INFORMATION ONLY

SITE INFORMATION

Report Type: Soil Remediation Closure Request 1RP-3960

General Site Information:				
Site:	**Eunice Yard**			
Company:	**Globe Energy Services**			
Section, Township and Range	**Unit I**	**Sec. 34**	**T 21S**	**R 37E**
Lease Number:				
County:	**Lea County**			
GPS:	**32.433563° N**			**103.144684° W**
Surface Owner:	Chevron USA, Inc.			
Mineral Owner:				
Directions:	From intersection of Texas Ave & 4th St in Eunice, NM travel SOUTH on 4th St for approx 0.25 mi, turn EAST onto lease road for approx 0.15 mi. SW Corner of Globe Energy Yard is approx 125 feet north of lease road.			

Release Data:	
Date Released:	Unknown
Type Release:	Produced Water
Source of Contamination:	Frac Tank Failure
Fluid Released:	Unknown
Fluids Recovered:	None

Official Communication:			
Name:	Tommy Morris		Ike Tavarez
Company:	Globe Energy Services		Tetra Tech
Address:	113 Texas Ave.		4000 N. Big Spring
			Ste 401
City:	Eunice, NM 88231		Midland, Texas
Phone number:	(325) 207-7775		(432) 687-8110
Fax:			
Email:	tommy.morris@gesllc.com		Ike.Tavarez@tetratech.com

Ranking Criteria		
Depth to Groundwater:	***Ranking Score***	***Site Data***
<50 ft	***20***	
50-99 ft	10	
>100 ft.	0	*0*
WellHead Protection:	***Ranking Score***	***Site Data***
Water Source <1,000 ft., Private <200 ft.	*20*	
Water Source >1,000 ft., Private >200 ft.	***0***	*0*
Surface Body of Water:	***Ranking Score***	***Site Data***
<200 ft.	*20*	
200 ft - 1,000 ft.	10	
>1,000 ft.	***0***	*0*
Total Ranking Score:	**20**	

Acceptable Soil RRAL (mg/kg)		
Benzene	***Total BTEX***	***TPH***
10	50	100

TETRA TECH

May 31, 2017

Olivia Yu
Environmental Specialist, District 1
Oil Conservation Division, EMNRD
1625 North French Drive
Hobbs, New Mexico 88240

RE: Soil Remediation Closure Request for the Globe Energy Services, Produced Water Release Located in Unit I, Section 34, Township 21 South, Range 37 East, Lea County, New Mexico. RP #3960

Dear Ms. Yu:

Tetra Tech was contacted by Globe Energy Services (Globe) to assess and remediate a spill located in Unit I, Section 34, Township 21 South, Range 37 East, Lea County, New Mexico (Site). The GPS coordinates for the site are N 32.433563 and W 103.144684°. The site location is shown on Figures 1 and 2.

BACKGROUND

According to Globe, a produced water release occurred from frac tanks being stored on the south side of the Globe yard located in Eunice, New Mexico. The produced water migrated onto the adjacent property impacting the surface soils. No fluids were recovered and the volume of the fluids released is unknown. Chevron discovered the release on their property and contacted the NMOCD. The initial C-141 for the release is enclosed in Appendix A.

GROUNDWATER AND REGULATORY

According to the New Mexico Office of the State Engineer (NMOSE) online database, five (5) wells were shown in Section 34 with depths to groundwater ranging from 29.0' to 48.0' below surface. The NMOCD groundwater map showed the average depth to groundwater in this area is approximately 50' below surface. However, Chevron has a groundwater investigation site located west, or adjacent, to the Globe Eunice facility. According to the Chevron groundwater monitoring report, dated September 26, 2012, the report indicated the depth to groundwater at approximately 27' below surface. The groundwater data is shown in Appendix B.

According to the Ground Water Report 6, "Geology and Ground Water Conditions in Southern Lea County, New Mexico," published by the New Mexico institute of Mining & Technology (1961), the groundwater in the area is produced from the Ogallala formation and ranges from 100' to 250' in thickness.

Tetra Tech
4000 North Big Spring St, Ste 401 Midland, TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

A risk-based evaluation will be performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. Based upon the depth to groundwater, the proposed RRAL for TPH is 100 mg/kg.

SOIL INVESTIGATION AND ASSESSMENT

Auger holes Installation and Sampling

On November 19, 2015, Tetra Tech personnel inspected and sampled the spill area. The impacted areas were located outside the Globe facility along the west and south fence line. A total of twenty-four (24) auger holes (AH-1 through AH-24) were installed using a stainless steel hand auger to assess the impacted soils. Soil samples were collected to depths ranging from 1.0' to 2.5'-3.0' below surface. Deeper samples were not collected due to a dense caliche formation at the site. Soil samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix E. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Auger hole Sampling Results

Referring to Table 1, all of the auger hole samples selected for BTEX analysis were below the RRAL. The areas of AH-1, AH-16 and AH-21 showed TPH concentrations above the RRAL with concentrations of 350 mg/kg, 387 mg/kg and 320 mg/kg, respectively. However, the impact in these areas were vertically defined in the shallow soils at a depth of approximately 1-1.5' below surface. In addition, auger holes (AH-3, AH-4, AH-8, AH-15, AH-17, AH-19, AH-20 and AH-22) exceeded the TPH RRAL and were not vertically defined. The remaining auger holes (AH-2, AH-5, AH-6, AH-7, AH-9, AH-10, AH-11, AH12, AH-13, AH-14, AH-18, AH-23 and AH-24) did not show any TPH concentrations above the RRAL.

The areas of auger holes (AH-9 and AH-23) showed chloride concentrations of 1,370 mg/kg and 345 mg/kg at 0-1', but were vertically defined at 1-1.5' and 2-2.5', respectively. The areas of auger holes (AH-1, AH-2, AH-3, AH-4, AH-6, AH-7, AH-12, AH-13, AH-14, AH-17 and AH-21) showed chloride concentrations above the RRAL, or delineation concentration, of 250 mg/kg, and were not vertically defined. The remaining auger holes (AH-5, AH-8, AH-10, AH-11, AH-15, AH-16, AH-18, AH-19, AH-20, AH-22 and AH-24) did not show any chloride concentrations in the soils above 250 mg/kg.

Borehole Installation and Sampling

To define vertical extents, Tetra Tech installed boreholes at the site. The total depth of the boreholes ranged from 4'-5' to 24-25' below surface. Deeper sample were not collected due to the shallow groundwater of approximately 27.0' below surface. The borehole drilling

logs are included in Appendix C. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix E.

On January 20, 2016, Tetra Tech returned to the site to supervise the installation of a total of twelve (12) boreholes (BH-1 through BH-12) to assess and define the vertical extent of the impacted areas. In summary, auger holes (AH-3, AH-4, AH-8, AH-15, AH-17, AH-19, AH-20 and AH-22) exceeded the TPH RRAL and were not vertically defined below the RRAL. The areas of auger holes (AH-1, AH-2, AH-3, AH-4, AH-6, AH-7, AH-12, AH-13, AH-14, AH-17 and AH-21) showed chloride concentrations above the delineation concentration of 250 mg/kg and were not vertically defined.

Due to safety concerns with the overhead power lines, one borehole (BH-9) was placed at a midpoint between auger holes (AH-19 and AH-20). All of the remaining boreholes were installed as proposed in the approved Work Plan, dated January 18, 2016. As directed by the NMOCD, a single borehole was recommended in each area (AH-1 and AH-2) and (AH-12, AH-13 and AH-14). The two boreholes (BH-6 and BH-7) were installed in the vicinity of auger holes (AH-1 and AH-14).

An air rotary drilling rig was used to collect soil samples. A small core-barrel sampler was used to collect the samples at selected depth intervals of 0-1', 2-3', 4-5', 6-7 and 9-10' and then five (5) foot intervals thereafter. Tetra Tech inspected the soil samples for lithology characteristics and field screened the samples for conductivity and selected samples for field chlorides. In addition, soil samples were field screened for soil headspace gas survey measurements of the relative concentration of organic vapors in the soil. The Ambient Temperature Headspace (ATH) method was used at the Site for the soil headspace gas survey. The ATH method consists of collecting discrete or composite soil samples from a drilled borehole depth interval and placing the sample in a clean plastic sample bag, leaving a vacant headspace in the top of the bag. The bag was sealed, and after approximately fifteen (15) minutes of ambient temperature storage, the concentration of organic vapors in the sample bag headspace was measured using a photo-ionization detector (PID).

All of the soil samples collected for analyses were preserved in laboratory provided sample containers with standard QA/QC procedures. Samples were shipped under proper chain-of-custody control and analyzed within the standard holding times. Selected soil samples were analyzed for TPH analysis by EPA method 8015 modified and chloride by EPA method 300.0. The laboratory results are summarized in Table 1.

Boreholes Sample Results

Referring to Table 1, all of the soil samples collected from the boreholes BH-3 (AH-8), BH-4 (AH-4), BH-5 (AH-3), BH-8 (AH-15), BH-9 (AH-19 and AH-20), BH-10 (AH-17) and BH-12 (AH-22) did not show any TPH concentrations above the laboratory reporting limit.

In addition, soil samples collected at BH-7 (AH-14) did not show any chloride concentrations above 250 mg/kg. Soil samples collected at BH-10 (AH-17) and BH-11 (AH-21) did show chloride spikes of 4,210 mg/kg and 4,170 mg/kg at 2.0'-3.0' below surface, respectively. However, the chloride concentrations declined with depth to 50.8 mg/kg (BH-10) and 69.5 mg/kg (BH-11) at 19'-20' below surface.

The remaining boreholes; BH-1 (AH-6), BH-2 (AH-7), BH-4 (AH-4), BH-5 (AH-3), and BH-6 (AH-1) did not show chloride concentrations decline below 250 mg/kg at a depth of 24'-25', with concentrations of 286 mg/kg, 455 mg/kg, 1,320 mg/kg, 426 mg/kg, and 370 mg/kg, respectively. Due to shallow groundwater in the area, no samples were collected deeper than 24'-25' below surface.

Additional Soil Sampling - Horizontal Delineation

Additional auger holes were installed approximately 3.0' outside the visible spill foot print in order to horizontally define extents. A total of sixteen (16) auger holes were installed (AH-1 H-horizontal through AH-16 H-horizontal) to depths ranging between 0-2.5' below surface. The auger hole locations are shown on Figure 3. All of the soil samples collected for analyses were preserved in laboratory provided sample containers with standard QA/QC procedures. Samples were shipped under proper chain-of-custody control and analyzed within the standard holding times. Selected soil samples were analyzed for TPH analysis by EPA method 8015 modified and chloride by EPA method 300.0. The laboratory results are summarized in Table 2.

Referring to Table 2, none of the samples collected at auger holes (AH-1H through AH-3H), and (AH-6H through AH-16H) showed chloride concentrations above 250 mg/kg. However, the area of auger hole (AH-4H) showed a chloride concentration of 531 mg/kg at 0'-1' below surface and deeper samples were not collected due to a dense caliche formation in the area. Additionally, the samples collected at auger hole (AH-5H) showed chloride concentrations increasing with depth from <2.00 mg/kg at 0'-1' to 316 mg/kg at 2.0'-2.5' below surface. Based on the field data, an additional step out (AH-8H) was installed for delineation, which showed chloride concentrations <250 mg/kg.

In addition, the samples collected at auger holes (AH-3H, AH-4H, AH5H, AH-12H, AH-13H, AH-14H and AH-15H) showed TPH concentrations ranging from <14.9 mg/kg to 15.0 mg/kg. The area of auger hole (AH-16H) showed a TPH concentration of 825 mg/kg at 0-0.5' below surface; deeper samples were not collected due to a dense caliche formation in the area.

GROUNDWATER INVESTIGATION

Due to the shallow groundwater at the site, the NMOCD requested delineation of the soils for chlorides to 250 mg/kg. In addition, if the chloride concentrations were not defined within 10 feet from the top of groundwater, a monitor well would be required to assess the groundwater qualities for the area. Based on the soil assessment, some of the boreholes were not vertically defined at 24-25' below surface in the areas. The depth to groundwater in the area shows to be approximately 25'-30' below surface.

Based on the borehole results, Globe proposed to install a total of three (3) monitor wells in order to evaluate the groundwater qualities at the site. The areas of BH-1 (AH-6), BH-2 (AH-7), BH-4 (AH-4), BH-5 (AH-3) and BH-6 (AH-1) were not defined below 250 mg/kg at 24-25' below surface. One monitor well was proposed in the area of BH-4 (AH-4), one between the areas of BH-1 (AH-6) and BH-2 (AH-7) and one between BH-5 (AH-3) and BH-6 (AH-1). The proposed monitor well locations are shown on Figure 6.

The approved Work Plan submitted by Tetra Tech dated June 1, 2016, proposed installing three (3) monitor wells in order to evaluate the groundwater qualities at the site. According to the Addendum to the Work Plan submitted by Tetra Tech, dated August 18, 2016, the NMOCD requested one monitor well installed outside of the spill footprint in the area of AH-4 (BH-4), prior to the soil remediation. The location of monitor well (MW-1) is shown in Figure 6.

Monitor Well Installation and Construction

On September 20, 2016, Tetra Tech personnel were onsite to supervise the installation of one (1) permanent monitor well (MW-1). During the installation of the well, Tetra Tech field screened the soil with a PID at 5' to 10' intervals down to 20' below surface to evaluate the subsurface soils. The PID readings ranged between 0.2 and 0.8 ppm. Additionally, the field screened intervals were collected for analyses and preserved in laboratory provided sample containers with standard QA/QC procedures. The samples were shipped under proper chain-of-custody control and analyzed within the standard holding times. Selected soil samples were analyzed for TPH analysis by method 8015 (modified), BTEX by method 8021B, and chloride by EPA method 300.0. The laboratory results are summarized in Table 4. The screening log is included in Appendix C.

Referring to Table 4, the samples collected at 10' and 20' below surface did not show any significant TPH or BTEX concentrations. The samples collected showed chloride concentrations ranging from 193 mg/kg (20') and 294 mg/kg (5').

The monitor well was drilled to 50' below surface using an air rotary rig and constructed with 2-inch diameter, screw threaded, schedule 40 PVC casing and 0.020 inch factory slotted scree. The well screen, thirty (30) feet in length, was installed with approximately 20.0' of screen into the groundwater and 10.0' above the groundwater. The well screen was filter packed with graded (20-40) silica sand, which was placed in the annular space between the borehole wall and the screen to a depth of 2.0' above the screen. Bentonite pellets (hydrated) were placed on top of the sand to complete the well, which was then secured with a locking water tight cap and a steel sleeve around the well. Once completed, the monitor well was properly developed and all of the fluids were contained in an onsite drum for proper disposal. The well drilling log is included in Appendix C. The well construction log is included in Appendix D.

Monitor Well Sampling

On September 22, 2016, Tetra Tech personnel returned to the site measure the depth to water to the nearest 0.01 foot and collect samples. The depth to water was measured to be at 27.95' below surface. Prior to sampling, approximately three (3) casing volumes of water was purged from the well using a dedicated bailer and disposable line. All of the purge water was contained in the onsite drum for proper disposal. The groundwater samples were then labeled and placed in to preserved containers provided by the laboratory and analyzed for BTEX by method 8021B and chlorides by EPA method 300.0. The groundwater sampling results are summarized in Table 5.

Referring to Table 5, the groundwater collected at MW-1 showed BTEX concentrations below the laboratory reporting limit. However, a chloride concentration of 1,610 mg/kg was detected at MW-1.

SOIL REMEDIATION

The NMOCD approved the Addendum to the Work Plan submitted by Tetra Tech dated August 18, 2016. The work plan and the addendum detailed the proposed remediation activities for the impact to the south and to the west of the Globe facility.

On February 27-March 23, 2017, Tetra Tech personnel were onsite to supervise the remediation of the impacted soils. Approximately 4,800 cubic yards were removed and hauled to Sundance Disposal located in Eunice, New Mexico. To prevent vertical migration of the impacted soils, a 40 mil liner was then installed at 5.0' below surface to cap the areas of auger holes (AH-1, AH-2, AH-3, AH-4, AH-6, and AH-7).

Once excavated to the appropriate depth, the areas were backfilled with clean soil to grade. The excavated areas and depths highlighted (green) in Table 1 and shown on Figure 5. The soil remediation details were divided into two areas for simplicity. The South Release Area included the areas of auger holes (AH-1 through AH-14) and the West Release area included the areas of auger holes (AH-15 through AH-24).

During the excavation activities, sidewall samples or bottom hole samples were collected and field screened to confirm the impacted soils with chloride concentrations above 250 mg/kg and TPH concentrations above 100 mg/kg were properly removed from the area. Soil samples were either sampled for TPH and/or chlorides depending on the constituents of concern identified during the investigation. Selected samples were analyzed for chloride by EPA method 300.0 and TPH by method 8021B. Copies of the laboratory analysis chain-of-custody documentation are included in Appendix E. The sidewall sample results are summarized in Table 3. The sidewall sample locations are shown on Figure 5.

<u>South Release Area</u>

The areas of auger holes (AH-1, AH-2, AH-3, AH-7, AH-13, and AH-14) were excavated to depth of 5.0'-5.5' below surface and the area of auger hole (AH-6) was excavated to a depth of 6.0' below surface. In the area of auger hole (AH-4), which showed deeper chloride impact to the soils, the area was excavated to 19.0' below surface. Additionally, the areas of auger holes (AH-8, AH-9, and AH-12) were excavated to a depth of 1.5'-2.0' below surface. In addition, a total of seventeen (17) sidewall samples were collected in the south area of the Globe facility. Figure 5a shows the sample locations and Table 3 summarizes the sampling results.

Referring to Table 3, the sidewall samples collected at sidewalls (BH-3 WSW and BH-3 ESW) showed TPH concentrations below the laboratory reporting limits. The samples collected at sidewalls (AH-9 WSW, AH-9 SSW, BH-6 SSW, BH-5 SSW, BH-2 WSW, BH-1 WSW, BH-1 SSW, BH-7 NSW, BH-7 NWSW, BH-7 SWSW, BH-7 SSW, BH-7 SESW, and BH-7 NESW) showed chloride concentrations ranging from 6.01 mg/kg to 192 mg/kg. However,

the sidewall samples collected to the east of the excavation, along the adjoining property line (BH-1 ESW and BH-2 ESW) showed chloride concentrations of 4,160 mg/kg and 5,840 mg/kg, respectively. Additionally, two (2) bottom hole samples (BH-7 NBH and BH-7 SBH) were collected in the area of borehole (BH-7), which showed chloride concentrations of 54.4 mg/kg and 144 mg/kg, respectively.

West Release Area

The areas of auger holes (AH-19 and AH-20) were excavated to a depth of 6" below surface, the areas of auger holes (AH-15, AH-16, AH-17, AH-22, and AH-23) were excavated to a depth of 1.5'-2.0' below surface. In addition, the area of auger hole (AH-21) was excavated to depth of 3.0' below surface. A total of ten (10) sidewall samples were collected during the excavation of the soils in the west area of the Globe facility. Figure 5b shows the samples and Table 3 summarizes the sampling results.

Referring to Table 3, the sidewall sample collected at (AH-17 WSW) showed a chloride concentration of 152 mg/kg. The samples collected at (BH-8 SSW, BH-8 WSW, BH-8 NSW, AH-17 WSW, AH-20 SSW, AH-20 NSW, BH-12 WSW, AH-22 NWSW, and BH-12 NSW) showed TPH concentrations ranging between <10.0 mg/kg and 106 mg/kg. In the area of (AH-19 WSW) elevated TPH concentrations were detected at the original sidewall location and was then expanded an additional 5', which then showed a sidewall concentration of 275 mg/kg. However, after the area was expanded further, a TPH concentration of 548 mg/kg was detected. Further excavation was not performed in this area due to the area sloping uphill and the impact does not appear to be related to the release.

Additionally, two (2) bottom hole samples (AH-17 BH and BH-11 BH) were collected in the areas of AH-17 and BH-11 to confirm the impacted materials were properly removed. The sample collected at (AH-17 BH) showed a chloride concentration of 76.2 mg/kg and the sample collected at (BH-11 BH) showed a TPH concentration of <10.0 mg/kg.

CONCLUSIONS

Soil Remediation

Approximately 4,800 cubic yards were removed and hauled to Sundance Disposal located in Eunice, New Mexico. All of the impacted soils on Chevron property have been properly removed to the appropriate or proposed depths, including the spill footprint. In addition, the areas of auger holes (AH-1, AH-2, AH-3, AH-4, AH-6, and AH-7) were capped with a 40 mil liner to prevent vertical migration of the deeper impact.

Based on the remediation activities performed at the site, Globe requests closure of the soils issue on the Chevron property. The final C-141 form is included in Appendix A. However, the impacted soils (south area) encountered along the adjoining property line (BH-1 ESW and BH-2 ESW) showed chloride concentration of 4,160 mg/kg and 5,840 mg/kg, respectively. These impacted soils will be properly addressed to assess and proper removal of the impacted soil.

TETRA TECH

RECOMMENDATIONS

Proposed Monitor Well Installation and Construction

As was approved in the Work Plan submitted by Tetra Tech, dated June 1, 2016, two additional monitor wells are proposed to be installed at the site. One monitor well is proposed to be installed between the areas of BH-1 (AH-6) and BH-2 (AH-7) and one monitor well to be installed between the areas of BH-5 (AH-3) and BH-6 (AH-1). Prior to the installation of the monitor wells, appropriate permits will be obtained from the New Mexico Office of the State Engineer (NMOSE).

Tetra Tech will supervise the installation of permanent monitor wells to a total depth of approximately 40-45' below surface using an air rotary rig. The monitor wells will be constructed of 2-inch diameter, screw threaded, schedule 40 PVC casing and 0.020 inch factory slotted screen. The well screens, approximately twenty (20) feet in length, will be installed with approximately 15.0' of screen into the groundwater and 5.0' above the groundwater. The well screens will be filter packed with graded (20-40) silica sand, which will be placed in the annular space between the borehole wall and screen to a depth of approximately two (2) feet above the screen. Bentonite pellets (hydrated) will be placed on top of the sand to complete the well. The wells will be secured with a locking water tight cap, and a steel sleeve will be placed around the well. In addition, the monitor wells (3) will be surveyed by a licensed professional surveyor.

Once completed, the monitor wells will be properly developed and all of the fluids will be contained in drums for proper disposal. At the time of sampling, the well caps will be opened and water level measurements will be collected from the top of the casing. The depth to water measurements will be recorded to the nearest 0.01 foot.

Prior to sampling, approximately three (3) casing volumes of water will be purged from each well using a dedicated bailer and disposable line. All water generated for the purging will be contained in drums for proper disposal. The groundwater samples will be placed into labeled and preserved containers provided by the laboratory and analyzed for chlorides by EPA method 300.0 and BTEX by EPA Method 8021B.

Proposed Soil Investigation - Off Site

Tetra Tech will investigate the impacted soils along the east property line in the area of (BH-1 ESW) and (BH-2 ESW), which were identified during the excavation when the east sidewall samples were collected along the east property line. The property owner will be contacted to collect soil samples for proper removal of the impacted soils. Soil samples will be collected from the area to assess the soil for chlorides. Once the area is assessed, a work plan will be submitted to the NMOCD for review and approval.

TETRA TECH

EVALUATION AND REPORTING

Once the proposed monitor wells are installed and the soil assessment is completed, Tetra Tech will assemble all of the data and prepared a report/work plan. The report/work plan will contain discussions of all of the soil and groundwater investigation activities, evaluation and recommendations. If you require any additional information or have any questions or comments concerning this work plan, please call at (432) 682-4559.

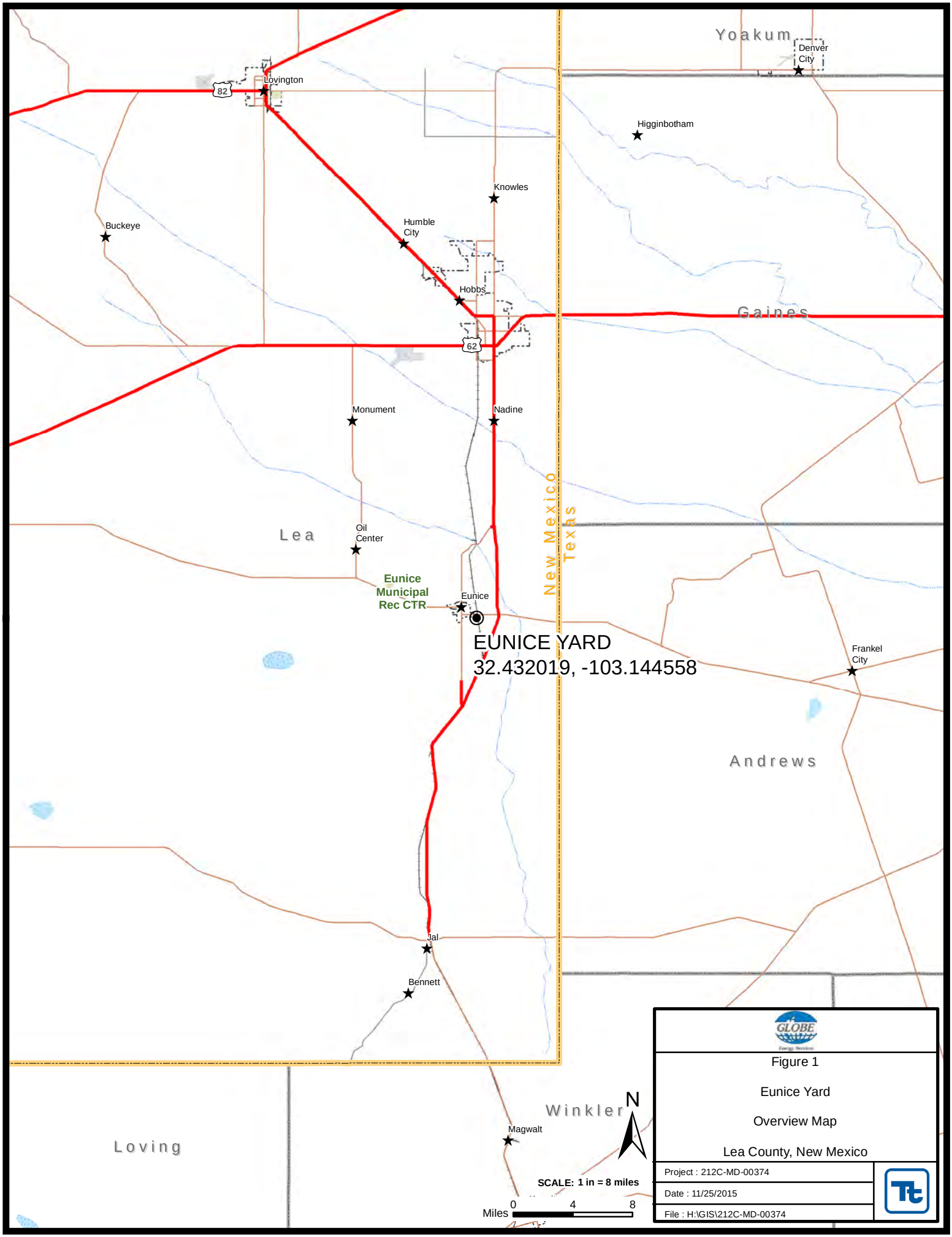
Respectfully submitted,
TETRA TECH

Ike Tavarez, P.G.
Project Manager/Senior Geologist

Clair Gonzales,
Geologist

cc: Tommy Morris -Globe
Kegan Boyer - Chevron

Figures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Higginbotham
Knowles
Buckeye
Humble City
Hobbs
Gaines
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Monument
Nadine
New Mexico
Texas
Lea
Oil Center
Eunice Municipal Rec CTR
Eunice
EUNICE YARD
32.432019, -103.144558
Frankel City
Andrews
Jal
Bennett
Winkler
N
Magwalt
Loving
SCALE: 1 in = 8 miles
Miles
0
4
8
GLOBE
Figure 1
Eunice Yard
Overview Map
Lea County, New Mexico
Project : 212C-MD-00374
Date : 11/25/2015
File : H:\GIS\212C-MD-00374
Mapped By: Isabel Marmolejo

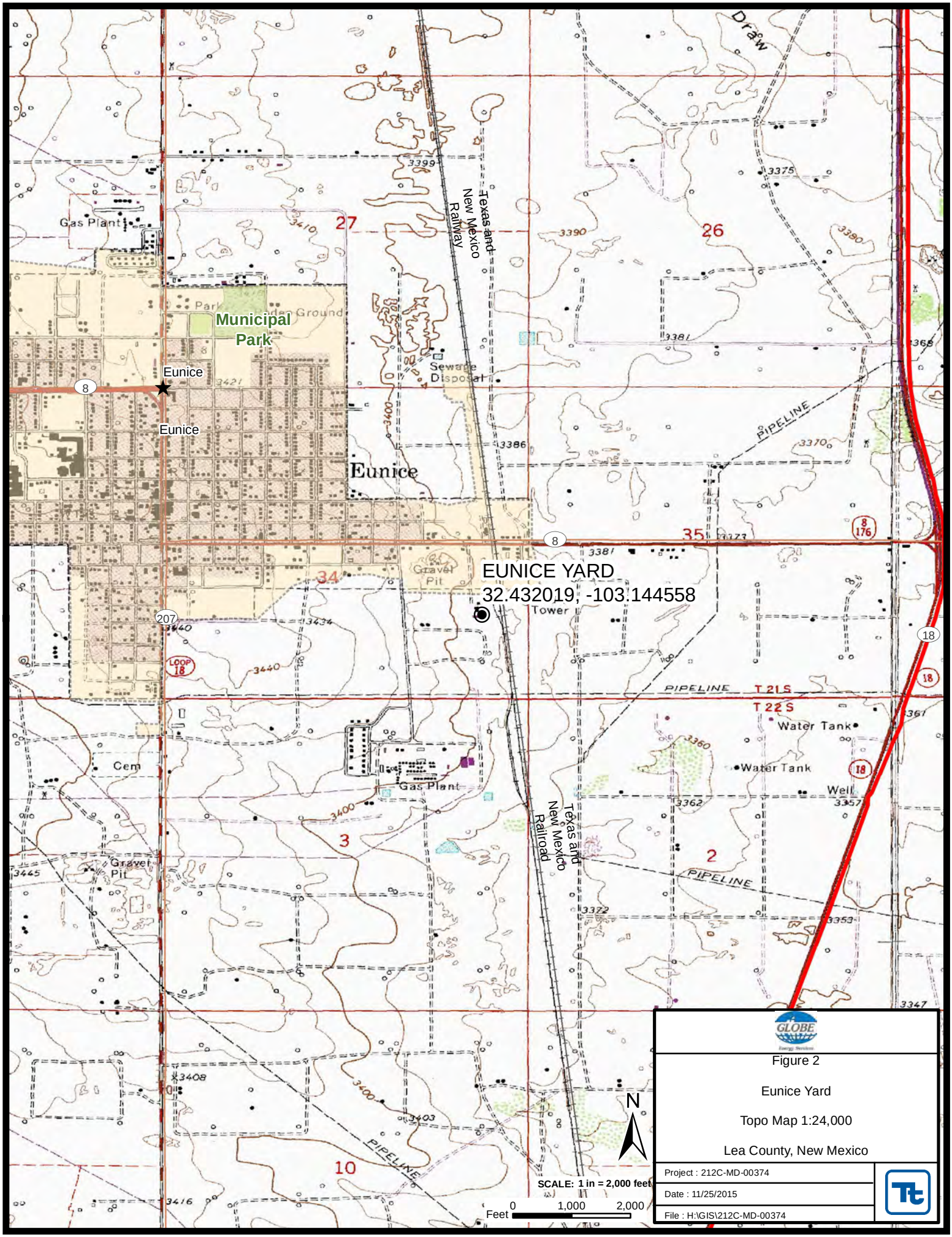


Figure 2

Eunice Yard

Topo Map 1:24,000

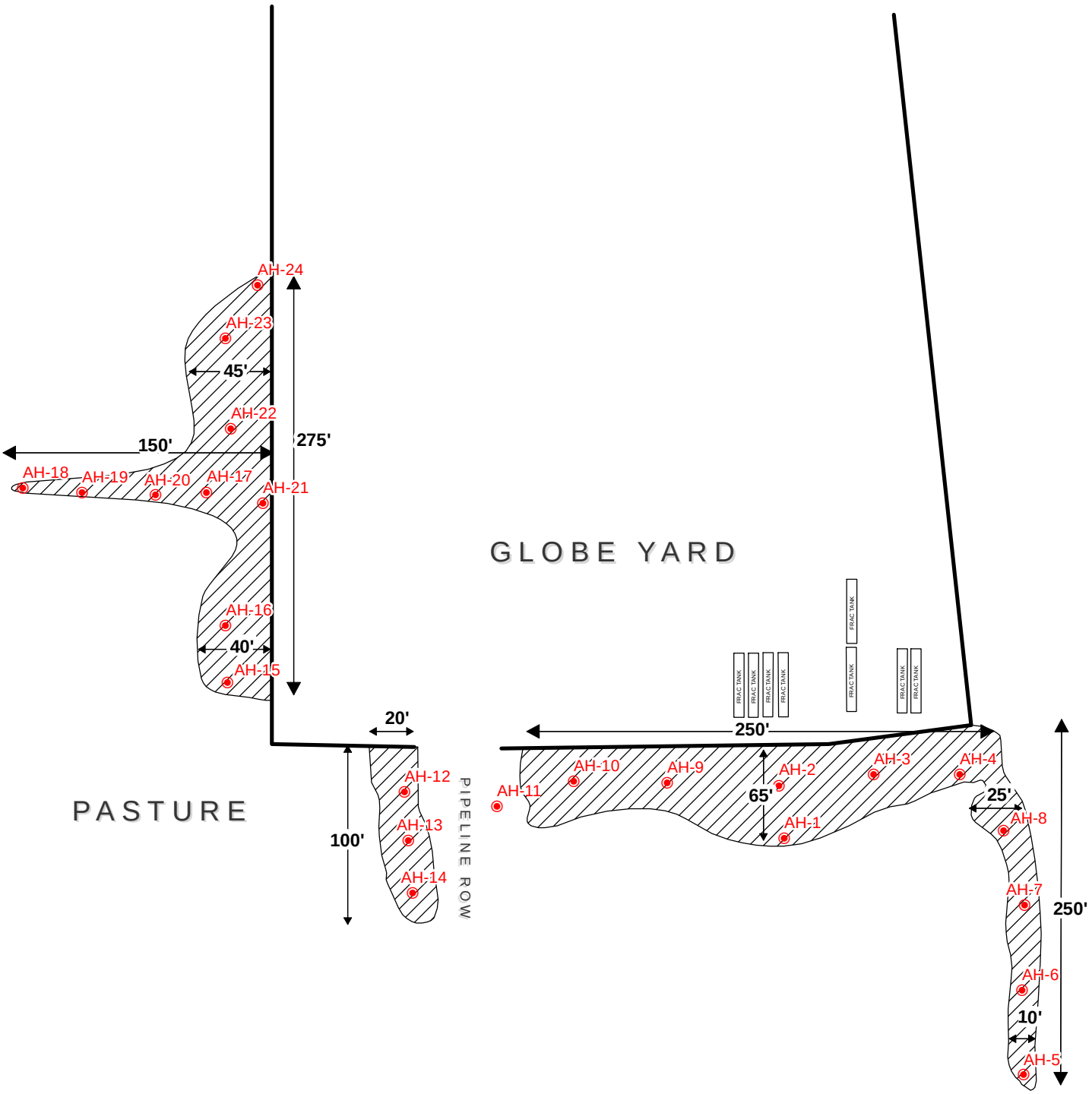
Lea County, New Mexico

Project : 212C-MD-00374

Date : 11/25/2015

File : H:\GIS\212C-MD-00374

Mapped By: Isabel Marmolejo



EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- SPILL AREA

N

SCALE: 1 IN = 100 FEET

Feet 0 50 100

Figure 3

Eunice Yard

Spill Assessment Map

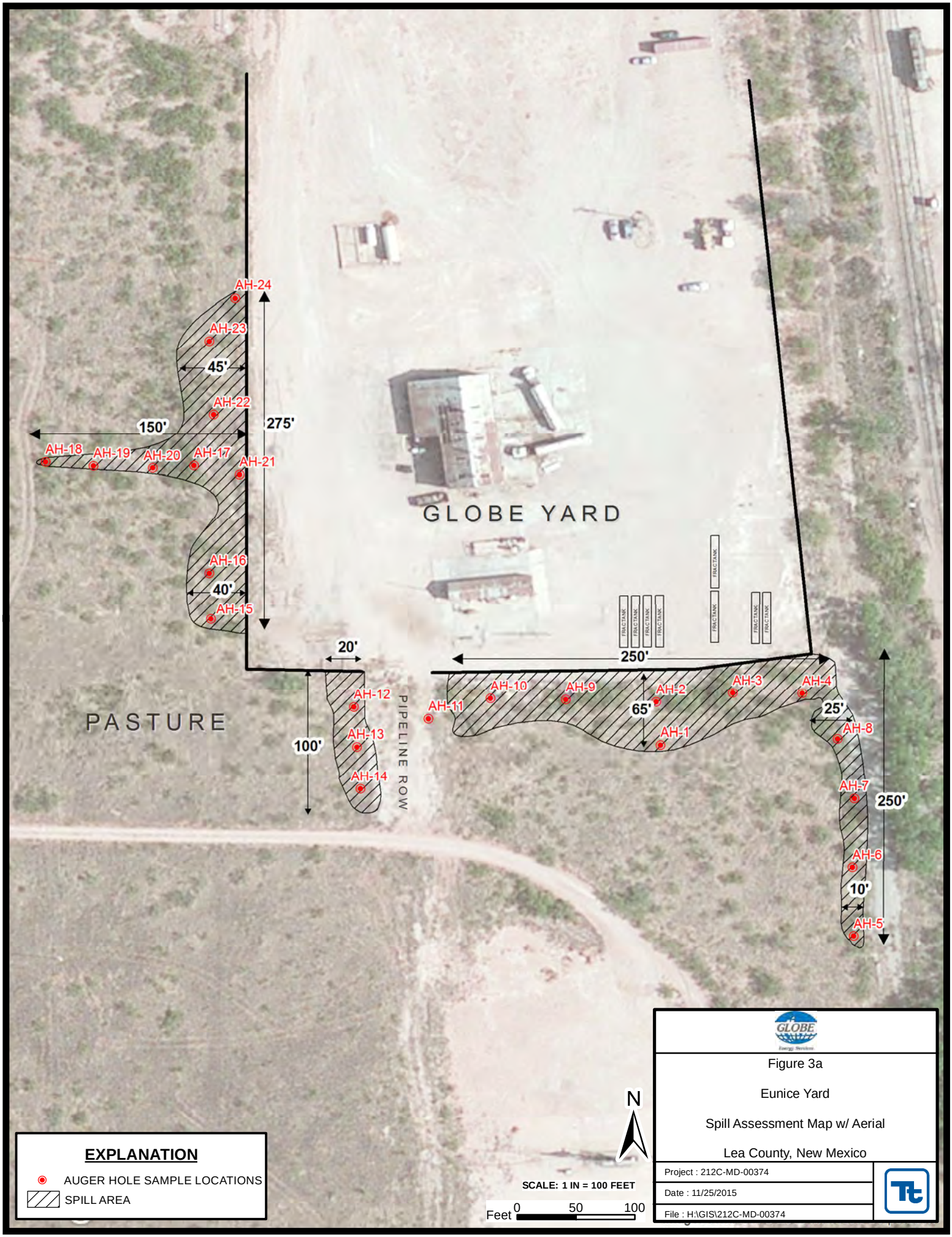
Lea County, New Mexico

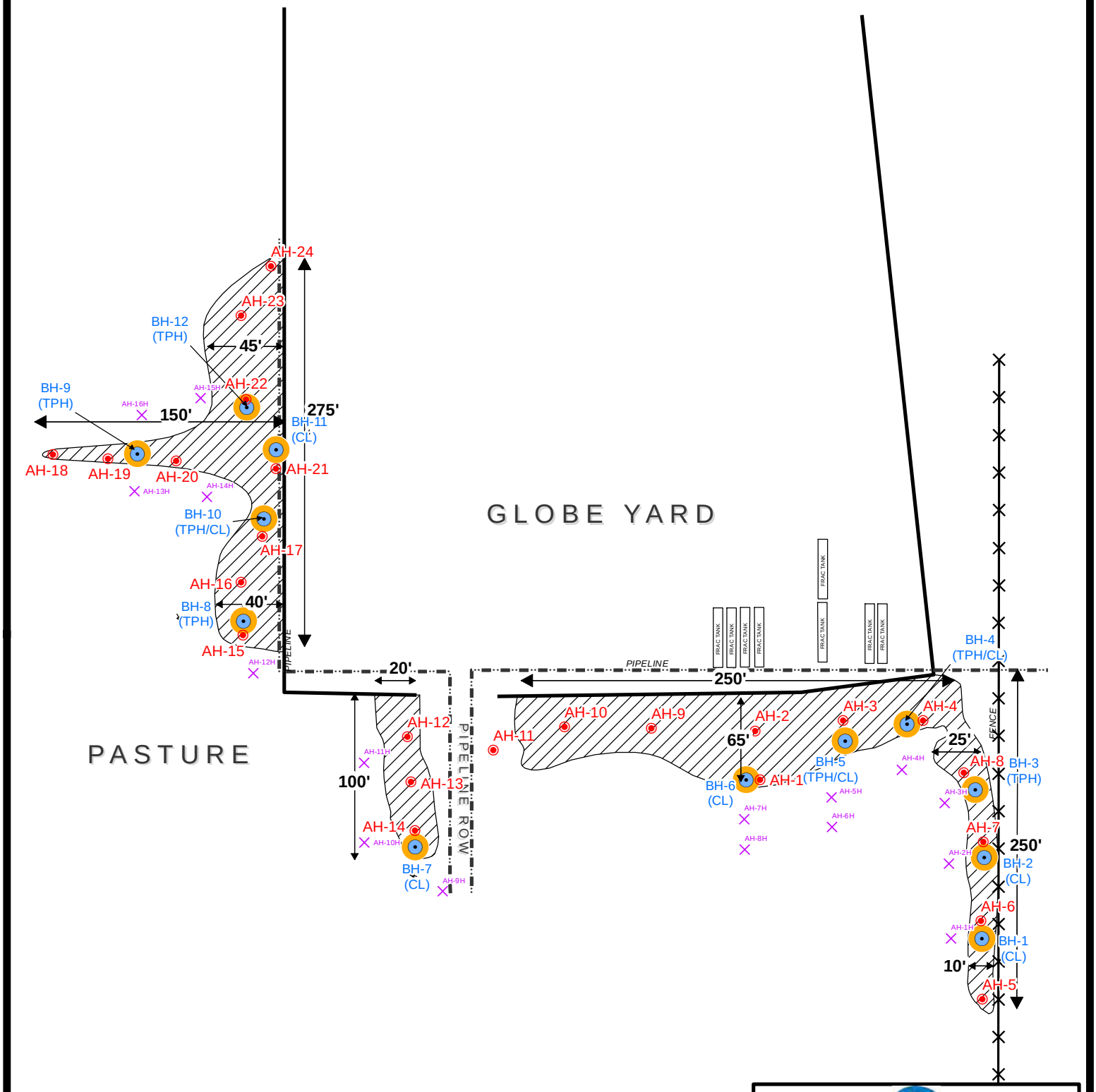
Project : 212C-MD-00374

Date : 11/25/2015

File : H:\GIS\212C-MD-00374

Mapped By: Isabel Marmolejo


AH-24
AH-23
45'
AH-22
150'
275'
AH-18
AH-19
AH-20
AH-17
AH-21
AH-16
40'
AH-15
GLOBE YARD
FRAC TANK
FRAC TANK
FRAC TANK
FRAC TANK
FRAC TANK
FRAC TANK
FRAC TANK
FRAC TANK
20'
250'
AH-10
AH-9
AH-2
AH-3
AH-4
AH-11
65'
25'
AH-1
AH-8
PASTURE
100'
AH-12
AH-13
AH-14
PIPELINE ROW
AH-7
250'
AH-6
10'
AH-5
N
SCALE: 1 IN = 100 FEET
Feet 0 50 100
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
SPILL AREA
Figure 3a
Eunice Yard
Spill Assessment Map w/ Aerial
Lea County, New Mexico
Project : 212C-MD-00374
Date : 11/25/2015
File : H:\GIS\212C-MD-00374
Mapped By: Isabel Marmolejo



BH(TPH/CL) = BOREHOLE & CONSTITUENTS OF CONCERN
TPH= TOTAL PETROLEUM HYDROCARBON
CL= CHLORIDE

EXPLANATION

- ADDITIONAL AUGER HOLE LOCATIONS
- AUGER HOLE SAMPLE LOCATIONS
- BOREHOLE SAMPLE LOCATIONS
- SPILL AREA

Figure 4

Eunice Yard

Borehole & Sample Location Map
(Constituents of Concern)

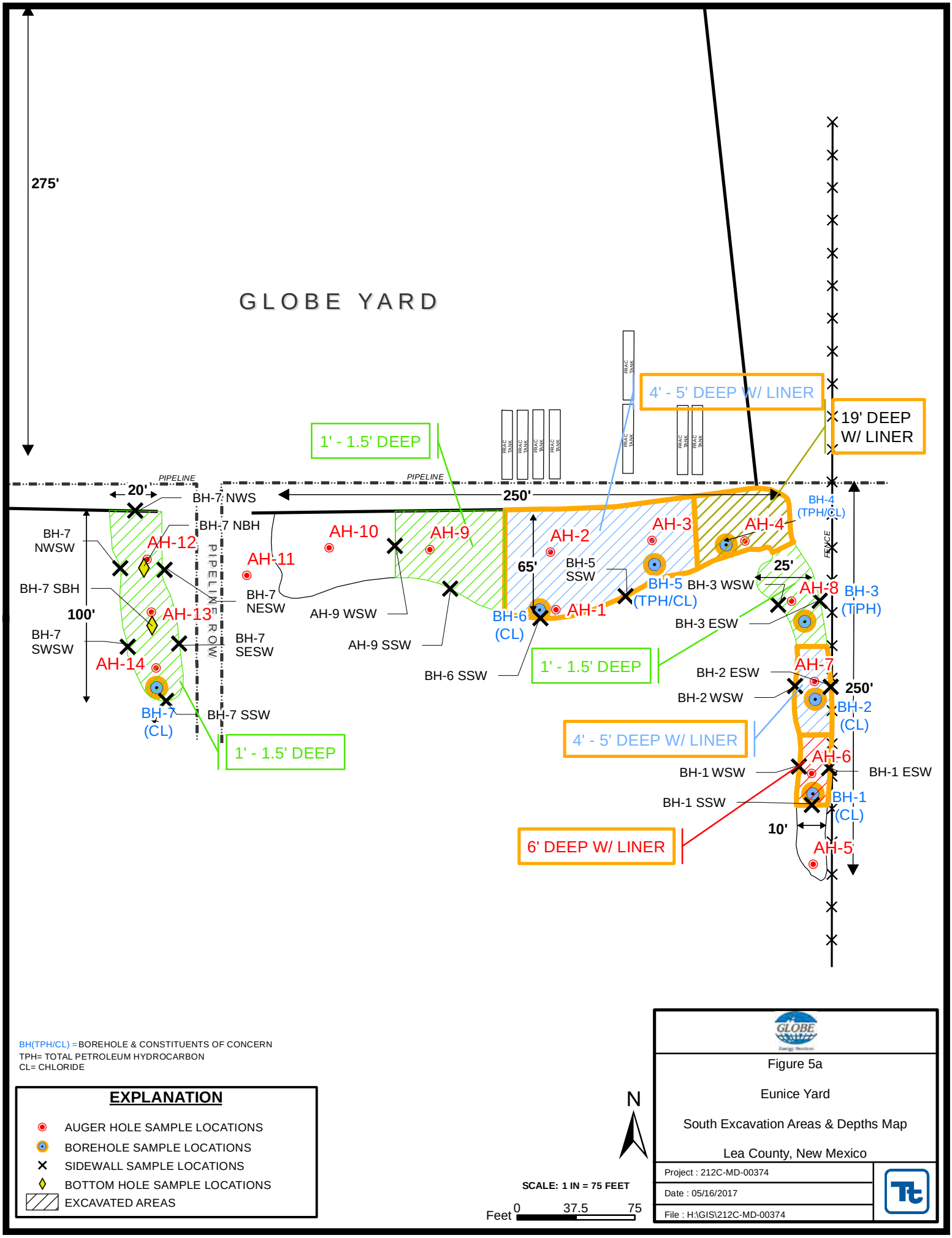
Lea County, New Mexico

Project : 212C-MD-00374

Date :05/31/2017

File : H:\GIS\212C-MD-00374

Mapped By: Isabel Marmolejo



BH(TPH/CL) = BOREHOLE & CONSTITUENTS OF CONCERN
TPH= TOTAL PETROLEUM HYDROCARBON
CL= CHLORIDE

EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- BOREHOLE SAMPLE LOCATIONS
- SIDEWALL SAMPLE LOCATIONS
- BOTTOM HOLE SAMPLE LOCATIONS
- EXCAVATED AREAS

N

SCALE: 1 IN = 75 FEET

Feet 0 37.5 75

Figure 5a

Eunice Yard

South Excavation Areas & Depths Map

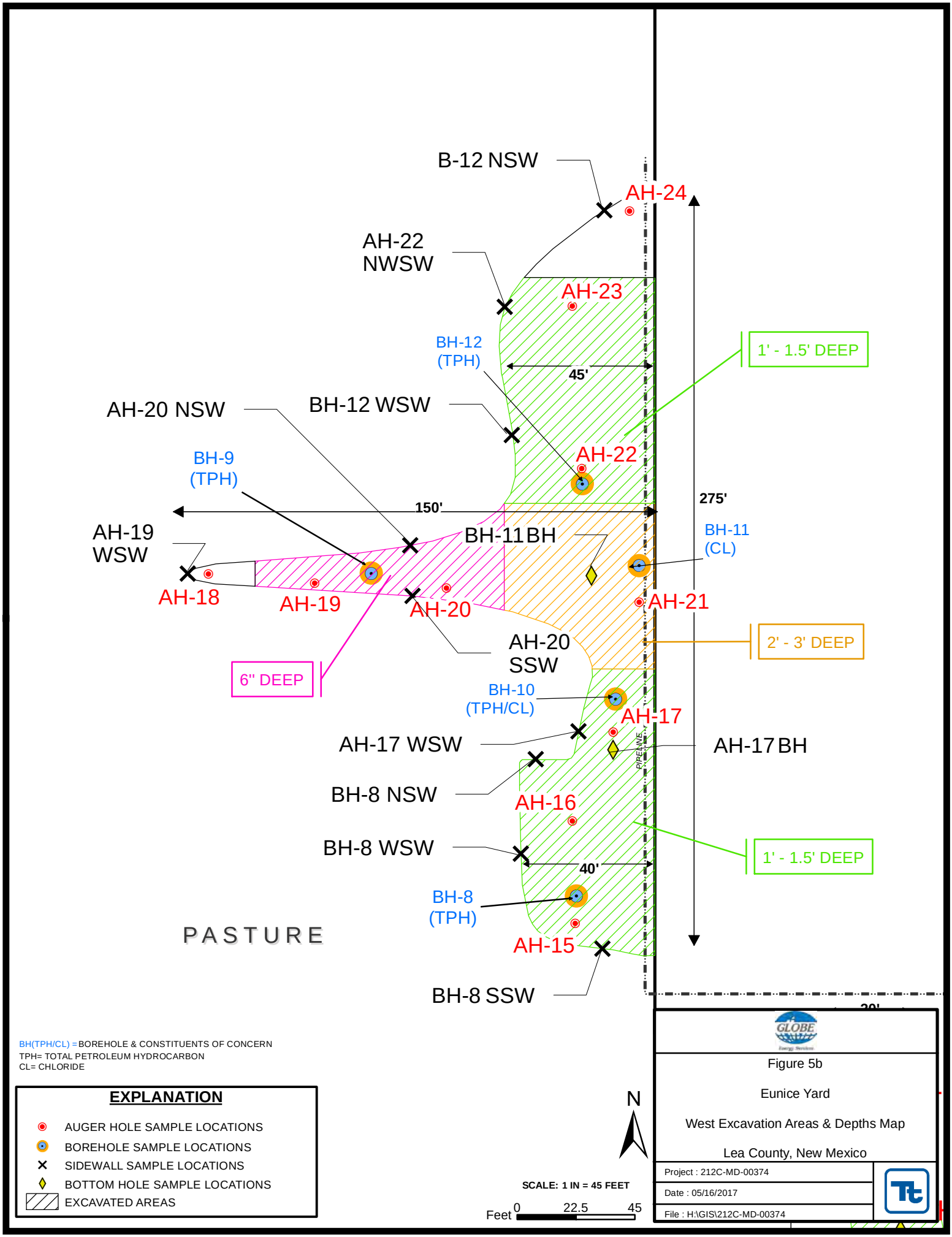
Lea County, New Mexico

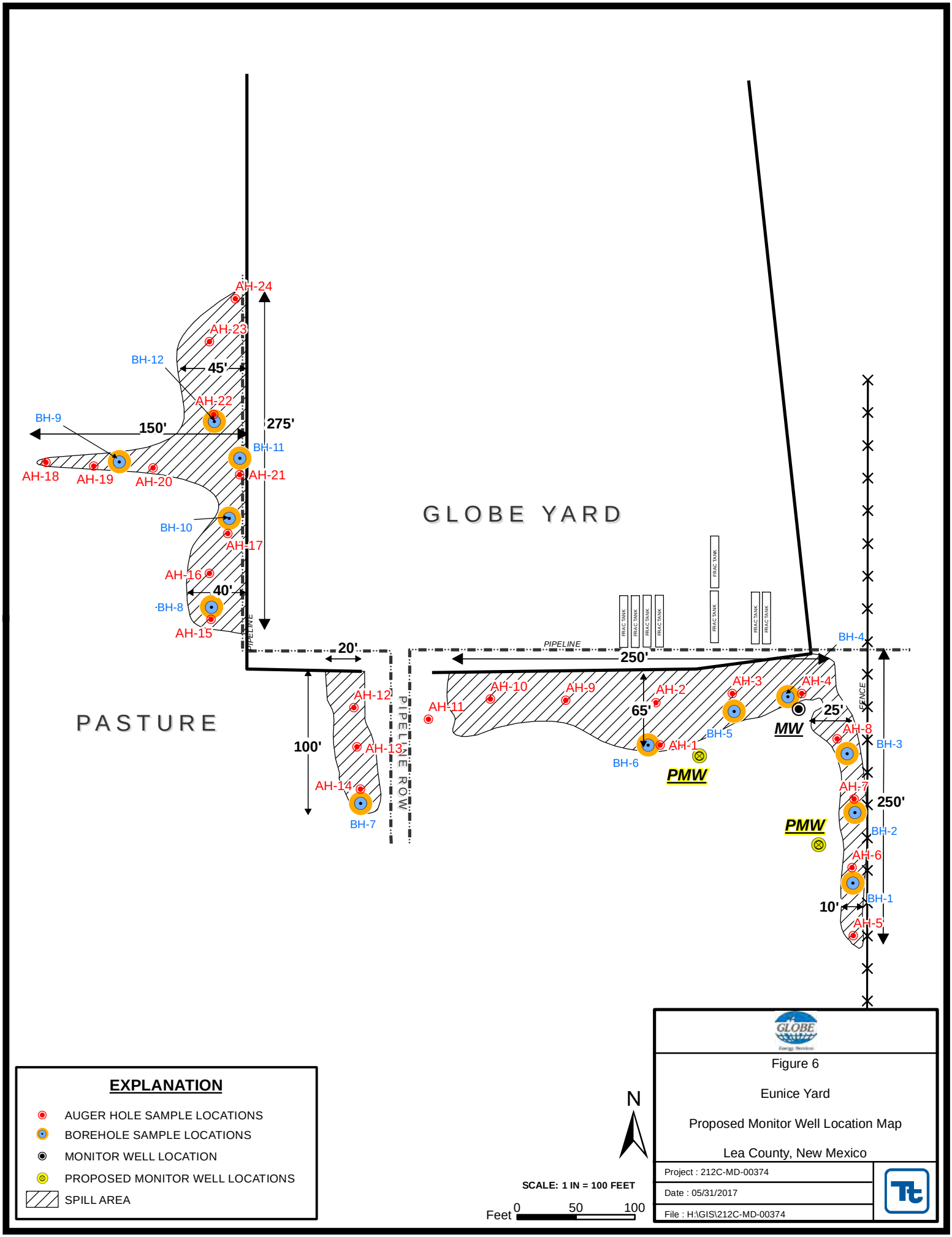
Project : 212C-MD-00374

Date : 05/16/2017

File : H:\GIS\212C-MD-00374

Mapped By: Isabel Marmolejo


B-12 NSW
AH-24
AH-22
NWSW
AH-23
BH-12
(TPH)
45'
1' - 1.5' DEEP
AH-20 NSW
BH-12 WSW
BH-9
(TPH)
AH-22
150'
275'
AH-19
WSW
BH-11 BH
BH-11
(CL)
AH-18
AH-19
AH-20
AH-21
2' - 3' DEEP
AH-20
SSW
6" DEEP
BH-10
(TPH/CL)
AH-17
AH-17 WSW
AH-17 BH
PIPELINE
BH-8 NSW
AH-16
BH-8 WSW
40'
1' - 1.5' DEEP
BH-8
(TPH)
PASTURE
AH-15
BH-8 SSW
BH(TPH/CL) = BOREHOLE & CONSTITUENTS OF CONCERN
TPH= TOTAL PETROLEUM HYDROCARBON
CL= CHLORIDE
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
BOREHOLE SAMPLE LOCATIONS
SIDEWALL SAMPLE LOCATIONS
BOTTOM HOLE SAMPLE LOCATIONS
EXCAVATED AREAS
N
SCALE: 1 IN = 45 FEET
Feet 0 22.5 45
GLOBE
Figure 5b
Eunice Yard
West Excavation Areas & Depths Map
Lea County, New Mexico
Project : 212C-MD-00374
Date : 05/16/2017
File : H:\GIS\212C-MD-00374
Mapped By: Isabel Marmolejo



Mapped By: Isabel Marmolejo

Tables

Table 1
Globe Energy
Globe Eunice Facilty
Soil Assessment
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	ORO	Total						
AH-1	11/19/2015	0-1		X	<15.0	350	<15.0	**350**	<0.00101	<0.00202	<0.00101	<0.00101	<0.00101	320
	"	1-1.5		X	16.6	<15.0	<15.0	**16.6**	-	-	-	-	-	1,020
	"	2-2.5		X	-	-	-	-	-	-	-	-	-	4,590
BH-6	1/21/2016	0-1		X	-	-	-	-	-	-	-	-	-	525
	"	2-3		X	-	-	-	-	-	-	-	-	-	3,700
	"	4-5		X	-	-	-	-	-	-	-	-	-	7,630
	"	6-7	X		-	-	-	-	-	-	-	-	-	1,920
	"	9-10	X		-	-	-	-	-	-	-	-	-	1,620
	"	14-15	X		-	-	-	-	-	-	-	-	-	720
	"	19-20	X		-	-	-	-	-	-	-	-	-	235
	"	24-25	X		-	-	-	-	-	-	-	-	-	370
AH-2	11/19/2015	0-1		X	<14.9	<14.9	<14.9	<14.9	-	-	-	-	-	3,080
	"	1-1.5		X	-	-	-	-	-	-	-	-	-	2,800
AH-3	11/19/2015	0-1		X	<15.0	826	<15.0	**826**	<0.00166	<0.00332	<0.00166	<0.00166	<0.00166	625
BH-5	1/20/2016	0-1		X	-	-	-	-	-	-	-	-	-	133
	"	2-3		X	<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	7,070
	"	4-5		X	-	-	-	-	-	-	-	-	-	3,150
	"	6-7	X		-	-	-	-	-	-	-	-	-	1,340
	"	9-10	X		-	-	-	-	-	-	-	-	-	234
	"	14-15	X		-	-	-	-	-	-	-	-	-	146
	"	19-20	X		-	-	-	-	-	-	-	-	-	44.2
	"	24-25	X		-	-	-	-	-	-	-	-	-	426

Table 1
Globe Energy
Globe Eunice Facilty
Soil Assessment
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	ORO	Total						
AH-4	11/19/2015	0-1		X	116	2,690	<74.9	**2,810**	<0.00101	<0.00202	<0.00101	<0.00101	<0.00101	676
	"	1-1.5		X	<15.0	183	38.7	**222**	-	-	-	-	-	971
	"	2-2.5		X	<15.0	223	79.5	**303**	<0.00101	<0.00202	<0.00101	<0.00101	<0.00101	4,080
	"	2.5-3		X	<15.0	133	33.7	**167**	-	-	-	-	-	5,190
BH-4	1/20/2016	0-1		X	-	-	-	-	-	-	-	-	-	4,880
	"	2-3		X	-	-	-	-	-	-	-	-	-	6,460
	"	4-5		X	<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	9,060
	"	6-7		X	-	-	-	-	-	-	-	-	-	6,570
	"	9-10		X	-	-	-	-	-	-	-	-	-	10,200
	"	14-15		X	-	-	-	-	-	-	-	-	-	10,100
	"	19-20		X	-	-	-	-	-	-	-	-	-	3,780
	"	24-25	X		-	-	-	-	-	-	-	-	-	1,320
AH-5	11/19/2015	0-1		X	<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	110
	"	1-1.5		X	-	-	-	-	-	-	-	-	-	32.2
	"	2-2.5		X	-	-	-	-	-	-	-	-	-	70.9
	"	2.5-3		X	-	-	-	-	-	-	-	-	-	29.7
AH-6	11/19/2015	0-1		X	<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	3,050
BH-1	1/20/2016	0-1		X	-	-	-	-	-	-	-	-	-	11.4
	"	2-3		X	-	-	-	-	-	-	-	-	-	2,740
	"	4-5		X	-	-	-	-	-	-	-	-	-	8,850
	"	6-7		X	-	-	-	-	-	-	-	-	-	2,960
	"	9-10	X		-	-	-	-	-	-	-	-	-	217
	"	14-15	X		-	-	-	-	-	-	-	-	-	840
	"	19-20	X		-	-	-	-	-	-	-	-	-	505
	"	24-25	X		-	-	-	-	-	-	-	-	-	286

Table 1
Globe Energy
Globe Eunice Facilty
Soil Assessment
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	ORO	Total						
AH-7	11/19/2015	0-1		X	<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	588
BH-2	1/20/2016	0-1		X	-	-	-	-	-	-	-	-	-	2,360
	"	2-3		X	-	-	-	-	-	-	-	-	-	8,890
	"	4-5		X	-	-	-	-	-	-	-	-	-	2,030
	"	6-7	X		-	-	-	-	-	-	-	-	-	619
	"	9-10	X		-	-	-	-	-	-	-	-	-	338
	"	14-15	X		-	-	-	-	-	-	-	-	-	381
	"	19-20	X		-	-	-	-	-	-	-	-	-	99.0
	"	24-25	X		-	-	-	-	-	-	-	-	-	455
AH-8	11/19/2015	0-1		X	107	1,260	<74.7	**1,370**	<0.00164	<0.00328	<0.00164	<0.00164	<0.00164	44.1
BH-3	1/21/2016	0-1		X										
	"	2-3		X	<14.9	<14.9	<14.9	<14.9	-	-	-	-	-	-
	"	4-5	X											
	"	6-7	X											
	"	9-10	X											
AH-9	11/19/2015	0-1		X	<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	1,370
	"	1-1.5		X	-	-	-	-	-	-	-	-	-	32.6
AH-10	11/19/2015	0-1	X		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	215
AH-11	11/19/2015	0-1	X		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	64.4
	"	1-1.5	X		-	-	-	-	-	-	-	-	-	69.3
AH-12	11/19/2015	0-1		X	<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	1,230
AH-13	11/19/2015	0-1		X	<14.9	<14.9	<14.9	<14.9	-	-	-	-	-	610

Table 1
Globe Energy
Globe Eunice Facilty
Soil Assessment
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	ORO	Total						
AH-14	11/19/2015	0-1		X	<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	1,340
BH-7	1/21/2016	0-1		X	-	-	-	-	-	-	-	-	-	15.3
	"	2-3		X	-	-	-	-	-	-	-	-	-	41.5
	"	4-5		X	-	-	-	-	-	-	-	-	-	8.38
AH-15	11/19/2015	0-0.5		X	<15.0	566	<15.0	**566**	<0.000992	<0.00198	<0.000992	<0.000992	<0.000992	8.83
BH-8	1/21/2016	0-1		X										
	"	2-3		X	<14.9	<14.9	<14.9	<14.9	-	-	-	-	-	-
	"	4-5	X											
	"	6-7	X											
	"	9-10	X											
AH-16	11/19/2015	0-1		X	<15.0	387	<15.0	**387**	<0.00101	<0.00201	<0.00101	<0.00101	<0.00101	20.4
	"	1-1.5		X	<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	36.5
AH-17	11/19/2015	0-1		X	<15.0	283	<15.0	**283**	-	-	-	-	-	3,210
BH-10	1/21/2016	0-1		X	-	-	-	-	-	-	-	-	-	131
	"	2-3		X	<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	4,210
	"	4-5	X		-	-	-	-	-	-	-	-	-	259
	"	6-7	X		-	-	-	-	-	-	-	-	-	128
	"	9-10	X		-	-	-	-	-	-	-	-	-	254
	"	14-15	X		-	-	-	-	-	-	-	-	-	196
	"	19-20	X		-	-	-	-	-	-	-	-	-	50.8
	"	24-25	X		-	-	-	-	-	-	-	-	-	76.1

Table 1
Globe Energy
Globe Eunice Facilty
Soil Assessment
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	ORO	Total						
AH-18	11/19/2015	0-0.5		X	<15.0	24.7	<15.0	**24.7**	-	-	-	-	-	47.9
AH-19	11/19/2015	0-0.5		X	<15.0	224	<15.0	**224**	-	-	-	-	-	14.6
BH-9 (AH-19 & AH-20)	1/21/2016	0-1		X										
	"	2-3	X		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	-
	"	4-5	X											
	"	6-7	X											
	"	9-10	X											
AH-20	11/19/2015	0-0.5		X	<15.0	299	<15.0	**299**	-	-	-	-	-	36.8
AH-21	11/19/2015	0-1		X	<15.0	320	<15.0	**320**	<0.000996	<0.00199	<0.000996	<0.000996	<0.000996	15.4
	"	1-1.5		X	<15.0	36.7	<15.0	**36.7**	-	-	-	-	-	727
BH-11	1/21/2016	0-1		X	-	-	-	-	-	-	-	-	-	<2.00
	"	2-3		X	-	-	-	-	-	-	-	-	-	4,170
	"	4-5	X		-	-	-	-	-	-	-	-	-	82.2
	"	6-7	X		-	-	-	-	-	-	-	-	-	14.3
	"	9-10	X		-	-	-	-	-	-	-	-	-	78.0
	"	14-15	X		-	-	-	-	-	-	-	-	-	40.7
	"	19-20	X		-	-	-	-	-	-	-	-	-	69.5
AH-22	11/19/2015	0-1		X	<14.9	530	<14.9	**530**	<0.00101	<0.00202	<0.00101	<0.00101	<0.00101	8.36
	"	1-1.5		X	<15.0	375	<15.0	**375**	<0.00164	<0.00329	<0.00164	<0.00164	<0.00164	7.64
BH-12	1/21/2016	2-3		X	<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	-
AH-23	11/19/2015	0-1		X	<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	345
	"	1-1.5		X	-	-	-	-	-	-	-	-	-	284
	"	2-2.5	X		-	-	-	-	-	-	-	-	-	104
AH-24	11/19/2015	0-1	X		<15.0	<15.0	<15.0	<15.0	-	-	-	-	-	30.5

(-) Not Analyzed

Excavation Depths

Liner Depth

212C-MD-00374
Xenco Labs

Table 2
Globe Energy
Globe Eunice Facilty
Soil Assessment - Horizontal Delineation
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	ORO	Total	
AH-1 horizontal	1/21/2016	0-1	X		-	-	-	-	2.33
AH-2 horizontal	1/21/2016	0-1	X		-	-	-	-	<2.00
	"	1-1.5	X		-	-	-	-	2.93
AH-3 horizontal	1/21/2016	0-1	X		<14.9	<14.9	<14.9	<14.9	-
AH-4 horizontal	1/21/2016	0-1	X		<15.0	<15.0	<15.0	<15.0	531
AH-5 horizontal	1/21/2016	0-1	X		<15.0	<15.0	<15.0	<15.0	<2.00
	"	1-1.5	X		-	-	-	-	3.45
	"	2-2.5	X		-	-	-	-	316
AH-6 horizontal	1/21/2016	0-1	X		-	-	-	-	2.80
	"	1-1.5	X		-	-	-	-	<2.00
	"	2-2.5	X		-	-	-	-	4.00
AH-7 horizontal	1/21/2016	0-1	X		-	-	-	-	30.1
	"	1-1.5	X		-	-	-	-	216
AH-8 horizontal	1/21/2016	0-1	X		-	-	-	-	3.58
	"	1-1.5	X		-	-	-	-	8.93

Table 2
Globe Energy
Globe Eunice Facilty
Soil Assessment - Horizontal Delineation
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)				Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	ORO	Total	
AH-9 horizontal	1/21/2016	0-1	X		-	-	-	-	5.52
	"	1-1.5	X		-	-	-	-	9.80
AH-10 horizontal	1/21/2016	0-1	X		-	-	-	-	11.3
	"	1-1.5	X		-	-	-	-	18.9
AH-11 horizontal	1/21/2016	0-1	X		-	-	-	-	3.34
AH-12 horizontal	1/21/2016	0-1	X		<14.9	<14.9	<14.9	<14.9	-
AH-13 horizontal	1/21/2016	0-0.5	X		<15.0	<15.0	<15.0	<15.0	4.31
AH-14 horizontal	1/21/2016	0-0.5	X		15.0	<15.0	<15.0	**15.0**	18.8
AH-15 horizontal	1/21/2016	0-1	X		<15.0	<15.0	<15.0	<15.0	<2.00
	"	1-1.5	X		-	-	-	-	<2.00
AH-16 horizontal	1/21/2016	0-0.5	X		23.4	711	91.0	**825**	2.62

(-) Not Analyzed

Table 3
Globe Energy
Globe Eunice Yard
Soil Remediation - Confirmation Sampling
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB Sample Depth (ft)	Soil Status		TPH (mg/kg)				Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	ORO	Total	
South Excavation Area										
BH-1 East Sidewall	3/14/2017	-	-	X		-	-	-	-	4,160
BH-1 West Sidewall	3/14/2017	-	-	X		-	-	-	-	48.0
BH-1 South Sidewall	3/15/2017	-	-	X		-	-	-	-	192
BH-2 West Sidewall	3/14/2017	-	-	X		-	-	-	-	48.0
BH-2 East Sidewall	3/14/2017	-	-	X		-	-	-	-	5,840
BH-3 West Sidewall	3/14/2017	-	-	X		<10.0	<10.0	<10.0	<10.0	-
BH-3 East Sidewall	3/14/2017	-	-	X		<10.0	<10.0	<10.0	<10.0	-
BH-5 South Sidewall	3/15/2017	-	-	X		-	-	-	-	96.0
BH-6 South Sidewall	3/15/2017	-	-	X		-	-	-	-	144
AH-9 South Sidewall	3/14/2017	-	-	X		-	-	-	-	32.0
AH-9 West Sidewall	3/14/2017	-	-	X		-	-	-	-	80.0
BH-7 Bottom Hole North	3/3/2017	-	1.5	X		-	-	-	-	54.4
BH-7 South West Sidewall	3/3/2017	-	-	X		-	-	-	-	6.61
BH-7 North West Sidewall	3/3/2017	-	-	X		-	-	-	-	6.01
BH-7 South Sidewall	3/3/2017	-	-	X		-	-	-	-	5.47
BH-7 North Sidewall	3/3/2017	-	-	X		-	-	-	-	68.7
BH-7 North East Sidewall	3/3/2017	-	-	X		-	-	-	-	12.4
BH-7 South East Sidewall	3/8/2017	-	-	X		-	-	-	-	192
BH-7 South Sidewall	3/8/2017	-	-	X		-	-	-	-	144
BH-7 South Bottom Hole	3/8/2017	-	5.5	X		-	-	-	-	144

Table 3
Globe Energy
Globe Eunice Yard
Soil Remediation - Confirmation Sampling
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB Sample Depth (ft)	Soil Status		TPH (mg/kg)				Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	ORO	Total	
West Excavation Area										
BH-8 North Sidewall	3/1/2017	-	-	X		<15.0	<15.0	<15.0	<15.0	-
BH-8 West Sidewall	3/1/2017	-	-		X	<15.0	308	62.2	370	-
	3/8/2017	-	-	X		<10.0	37.4	68.3	106	-
BH-8 South Sidewall	3/1/2017	-	-		X	<15.0	178	30.5	209	-
	3/8/2017	-	-	X		<10.0	<10.0	<10.0	<10.0	-
BH-11 Bottom Hole	3/8/2017	-	2.0		X	<10.0	185	246	431	112
	3/10/2017		2.5		X	<10.0	141	171	312	-
	3/20/2017		3.0	X		<10.0	<10.0	<10.0	<10.0	-
BH-12 North Sidewall	3/8/2017	-	-	X		<10.0	14.6	17.1	31.7	-
BH-12 West Sidewall	3/8/2017	-	-	X		<10.0	<10.0	<10.0	<10.0	-
AH-17 West Sidewall	3/1/2017	-	-		X	<15.0	952	209	1,160	152
	3/8/2017	-	-		X	<10.0	161	191	352	-
	3/10/2017	-	-	X		<10.0	<10.0	<10.0	<10.0	-
AH-17 Bottom Hole	3/1/2017	-	2.0	X		-	-	-	-	76.2
AH-19 West Sidewall	3/1/2017	-	-		X	<15.0	808	218	1,030	-
	3/8/2017	-	-		X	<10.0	113	162	275	-
	3/10/2017	-	-	X		<50.0	239	309	548	-
AH-20 North Sidewall	3/1/2017	-	-		X	<15.0	1,680	395	2,080	-
	3/8/2017	-	-		X	<10.0	133	175	308	-
	3/10/2017	-	-		X	<50.0	311	370	681	-
	3/20/2017	-	-	X		<10.0	<10.0	<10.0	<10.0	-
AH-20 South Sidewall	3/1/2017	-	-		X	<15.0	1,610	380	1,990	-
	3/8/2017	-	-		X	<10.0	422	478	900	-
	3/10/2017	-	-		X	<50.0	170	219	389	-
	3/20/2017	-	-	X		<10.0	<10.0	<10.0	<10.0	-
AH-22 North West Sidewall	3/1/2017	-	-		X	<15.0	375	108	483	-
	3/5/2017	-	-	X		<10.0	<10.0	<10.0	<10.0	-

(-) Not Analyzed

Excavated Areas

Table 4
Globe Energy Services
Eunice Yard
MW-1 - Soils Analysis
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
MW-1	9/20/2016	5	X		-	-	-	-	-	-	-	-	294
	"	10	X		<15.0	<15.0	<15.0	<0.00149	<0.00149	<0.00149	<0.00199	<0.00149	197
	"	15	X		-	-	-	-	-	-	-	-	239
	"	20	X		<15.0	21.9	21.9	<0.00149	<0.00149	<0.00149	<0.00198	<0.00149	193

(-) Not Analyzed

Table 5
Globe Energy Services
MW-1 - Groundwater Analysis
Eunice Yard
Lea County, New Mexico

Sample ID	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethlybenzene (mg/L)	Xylene (mg/L)	Total BTEX (mg/L)	Chloride (mg/L)
MW-1	9/22/2016	<0.00200	<0.00150	<0.00200	<0.00200	<0.00150	1,610

Photos

Globe Energy
Eunice NM Yard
Lea County, New Mexico

View West – Area of AH-1 and AH-2

View East – Area of AH-4

Globe Energy
Eunice NM Yard
Lea County, New Mexico

View South – Area of AH-7 and AH-8

View South– Area of AH-5 and AH-6

Globe Energy
Eunice NM Yard
Lea County, New Mexico

View South – Area of AH-12, AH-13 and AH-14

View Northeast – Area of AH-15 and AH-16

Globe Energy
Eunice NM Yard
Lea County, New Mexico

View West – Area of AH-17, AH-18 and AH-19

View Northeast – Area of AH-22, AH-23, and AH-24

Globe Energy
Eunice NM Yard
Lea County, New Mexico

View East – Area of BH-1

View East – Area of BH-2

Globe Energy
Eunice NM Yard
Lea County, New Mexico

View North – Area of BH-3

View West – Area of BH-4

Globe Energy
Eunice NM Yard
Lea County, New Mexico

View North – Area of BH-5

View North – Area of BH-6

Globe Energy
Eunice NM Yard
Lea County, New Mexico

View East – Area of BH-8

View North – Area of BH-10, BH-11, and BH-12

Globe Energy
Eunice NM Yard
Lea County, New Mexico

View West – Area of BH-9

View North – Area of MW-1

Globe Energy
Eunice NM Yard
Lea County, New Mexico
South Excavation Area

TETRA TECH

View South – Excavated Area of BH-1

View South – Excavated Area of BH-2 and BH-3

Globe Energy
Eunice NM Yard
Lea County, New Mexico
South Excavation Area

View East – Excavated Area of BH-4

View East – Excavated Area of BH-5

Globe Energy
Eunice NM Yard
Lea County, New Mexico
South Excavation Area

View Southeast – Excavated Area of BH-6

View West – Excavated Area of AH-9

Globe Energy
Eunice NM Yard
Lea County, New Mexico
South Excavation Area

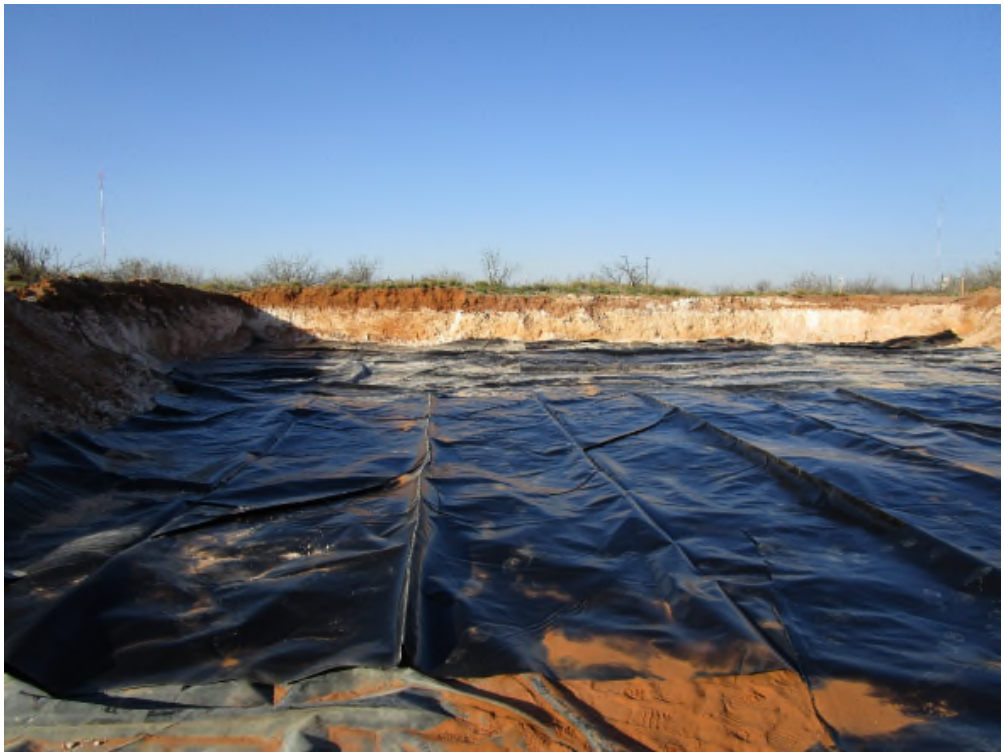
View South – Excavated Area of BH-7

View South – Lined Area of BH-1 and BH-2

Globe Energy
Eunice NM Yard
Lea County, New Mexico
South Excavation Area

TETRA TECH

View Northeast – Lined Area of BH-4



View West – Lined Area of BH-5 and BH-6

Globe Energy
Eunice NM Yard
Lea County, New Mexico
South Excavation Area

View South – Backfilled Area of BH-1, BH-2, and BH-3

View East – Backfilled Area of BH-4, BH-5, and BH-6

Globe Energy
Eunice NM Yard
Lea County, New Mexico
South Excavation Area

View Southwest – Backfilled Area of AH-9

View South – Backfilled Area of BH-7

Globe Energy
Eunice NM Yard
Lea County, New Mexico
West Excavation Area

View South – Excavated Area of AH-15 and AH-16

View South – Excavated Area of AH-17 and AH-21

Globe Energy
Eunice NM Yard
Lea County, New Mexico
West Excavation Area

View West- Excavated Area of AH-19 and AH-20

View North – Excavated Area of AH-22 and AH-23

Globe Energy
Eunice NM Yard
Lea County, New Mexico
West Excavation Area

View North – Excavated Area of AH-22 and AH-23

View South – Backfilled Area of AH-15 and AH-16

Globe Energy
Eunice NM Yard
Lea County, New Mexico
West Excavation Area

View South – Backfilled Area of AH-17

View North – Backfilled Area of AH-21

Globe Energy
Eunice NM Yard
Lea County, New Mexico
West Excavation Area

View West – Backfilled Area of AH-19 and AH-20

View North – Backfilled Area of AH-22 and AH-23

Appendix A

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

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

RECEIVED
By JKeyes at 3:27 pm, Nov 05, 2015

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: **Globe Energy Services**	Contact: **Tommy Morris**
Address: **113 Texas Ave. Eunice, NM 88231**	Telephone No.: **(325) 207-7775**
Facility Name: **Eunice Fluid Services**	Facility Type: **Fluid Hauling**

Surface Owner: **Chevron USA Inc.**	Mineral Owner	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	34	21S	37E					Lea

Latitude 32.43356300 **Longitude** -103.14468400

NATURE OF RELEASE

Type of Release: **Produced Water**	Volume of Release: **Unknown**	Volume Recovered: **None**
Source of Release: **Frac Tanks**	Date and Hour of Occurrence: **Unknown**	Date and Hour of Discovery: **October 26th, 2015**
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? **Jamie Keyes**	
By Whom? **Tommy Morris**	Date and Hour: **October 26th, 2015**	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. **N/A**	

If a Watercourse was Impacted, Describe Fully.*
N/A

Describe Cause of Problem and Remedial Action Taken.*

Release of produced water from frac tanks that were being stored on the south side of the Globe yard in Eunice New Mexico. The fluids migrated offsite onto the adjacent property. Tetra Tech will sample the areas of concern to evaluate to the subsurface soils and present a remediation plan to the NMOCD prior to any significant remediation work.

Describe Area Affected and Cleanup Action Taken.*
The area of concern affected is South of Globe Energy's property line; outside the fence

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.

Signature: Tommy Morris

Printed Name: Tommy Morris

Title: HSE Director

E-mail Address: tommy.morris@gesllc.com

Date: 11-5-15 Phone: 325-207-7775

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: Jamie Keyes

Approval Date: 11/05/2015 Expiration Date: 01/06/2015

Conditions of Approval:
Discrete site samples required. Delineate and remediate per NMOCD guidelines.
Geotagged photos of remediation required.

Attached ☐
1RP 3960
nJXK1530955218
pJXK1530955355

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
Globe Eunice Facility
Lea County, New Mexico

20 South 37 East

6 37	5 38	4 22	3	2	1
7 36	8 35	9	10	11	12
18	17	16	15	14	13 78
19 35	20	21	22	23	24
30	29	28 40	27	26	25
31	32	33 198	34	35	36

20 South 38 East

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

20 South 39 East

6	5	4
7	8	9
18	17	16
19	20	21
30	29	28
31	32	33

21 South 36 East

6	5	4	3	2	1
7	8	9	10 200	11	12
18 106	17	16 195	15	14	13
19	20	21	22	23 130 150	24
30	29	28	27	26 150	25 148
31	32	33	34	35	36

21 South 37 East

6 73	5	4 75	3	2	1
7	8	9	10	11	12
18	17 71	16 70	15	14	13
19	20 98	21	22 53	23	24
30	29 85	28 71	27 76	26	25
31	32	33 100	34 29	35 48	36

21 South 38 East

6	5	4
7	8	9
18	17	16
19	20	21
30	29	28
31	32	33

22 South 36 East

6 195	5 212	4	3	2	1 137
7	8	9	10	11	12
18	17	16 170	15	14	13
19	20	21	22 22	23	24
30	29	28	27 160	26	25 118
31	32	33	34	35 181 187	36

22 South 37 East

6	5 85	4	3	2	1
7	8	9 90	10	11	12
18 190	17	16	15 125	14 65	13
19	20	21 65	22	23	24 60
30	29	28	27 53	26 65	25
31	32	33	34	35	36

22 South 38 East

6	5	4
7	8	9
18	17	16
19	20	21
30	29	28
31	32	33

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)

Geology and Groundwater Resources of Eddy County, NM (Report 3)

34 NMOCD - Groundwater Data

123 Tetra Tech installed temporary wells and field water level

143 NMOCD Groundwater map well location

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
CP 00835			LE			3	34	21S	37E	673454	3589786*	145		
CP 00943 POD1			LE	1	3	1	34	21S	37E	673166	3590405	142		
CP 01145 POD1			LE	2	2	2	34	21S	37E	674514	3590848	90		
CP 01358 POD1			LE	2	1	4	34	21S	37E	674134	3589539	65	48	17
CP 01358 POD2			LE	4	4	2	34	21S	37E	674497	3589676	42	29	13
CP 01358 POD3			LE	4	4	1	34	21S	37E	674434	3589782	45	32	13
CP 01358 POD4			LE	4	2	3	34	21S	37E	674307	3589974	45	40	5
CP 01358 POD5			LE	4	2	1	34	21S	37E	674306	3590035	58	41	17
CP 01358 POD6			LE	4	2	3	34	21S	37E	674271	3589921	26		

Average Depth to Water: **38 feet**

Minimum Depth: **29 feet**

Maximum Depth: **48 feet**

Record Count: 9

PLSS Search:

Section(s): 34 **Township:** 21S **Range:** 37E

***UTM location was derived from PLSS - see Help**

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-basin Code	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
CP 00014		LE	1	3	2	23	21S	37E	675492	3593749*	84		
CP 00017		LE	2	1	2	27	21S	37E	674106	3592513*	101		
CP 00111		LE		2	3	36	21S	37E	676864	3590052*	90		
CP 00133		LE	2	2	4	35	21S	37E	676159	3590137*	80		
CP 00134		LE	1	1	1	24	21S	37E	676289	3594166*	85		
CP 00137		LE	2	2	1	13	21S	37E	676862	3595783*	65		
CP 00138		LE	3	2	2	35	21S	37E	675944	3590741*	70		
CP 00162		LE	1	4	2	09	21S	37E	672621	3596915*	120		
CP 00163		LE	1	4	2	09	21S	37E	672621	3596915*	120		
CP 00164		LE	2	1	1	21	21S	37E	671665	3594080*	120		
CP 00197		LE	1	4	1	01	21S	37E	676611	3598599*	85		
CP 00212		LE	2	2	1	14	21S	37E	675254	3595753*	46		
CP 00214		LE	2	1	4	35	21S	37E	675757	3590129*	80		
CP 00220		LE	1	1	3	25	21S	37E	676332	3591753*	75		
CP 00221		LE	2	1	3	35	21S	37E	674953	3590115*	290		
CP 00223		LE	3	2	4	35	21S	37E	675959	3589937*	110		
CP 00224		LE	4	3	3	23	21S	37E	674902	3592730*	96		
CP 00225		LE	2	2	4	35	21S	37E	676159	3590137*	85		
CP 00226		LE	1	4	4	26	21S	37E	675937	3591344*	80		
CP 00227		LE	2	3	4	26	21S	37E	675735	3591336*	85		
CP 00228		LE	4	3	4	26	21S	37E	675735	3591136*	90		
CP 00229		LE	4	3	4	35	21S	37E	675764	3589527*	85		
CP 00230		LE	3	2	3	26	21S	37E	675126	3591531*	85		
CP 00235		LE	2	2	1	23	21S	37E	675283	3594144*	81		
CP 00236		LE	3	1	2	23	21S	37E	675485	3593952*	83		
CP 00238		LE	3	3	2	23	21S	37E	675492	3593549*	81		

***UTM location was derived from PLSS - see Help**

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-basin Code	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
CP 00239		LE	1	1	2	23	21S	37E	675485	3594152*	89		
CP 00240		LE	4	2	1	23	21S	37E	675283	3593944*	72		
CP 00241		LE	4	2	1	23	21S	37E	675283	3593944*	76		
CP 00242		LE	3	4	2	28	21S	37E	672708	3591889*	112		
CP 00249		LE	2	3	2	27	21S	37E	674113	3592111*	102		
CP 00250		LE	2	3	2	27	21S	37E	674113	3592111*	101		
CP 00251		LE	2	3	4	22	21S	37E	674099	3592915*	103		
CP 00252		LE	4	2	4	22	21S	37E	674493	3593125*	106		
CP 00253		LE	3	4	2	27	21S	37E	674315	3591918*	101		
CP 00293		LE	2	4	1	27	21S	37E	673711	3592104*	80		
CP 00322		LE			3	28	21S	37E	671818	3591366*	138	73	65
CP 00346		LE	1	3	1	27	21S	37E	673110	3592096*	90		
CP 00447		LE	2	4	4	18	21S	37E	669647	3594451*	95		
CP 00552		LE		2	4	04	21S	37E	672700	3598022*	90	75	15
CP 00553		LE		2	4	04	21S	37E	672700	3598022*	90	75	15
CP 00554		LE		2	2	16	21S	37E	672744	3595610*	80	70	10
CP 00562		LE	1	2	2	23	21S	37E	675887	3594159*	136	65	71
CP 00676		LE		4	4	18	21S	37E	669548	3594352*	140	106	34
CP 00700		LE			2	23	21S	37E	675794	3593851*	75	65	10
CP 00711		LE	4	2	2	28	21S	37E	672900	3592291*	100	65	35
CP 00726		LE		2	4	33	21S	37E	672844	3589980*	125	100	25
CP 00735		LE		2	4	28	21S	37E	672816	3591588*	105		
CP 00736		LE		3	1	27	21S	37E	673211	3591997*	120	76	44
CP 00749		LE	2	4	3	28	21S	37E	672118	3591271*	123	75	48
CP 00835		LE			3	34	21S	37E	673454	3589786*	145		
CP 00877		LE				06	21S	37E	668920	3598153*	150	73	77
CP 00881		LE		4	4	22	21S	37E	674402	3592824*	95	53	42
CP 00895		LE		1	1	20	21S	37E	669957	3593956*	163		
CP 00914 EXPL		LE	4	3	1	36	21S	37E	676554	3590346*	72		

***UTM location was derived from PLSS - see Help**

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

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

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

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Code	Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
CP 00943 POD1			LE	1	3	1	34	21S	37E	673166	3590405	142		
CP 00965 POD1	R		LE	1	3	4	28	21S	37E	672333	3591346	123	60	63
CP 00965 POD2			LE	1	3	4	28	21S	37E	672273	3591336	135		
CP 00966 POD1			LE	1	3	4	28	21S	37E	672306	3591367	154		
CP 00985 POD1			LE	4	4	2	19	21S	37E	669595	3593453	160		
CP 00986 POD1			LE	4	3	4	06	21S	37E	669110	3597437	154		
CP 01026 POD1			LE	1	1	3	17	21S	37E	669809	3594958	167	95	72
CP 01077 POD1			LE	1	2	2	33	21S	37E	672710	3590940	80	45	35
CP 01141 POD2			LE	3	4	3	15	21S	37E	673541	3594250	40		
CP 01141 POD3			LE	3	4	3	15	21S	37E	673541	3594250	40		
CP 01141 POD4			LE	3	4	3	15	21S	37E	673541	3594250	45		
CP 01145 POD1			LE	2	2	2	34	21S	37E	674514	3590848	90		
CP 01185 POD1			LE		1	3	14	21S	37E	674598	3594689	70		
CP 01185 POD2			LE		1	3	14	21S	37E	674623	3594674	70		
CP 01185 POD3			LE		1	3	14	21S	37E	674592	3594620	70		
CP 01185 POD4			LE		1	3	14	21S	37E	674633	3594610	70		
CP 01221 POD1			LE	4	4	4	11	21S	37E	676254	3588506	75	60	15
CP 01222 POD1			LE	2	2	2	35	21S	37E	676079	3591029	58	48	10
CP 01222 POD2			LE	2	2	2	35	21S	37E	676079	3591029	65	48	17
CP 01222 POD3			LE	2	2	2	35	21S	37E	676052	3591029	60	48	12
CP 01222 POD4			LE	2	2	2	35	21S	37E	676105	3590999	60	44	16
CP 01245 POD1			LE	1	4	3	18	21S	37E	668677	3594410	220		
CP 01274 POD1			LE	4	3	1	26	21S	37E	674993	3591843	60		
CP 01274 POD2			LE	4	3	1	26	21S	37E	674993	3591843	60		
CP 01302 POD1			LE	3	3	3	28	21S	37E	671454	3591072	162	100	62
CP 01358 POD1			LE	2	1	4	34	21S	37E	674134	3589539	65	48	17
CP 01358 POD2			LE	4	4	2	34	21S	37E	674497	3589676	42	29	13
CP 01358 POD3			LE	4	4	1	34	21S	37E	674434	3589782	45	32	13
CP 01358 POD4			LE	4	2	3	34	21S	37E	674307	3589974	45	40	5

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

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

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
CP 01358 POD5			LE	4	2	1	34	21S	37E	674306	3590035	58	41	17
CP 01358 POD6			LE	4	2	3	34	21S	37E	674271	3589921	26		
CP 01540 POD1		CP	LE	1	1	1	35	21S	37E	674374	3590848	51	36	15
CP 01574 POD1		CP	LE	2	4	4	15	21S	37E	674563	3594599	68	57	11
CP 01574 POD2		CP	LE	1	3	3	14	21S	37E	674654	3594594	68	57	11
CP 01575 POD1		CP	LE	1	2	1	22	21S	37E	673543	3594200	40	35	5
CP 01575 POD2		CP	LE	2	2	1	22	21S	37E	673610	3594192	35	35	0

Average Depth to Water: **60 feet**

Minimum Depth: **29 feet**

Maximum Depth: **106 feet**

Record Count: 91

PLSS Search:

Township: 21S **Range:** 37E

Appendix C

SAMPLE LOG

Client:	**Globe Energy Services**
Site Name	**Eunice Yard**
Boring/Well:	**BH-1**
GPS	**32.43107, -103.14390**
Project #:	**212C-MD-00374**
Total Depth	**25'**
Date Installed:	**1/20/2016**

DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	PID (ppm)	CONDUCTIVITY (ppm)	CHLORIDE KIT
0-1	*Fine to mediums brown/red sand*	*No Stain or odor*	-	*123*	-
2-3	*Dense caliche*	*No Stain or odor*	-	*2,007*	-
4-5	*Dense caliche*	*No Stain or odor*	-	*3,550*	-
6-7	*Dense caliche*	*No Stain or odor*	-	*1,320*	-
9-10	*Dense caliche*	*No Stain or odor*	-	*346*	-
14-15	*Dense caliche*	*No Stain or odor*	-	*740*	-
19-20	*Friable caliche, limestone & chert*	*No Stain or odor*	-	*753*	*800*
24-25	*Red sandstone and chert*	*No Stain or odor*	-	*807*	-

SAMPLE LOG

Client:	**Globe Energy Services**
Site Name	**Eunice Yard**
Boring/Well:	**BH-2**
GPS	**32.43139, -103.4388**
Project #:	**212C-MD-00374**
Total Depth	**25'**
Date Installed:	**1/20/2016**

DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	PID (ppm)	CONDUCTIVITY (ppm)	CHLORIDE KIT
0-1	*Fine brown sand & calcareous fine tan sand*	*No Stain or odor*	-	*1,820*	-
2-3	*Dense caliche*	*No Stain or odor*	-	*4,420*	-
4-5	*Dense caliche*	*No Stain or odor*	-	*1,240*	-
6-7	*Dense caliche*	*No Stain or odor*	-	*487*	-
9-10	*Friable caliche*	*No Stain or odor*	-	*358*	-
14-15	*Friable caliche*	*No Stain or odor*	-	*512*	*375*
19-20	*Friable caliche*	*No Stain or odor*	-	*315*	-
24-25	*Red sandstone & chert*	*No Stain or odor*	-	*435*	-

SAMPLE LOG

Client:	**Globe Energy Services**
Site Name	**Eunice Yard**
Boring/Well:	**BH-3**
GPS	**32.43147, -103.14384**
Project #:	**212C-MD-00374**
Total Depth	**10'**
Date Installed:	**1/20/2016**

DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	PID (ppm)	CONDUCTIVITY (ppm)	CHLORIDE KIT
0-1	*Brown to red silty sand - damp*	*No Stain or odor*	*3.20*	-	-
2-3	*Dense caliche*	*No Stain or odor*	*38.4*	-	-
4-5	*Dense caliche*	*No Stain or odor*	*35.5*	-	-
6-7	*Dense caliche*	*No Stain or odor*	*42.3*	-	-
9-10	*Friable caliche*	*No Stain or odor*	*21.8*	-	-

SAMPLE LOG

Client:	**Globe Energy Services**
Site Name	**Eunice Yard**
Boring/Well:	**BH-4**
GPS	**32.43159, -103.14395**
Project #:	**212C-MD-00374**
Total Depth	**25'**
Date Installed:	**1/20/2016**

DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	PID (ppm)	CONDUCTIVITY (ppm)	CHLORIDE KIT
0-1	*Brown to red silty sand*	*No stain / faint odor*	*38.2*	*3,750*	-
2-3	*Dense caliche*	*No stain / faint odor*	*36.4*	*3,330*	-
4-5	*Dense caliche & fine red sand*	*No stain / faint odor*	*27.5*	*3,910*	-
6-7	*Dense calcieh*	*No Stain or odor*	*19.5*	*5,300*	-
9-10	*Friable caliche*	*No Stain or odor*	*23.2*	*5,500*	-
14-15	*Friable caliche*	*No Stain or odor*	-	*6,250*	-
19-20	*Friable caliche*	*No Stain or odor*	-	*3,100*	-
24-25	*Coarse red to brown sandstone*	*No Stain or odor*	-	*1,190*	-

SAMPLE LOG

Client:	**Globe Energy Services**
Site Name	**Eunice Yard**
Boring/Well:	**BH-5**
GPS	**32.43164, -103.14413**
Project #:	**212C-MD-00374**
Total Depth	**25'**
Date Installed:	**1/20/2016**

DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	PID (ppm)	CONDUCTIVITY (ppm)	CHLORIDE KIT
0-1	*Brown to red medium to fine sand*	*No stain / faint odor*	*0.9*	*5,370*	*-*
2-3	*Dence caliche*	*No Stain or odor*	*1.5*	*4,860*	*-*
4-5	*Dense caliche & fine red sand*	*No Stain or odor*	*23.0*	*2,630*	*-*
6-7	*Friable caliche & fine red sand*	*No Stain or odor*	*0.7*	*1,030*	*-*
9-10	*Friable caliche & fine red sand*	*No Stain or odor*	*0.0*	*587*	*-*
14-15	*Friable caliche & fine red sand*	*No Stain or odor*	*-*	*418*	*-*
19-20	*Red sandstone & friable caliche*	*No Stain or odor*	*-*	*374*	*-*
24-25	*Red sandstone & chert*	*No Stain or odor*	*-*	*497*	*500*

SAMPLE LOG

Client:	**Globe Energy Services**
Site Name	**Eunice Yard**
Boring/Well:	**BH-6**
GPS	**32.43153, -103.14435**
Project #:	**212C-MD-00374**
Total Depth	**25'**
Date Installed:	**1/21/2016**

DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	PID (ppm)	CONDUCTIVITY (ppm)	CHLORIDE KIT
0-1	*Brown to red medium to fine sand - damp*	*No Stain or odor*	-	*307*	-
2-3	*Dense caliche & fine red sand - dry*	*No Stain or odor*	-	*4,360*	-
4-5	*Dense caliche & fine red sand*	*No Stain or odor*	-	*4,620*	-
6-7	*Dense caliche & fine red sand*	*No Stain or odor*	-	*1,380*	-
9-10	*Dense caliche*	*No Stain or odor*	-	*1,670*	-
14-15	*Friable caliche*	*No Stain or odor*	-	*935*	-
19-20	*Friable caliche*	*No Stain or odor*	-	*570*	-
24-25	*Red sandstone & chert*	*No Stain or odor*	-	*717*	-

SAMPLE LOG

Client:	**Globe Energy Services**
Site Name	**Eunice Yard**
Boring/Well:	**BH-7**
GPS	**32.43149, -103.14503**
Project #:	**212C-MD-00374**
Total Depth	**5'**
Date Installed:	**1/21/2016**

DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	PID (ppm)	CONDUCTIVITY (ppm)	CHLORIDE KIT
0-1	*Brown to red medium to fine sand - damp*	*No Stain or odor*	*-*	*145*	*-*
2-3	*Dense caliche*	*No Stain or odor*	*-*	*280*	*180*
4-5	*Dense caliche*	*No Stain or odor*	*-*	*196*	*100*

SAMPLE LOG

Client:	**Globe Energy Services**
Site Name	**Eunice Yard**
Boring/Well:	**BH-8**
GPS	**32.43191, -103.14549**
Project #:	**212C-MD-00374**
Total Depth	**10'**
Date Installed:	**1/21/2016**

DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	PID (ppm)	CONDUCTIVITY (ppm)	CHLORIDE KIT
0-1	*Dense caliche & fine brown sand*	*Faint stain/no odor*	*0.3*	-	-
2-3	*Dense caliche*	*No stain / faint odor*	*1.1*	-	-
4-5	*Dense caliche*	*No Stain or odor*	*4.8*	-	-
6-7	*Dense caliche*	*No Stain or odor*	*1.3*	-	-
9-10	*Friable caliche*	*No Stain or odor*	*0.4*	-	-

SAMPLE LOG

Client:	Globe Energy Services
Site Name	Eunice Yard
Boring/Well:	BH-9
GPS	32.43212, -103.14559
Project #:	212C-MD-00374
Total Depth	10'
Date Installed:	1/21/2016

DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	PID (ppm)	CONDUCTIVITY (ppm)	CHLORIDE KIT
0-1	*Medium to fine brown sand*	*No stain / faint odor*	*3.7*	-	-
2-3	*Dense caliche*	*No stain / faint odor*	*8.1*	-	-
4-5	*Dense caliche & fine brown sand*	*No stain / faint odor*	*0.6*	-	-
6-7	*Friable caliche & fine brown sand*	*No Stain or odor*	*3.1*	-	-
9-10	*Friable caliche & fine brown sand*	*No Stain or odor*	*0.1*	-	-

SAMPLE LOG

Client:	Globe Energy Services
Site Name	Eunice Yard
Boring/Well:	BH-10
GPS	32.43207, -103.14552
Project #:	212C-MD-00374
Total Depth	25'
Date Installed:	1/21/2016

DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	PID (ppm)	CONDUCTIVITY (ppm)	CHLORIDE KIT
0-1	*Brown to red medium to fine sand - damp*	*No stain / faint odor*	*1.0*	*295*	*-*
2-3	*Dense caliche*	*No stain / faint odor*	*3.5*	*3,010*	*-*
4-5	*Dense caliche*	*No Stain or odor*	*5.5*	*610*	*-*
6-7	*Dense caliche*	*No Stain or odor*	*1.2*	*285*	*-*
9-10	*Friable caliche*	*No Stain or odor*	*1.2*	*500*	*-*
14-15	*Friable caliche*	*No Stain or odor*	*-*	*365*	*-*
19-20	*Medium red to brown sand*	*No Stain or odor*	*-*	*195*	*180*
24-25	*Medium red to brown sand*	*No Stain or odor*	*-*	*225*	*200*

SAMPLE LOG

Client:	**Globe Energy Services**
Site Name	**Eunice Yard**
Boring/Well:	**BH-11**
GPS	**32.43199, -103.14542**
Project #:	**212C-MD-00374**
Total Depth	**20'**
Date Installed:	**1/21/2016**

DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	PID (ppm)	CONDUCTIVITY (ppm)	CHLORIDE KIT
0-1	*Medium brown sand*	*No Stain or odor*	-	*138*	-
2-3	*Dense caliche*	*No Stain or odor*	-	*3,260*	-
4-5	*Dense caliche & medium brown sand*	*No Stain or odor*	-	*398*	-
6-7	*Friable caliche*	*No Stain or odor*	-	*204*	-
9-10	*Friable caliche*	*No Stain or odor*	-	*380*	*400*
14-15	*Friable caliche*	*No Stain or odor*	-	*165*	*160*
19-20	*Medium red to brown sand*	*No Stain or odor*	-	*180*	-

SAMPLE LOG

Client:	**Globe Energy Services**
Site Name	**Eunice Yard**
Boring/Well:	**BH-12**
GPS	**32.43224, -103.14540**
Project #:	**212C-MD-00374**
Total Depth	**10'**
Date Installed:	**1/21/2016**

DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	PID (ppm)	CONDUCTIVITY (ppm)	CHLORIDE KIT
0-1	*Medium brown sand*	*Mod. Stain/faint odor*	*3.7*	-	-
2-3	*Dense caliche*	*No stain / faint odor*	*0.3*	-	-
4-5	*Dense caliche*	*No Stain or odor*	*3.0*	-	-
6-7	*Friable caliche*	*No Stain or odor*	*4.1*	-	-
9-10	*Friable caliche*	*No Stain or odor*	*2.1*	-	-

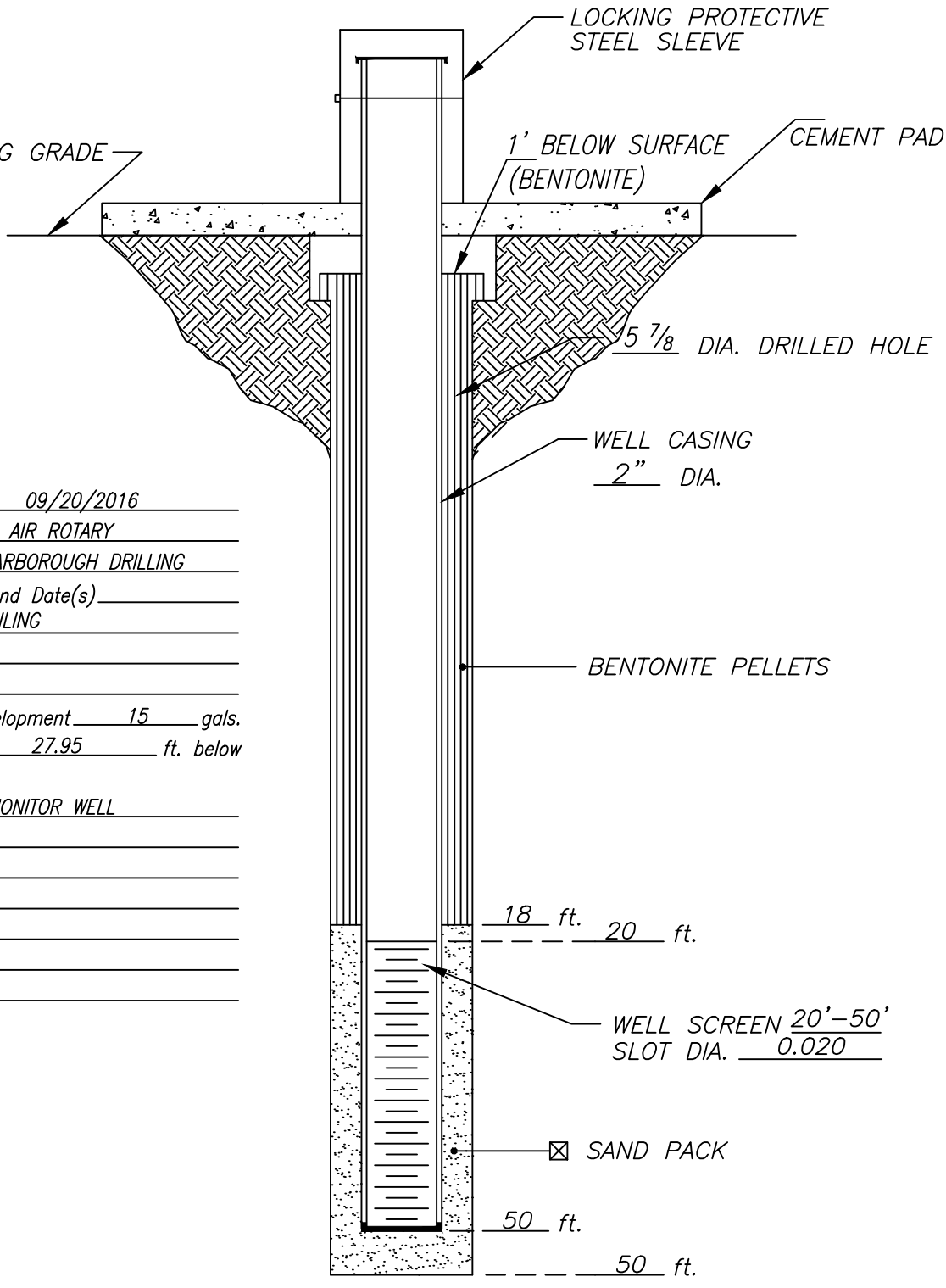
SAMPLE LOG

Client:	**Globe Energy Services**	**TD:**	**50'**	
Site Name	**Eunice Yard**	**Screen Depth:**	**20-50'**	
Boring/Well:	**MW-1**	**DTW:**		
GPS	**32.43156, -103.14407**			
Project #:	**212C-MD-00374**			
Total Depth	**50'**			
Date Installed:	**9/20/2016**			

DEPTH (Ft)	SAMPLE DESCRIPTION	NOTES	PID (ppm)	CONDUCTIVITY (ppm)
0-1'	*Fine red to brown sand*	*No stain or odor*	-	-
1-2'	*Fine red to brown sand & dense caliche*	*No stain or odor*	-	-
2-5'	*Dense & friable caliche*	*No stain or odor*	-	-
5'	***Dense & friable caliche with fine red to brown sand***	***No stain or odor***	**-**	***795***
5-9'	*Dense & friable caliche with fine red to brown sand*	*No stain or odor*		-
10'	***Limestone & fine brown sand***	***No stain or odor***	**-**	***989***
10-11'	*Limestone & fine brown sand*	*No stain or odor*	-	-
11-15'	*Sandy friable caliche*	*No stain or odor*	-	-
15'	***Limestone & chert***	***No stain or odor***	**-**	***815***
15-20	*Limestone & chert*	*No stain or odor*	-	-
20'	***Limestone, chert & fine tan sand***	***No stain or odor***	**-**	***715***
20-27'	*Limestone*	*No stain or odor*	-	-
27-38'	*Very dense limestone*	*No stain or odor*	-	-
38-47	*Alluvium & red clay*	*No stain or odor*	-	-
47-50'	*Red Clay*	*No stain or odor*	-	-

Appendix D

WELL CONSTRUCTION LOG



Installation Date(s) 09/20/2016
Drilling Method AIR ROTARY
Drilling Contractor SCARBOROUGH DRILLING
Development Technique(s) and Date(s)
HAND BAILING

Water Removed During Development 15 gals.
Static Depth to Water 27.95 ft. below Top of Casing
Well Purpose MONITOR WELL

Remarks

DATE: 09/20/2016	CLIENT: GLOBE ENERGY SERVICES	WELL NO.
TETRA TECH, INC. MIDLAND, TEXAS	PROJECT: GLOBE EUNICE YARD	MW–1
	LOCATION: LEA COUNTY, NEW MEXICO	
	212C-MD-00347	