



May 8, 2017

Reference No. 11135250-3

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

Dear Mr. Ericson:

**Re: Remediation Summary Report  
Trunk M (1 RP-4481)  
ETC Field Services LLC  
Site Location: Sec. 1, T 23-S, R 36-E  
(Lat 32.33176N°, Long -103.21104W°)  
Lea County, New Mexico**

**APPROVED**

**By Olivia Yu at 11:47 am, May 31, 2017**

NMOCD approves the delineation workplan and proposed remediation activities for 1RP-4481 with these conditions: 1) documentation of depth to groundwater search and distance to surface waterbodies/sources. 2) Include all field data and documentation of laboratory analyses.

GHD Services, Inc. (GHD) is pleased to present this report for the above referenced site. The Trunk M (hereafter referred to as the "Site") is located within Section 1, Township 23 South, Range 36 East, in Lea County, New Mexico (see Figure 1). The property is privately owned.

On October 25, 2016, a release of approximately 10 barrels (bbls) of natural gas/condensate was reported to the State of New Mexico Oil Conservation Division (NMOCD) via Form C-141. A leaking 20-inch steel pipeline was the cause of the release. Contaminated soils were excavated and stockpiled on site and the excavation backfilled (see Figure 2). NMOCD release number 1RP 4481 was assigned.

## 1. Recommended Remediation Action Limits

Based on information available from the United States Geologic Survey National Water Information System, the depth to groundwater at the Site is approximately 105 feet (ft) below ground surface (bgs). This is based on a water well that is located approximately 0.5 mile northeast of the Site (see Appendix A, Water Well Report for depth to water). Additionally, there are no well head protection areas or surface water bodies within 1,000 ft of the Site. Therefore, the preliminary total ranking score is 0 (see table below).

Based on this score, the applicable NMOCD Site specific Recommended Remediation Action Limits (RRALs) are 10 milligrams per kilogram (mg/kg) for benzene, 50 mg/kg for total benzene, toluene, ethylbenzene, and xylenes (BTEX), 5,000 mg/kg for total petroleum hydrocarbons (TPH), and 500 mg/kg for chlorides.



| New Mexico Oil Conservation Division Site Assessment                                                                                                                                           |           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Ranking Criteria                                                                                                                                                                               | Score     |
| Depth to Ground Water (>100 ft bgs)                                                                                                                                                            | 0         |
| Wellhead Protection Area (> 1000 ft from water source, > 200 ft from domestic source)                                                                                                          | 0         |
| Distance to Surface Body Water (>1000 ft)                                                                                                                                                      | 0         |
| <b>Ranking Criteria Total Score</b>                                                                                                                                                            | <b>0*</b> |
| *Because the ranking criteria total score is 20, NMOCD established RRALs are 10 mg/kg for benzene, 50 mg/kg for total BTEX, 5,000 mg/kg for total TPH and 500 ppm for chlorides <sup>1</sup> . |           |

1. NMOCD Guidelines for Remediation of Leaks, Spills and Releases, August 13, 1993

## 2. Assessment Activities

The impacted area had been initially excavated to a depth of approximately 5 ft bgs and soil samples were collected by ETC Field Services LLC personnel for laboratory analysis. A sample (Btm Hole) was collected from the bottom of the excavation at a depth of approximately 5 ft bgs on October 21, 2016. The sample was submitted to Xenco Laboratories in Midland, Texas for BTEX by EPA Method 8260B, TPH by EPA Method 8015B, and chloride by EPA Method 300. A copy of the laboratory analytical report is attached in Appendix B.

The sample did not contain a benzene concentration above the laboratory reporting limit (LRL) of 0.005 mg/kg. The sample contained a total BTEX concentration of 0.539 mg/kg, a total TPH concentration of 3,787 mg/kg, and a chloride concentration of 1,790 mg/kg (Table 1). The excavation was subsequently backfilled. Impacted soil was disposed of at a regulated facility.

Excavation activities to assess the horizontal and vertical extent of impacted soil occurred on March 30, 2017 by GHD. Field screening of soil for petroleum hydrocarbons and chloride was performed to assess the horizontal and vertical extent of contaminated soil in the release area as indicated by ETC Field Services LLC representative. Field screening of the soil was performed using the PetroFLAG Hydrocarbon Analysis System and HACH chloride field kit. Excavation activities were performed by Diamondback Disposal Services, Inc. of Hobbs, New Mexico and observed by GHD.

Once field screening indicated soil concentrations were near or below the RRAL, soil samples were collected and submitted to Cardinal Laboratories in Hobbs, New Mexico for laboratory analysis. The samples were analyzed for BTEX by EPA Method 8021, TPH by EPA Method 8015 full range, and chlorides by EPA Method 300 (Table 1). Laboratory analytical data can be found in Appendix B.

None of the submitted samples contained concentrations above the laboratory reporting limits for BTEX and TPH. Chloride concentrations ranged from below the laboratory reporting limit to 200 mg/kg. The sample collected from test pit No. 2 at 19 ft bgs (in the area of the original excavation) contained a chloride concentration of 200 mg/kg which is below the RRAL.



### 3. Summary and Recommendations

Confirmatory soil samples were collected from test pits excavated in the release area (see Figure 2) and submitted for laboratory analysis. Based on the laboratory results, the horizontal and vertical extent of impacted soil has been assessed. However, the presence of chloride concentrations observed in the original bottom hole sample (Btm Hole collected on October 21, 2016) indicated the presence of chloride above the RRAL. Based on this, GHD recommends the following:

- Excavating the area indicated on Figure 2 to a depth of four ft bgs. A 20 mil polyethylene liner should be placed at this depth.
- Following placement of the liner, the excavation should be backfilled with clean fill material and wheel compacting to grade. The excavated material will be sampled and if below the site RRALs, will be used as backfill.
- Fertilizing and reseeding of the disturbed area with an appropriate seed.

Following completion of the above activities, a request for no further action will be made for the Site. Should you have any questions, or require additional information regarding this submittal, please feel free to contact myself or Bernie Bockisch at (505) 884-0672 or [Bernard.Bockisch@ghd.com](mailto:Bernard.Bockisch@ghd.com).

Sincerely,

GHD

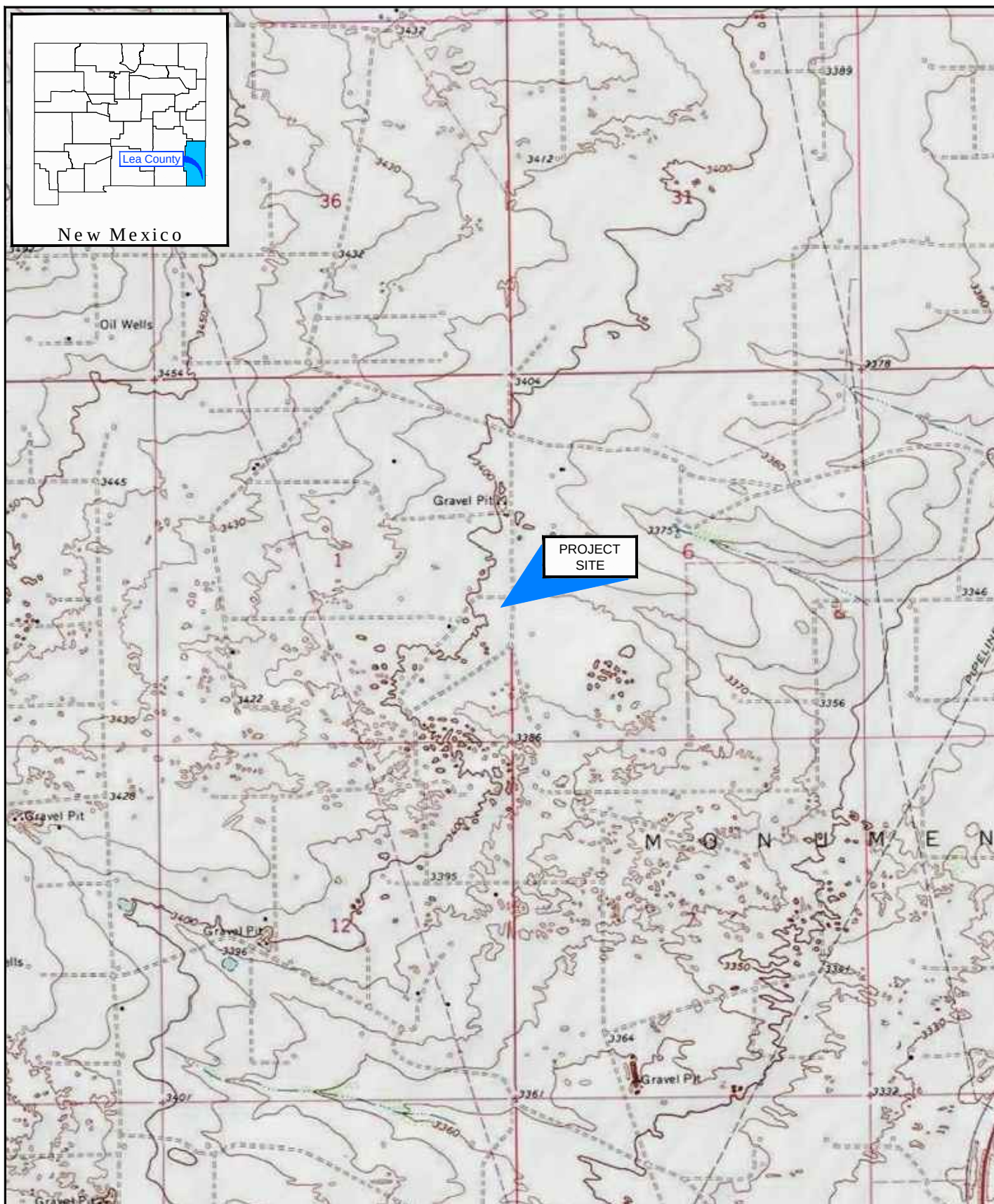
A handwritten signature in black ink that reads "Alan Brandon".

Alan Brandon  
Senior Project Manager

AB/mc/01

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

Bernard Bockisch  
New Mexico Operations Manager

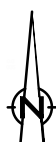


Source: USGS 7.5 Minute Quad "Rattle Snake Canyon and East Lake, New Mexico"

Lat/Long: 32.33176°North, 103.21104°West

0 1000 2000ft

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



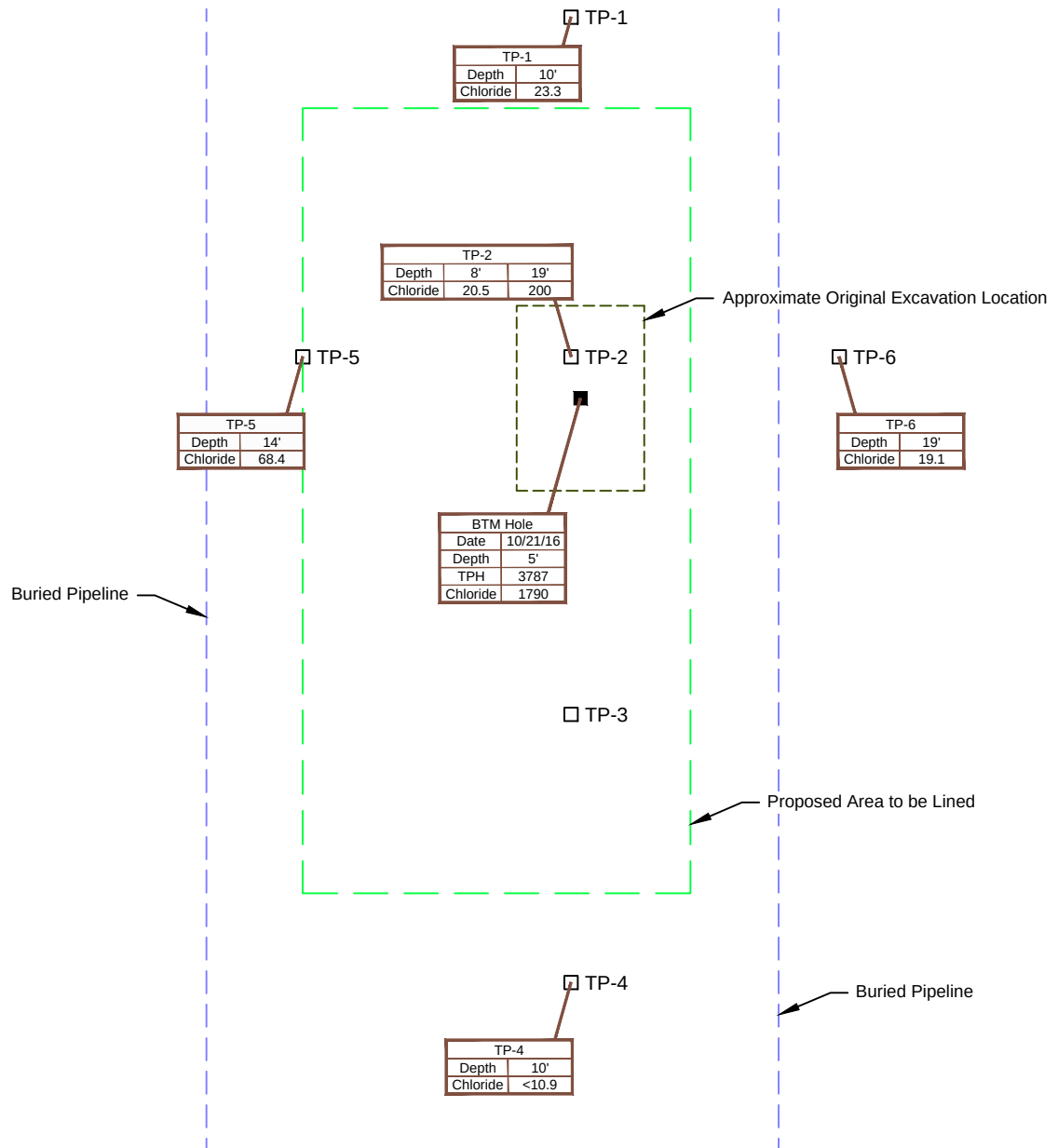
ETC FIELD SERVICES  
LEA COUNTY, NEW MEXICO  
TRUNK M

SITE LOCATION MAP

11135250-03

Apr 5, 2017

FIGURE 1



### LEGEND

- Test Pit Location
- Original Excavation Limits
- Proposed Lined Area
- BTEX Benzene, Toluene, Ethylbenzene and Xylenes Concentration
- TPH Total Petroleum Hydrocarbons Concentration

### NOTES:

1. All site locations are approximate.
2. All BTEX and TPH constituents were below laboratory reporting limit.
3. Sample results are in milligrams per kilogram (mg/kg).

0 5 10ft  
Approximate Scale



ETC FIELD SERVICES  
LEA COUNTY, NEW MEXICO  
TRUNK M

11135250-03  
May 8, 2017

SOIL SAMPLE LOCATION

FIGURE 2

Table 1

ETC Field Services LLC - Trunk-M Pipeline  
Section 1, Township 23 South, Range 36 East  
Lea County, New Mexico  
Soil Analytical Results Summary

| Sample ID                       | Date       | Sample Depth | Chlorides | Benzene | Toluene | Ethylbenzene | Xylenes | Total BTEX | TPH          | TPH           | TPH               | Total TPH |
|---------------------------------|------------|--------------|-----------|---------|---------|--------------|---------|------------|--------------|---------------|-------------------|-----------|
|                                 |            | (ft.)        | (mg/kg)   | (mg/kg) | (mg/kg) | (mg/kg)      | (mg/kg) | (mg/kg)    | GRO (C6-C10) | DRO (C10-C28) | EXT DRO (C28-C36) | GRO/DRO   |
|                                 |            |              |           |         |         |              |         |            | (mg/kg)      | (mg/kg)       |                   | (mg/kg)   |
| NMOCD Remediation Action Levels |            |              | 250       | 10      | NE      | NE           | NE      | 50         | NE           | NE            | NE                | 5,000     |
| EXCAVATION SAMPLES              |            |              |           |         |         |              |         |            |              |               |                   |           |
| *Btm Hole                       | 10/21/2016 | 5            | 1,790     | <0.005  | 0.134   | 0.125        | 0.28    | 0.539      | 427          | 3,360.0       |                   | 3,787.0   |
| *Wst Pile                       | 10/21/2016 | --           | 1,910     | 0.107   | 0.781   | 0.414        | 0.784   | 2.086      | 580          | 8,240.0       |                   | 8,820.0   |
| S-1113520-3-033017-TP-1-10'     | 3/30/2017  | 10           | 23.3      | <0.050  | <0.050  | <0.050       | <0.150  | <0.300     | <10          | <10           | <10               | <30       |
| S-1113520-3-033017-TP-2-8'      | 3/30/2017  | 8            | 20.5      | NA      | NA      | NA           | NA      | NA         | NA           | NA            | NA                | NA        |
| S-1113520-3-033017-TP-2-19'     | 3/30/2017  | 19           | 200       | <0.050  | <0.050  | <0.050       | <0.150  | <0.300     | <10          | <10           | <10               | <30       |
| S-1113520-3-033017-TP-4-10'     | 3/30/2017  | 10           | <10.9     | <0.050  | <0.050  | <0.050       | <0.150  | <0.300     | <10          | <10           | <10               | <30       |
| S-1113520-3-033017-TP-5-14'     | 3/30/2017  | 14           | 68        | <0.050  | <0.050  | <0.050       | <0.150  | <0.300     | <10          | <10           | <10               | <30       |
| S-1113520-3-033017-TP-6-19'     | 3/30/2017  | 19           | 19        | <0.050  | <0.050  | <0.050       | <0.150  | <0.300     | <10          | <10           | <10               | <30       |

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

\* Samples taken by ETC Field Services

NE = Not Established

mg/Kg = milligrams per Kilogram

-- = Not Applicable

NA = Not Analyzed