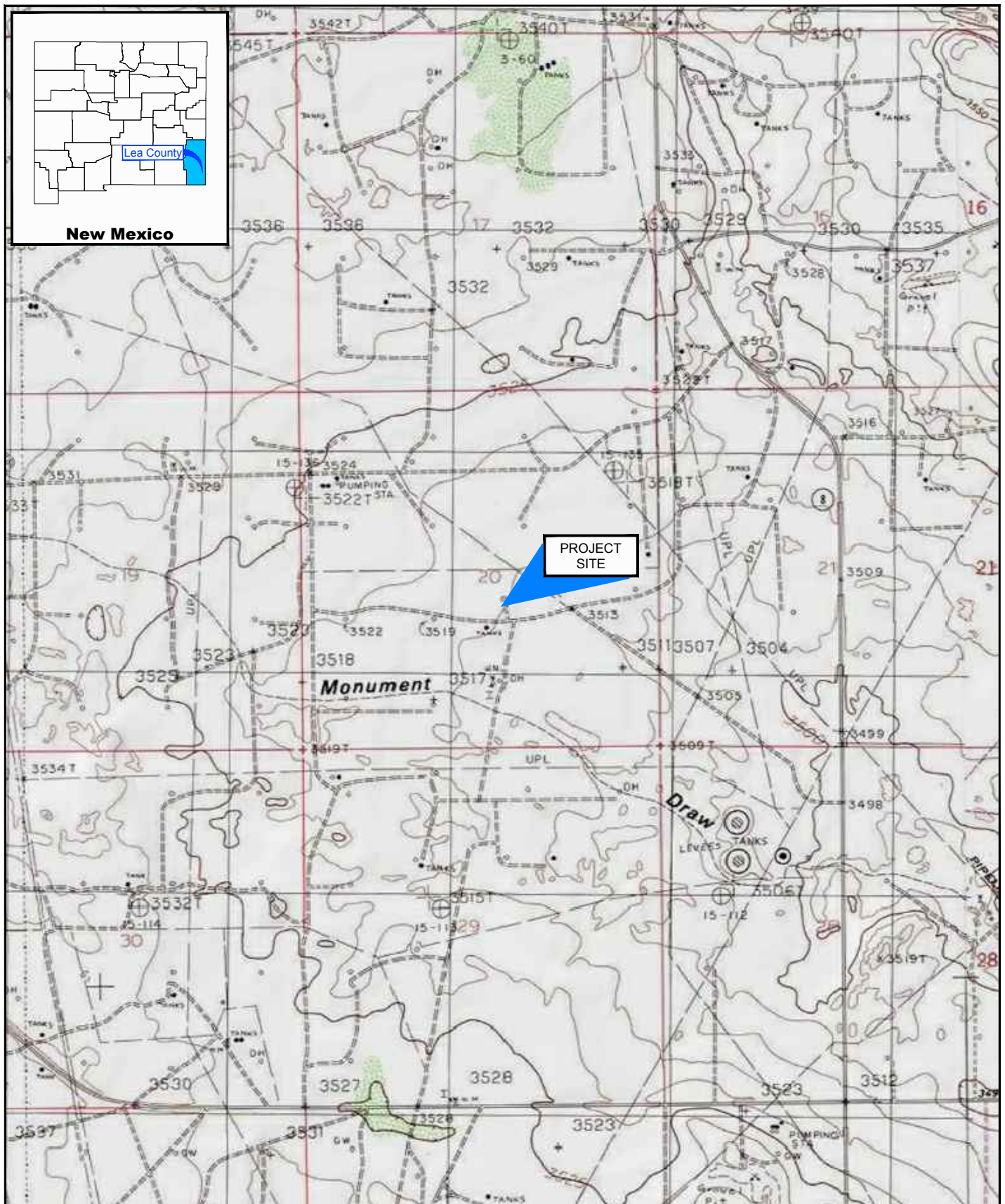
A handwritten signature in blue ink that reads "Alan Brandon".

Alan Brandon
Senior Project Manager

AB/mc/1

A handwritten signature in blue ink that reads "Bernard Bockisch".

Bernard Bockisch
New Mexico Operations Manager



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

Lat/Long: 32.557054° North, 103.27255° West

0 1000 2000ft

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



ETC FIELD SERVICES LLC
LEA COUNTY, NEW MEXICO
0-6-1 4" LINE RELEASE

SITE LOCATION MAP

11135241-98

Apr 10, 2017

FIGURE 1