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REPORTS

DATE:

1/19/2007

1R0440

Highlander Environmental Corp.

Midland, Texas

RECEIVED

JAN 22 2007

Oil Conservation Division
Environmental Bureau

January 19, 2007

Mr. Glenn von Gonten
New Mexico Energy, Minerals, & Natural Resources
Oil Conservation Division, Environmental Bureau
1220 S. St. Francis Drive
Santa Fe, New Mexico 87504

Re: Soil Vapor Extraction Test Pilot Workplan for the Pogo Producing Company, E.C. Hill "A, B and C" Tank Battery, Located in Section 27, Township 23 South, Range 37 East, Lea County, New Mexico.

Dear Mr. Gonten:

Highlander Environmental Corp. (Highlander) was contacted in 2003, to investigate spills at the E.C. Hill "A, B and C" Tank Battery in Lea County, (Site) located in Section 27, Township 23 South, Range 37 East. The Site is shown on Figure 1. This workplan summarizes all previous work performed at the site and includes a proposed Soil Vapor Extraction (SVE) system for remediation of the underlying hydrocarbon impacted soils and groundwater. In addition, this proposal includes redrilling and reinstallation of monitor well MW-1 as a 4-inch diameter monitor well in order to enhance recovery of phase separated hydrocarbons (PSH).

PREVIOUS CORRESPONDENCE

Highlander has submitted various work plans to the NMOCD for the activities performed at the Site. The dates of the correspondence are shown in the Chronology Section attached to this report.

FACILITY BACKGROUND

This facility is an old battery, which has had numerous spills from previous operators. Prior to Pogo Producing Company (Pogo), the facility was operated by Chevron and Mid-Continent. Since Pogo began operation of this facility, several documented spills have occurred over older spills at the facility. The former tanks, vessels and equipment associated with the tank battery are shown on Figure 2. The majority of the spills have occurred around production equipment and active underground lines. Several attempts were made to define the extents of the impact using a stainless

steel bucket-type hand auger. A shallow, dense, caliche layer was encountered from 6" to 1.0' below surface, which caused auger refusal. These spill areas were not accessible for equipment, such as a backhoe or drilling rig.

Initially, Pogo Producing Company had proposed to defer all inaccessible assessment and major cleanup activities until abandonment of the tank battery. Once inactive, Pogo had proposed to remove all production equipment and lines, perform an environmental assessment to vertically define the extents, and properly address the impacted soil at the facility.

In November 2003, Pogo decided to shut down all production to the tank battery and removed all tanks, vessels, equipment and lines in order to make the former tank battery location accessible to perform further assessment. Once the facility was dismantled, the impacted soils were excavated in the areas of the tanks, vessels and lines.

HYDROLOGY AND GROUNDWATER SEARCH

Hydrology

Groundwater in the Teague Paddock Field study area, southern Lea County, is obtained almost entirely from the Ogallala formation with some wells in the Quaternary alluvium. Sediments of Quaternary age can be observed in southern Lea County in the form of alluvial deposits, probably of both Pleistocene and Recent age, and dune sands of Recent age. The Quaternary alluvium has been deposited in topographically low areas where the older Ogallala formation had been stripped away.

The primary aquifer, the Ogallala formation, consists of inter-fingering bodies of fine to coarse sand, gravel, silt, and clay-material. In places, the upper part of the formation contains several hard, erosionally resistant beds of caliche. The thickness of the Ogallala formation is primarily controlled by the morphology of the eroded pre-Ogallala surface. To the east of the study area, in the San Simon Ridge area, the Ogallala has been stripped. To the west of the study area, in the Rattlesnake Ridge area, the base of the Ogallala is above the elevation of the water table.

Water in the Ogallala formation is unconfined and is contained in the pore spaces of unconsolidated or partly consolidated sediments. The saturated thickness of the Ogallala in the study area varies between 60 and 80 feet below ground surface (bgs). The altitude of the water table in the area is approximately 3,225 feet above mean sea level (MSL) and the average depth to groundwater in the area is about 80 to 120 feet below ground surface. Groundwater flow in the general area of the Teague Paddock Field is south-southeast.

The quality of groundwater in the area is generally fresh with a total dissolved solids being typically less than 1,000 ppm. Water from the Quaternary alluvium generally is high in silica (65 to 82 ppm), moderately high in calcium plus magnesium, low in sodium plus potassium, moderately low in sulfate and chloride. Uncontaminated water from the Ogallala formation is high in silica (49 to 73 ppm), contains moderate concentrations of calcium and magnesium. The water is generally hard.

The hydrogeologic data presented in this section was derived from Ground Water Report

6, "Geology and Ground Water Conditions in Southern Lea County, New Mexico," published by New Mexico Institute of Mining & Technology (1961).

Groundwater Search

According to the New Mexico State Engineer Office W.A.T.E.R.S. database, Average Depth to Water Report, water wells are located in Section 9, 16 and 32, Township 23 South, Range 37 East, with an average depth to water of 100', 115' and 106', respectively. Based on monitor wells installed at the Site the depth to groundwater at the Site is approximately 88.0' below surface.

SUBSURFACE SOIL ASSESSMENT

Backhoe Test Trench Installation

In February 2004, impacted soils were excavated to a depth of approximately 5.0' below surface to the top of a dense caliche formation. The excavation dimensions are shown on Figure 3. A total of 4,640 cubic yards of material was transported and disposed of at Sundance Services Inc, located in Eunice, New Mexico.

On February 20, 2004, Highlander supervised the installation of fifteen (15) test trenches using a backhoe. Prior to the installation of the test trenches, the bottom of the excavation was segregated into fifteen (15) areas for sampling. The segregated areas and the trench locations are shown on Figure 3. The trench sample results are summarized in Table 1.

Referring to Table 1, several areas in the bottom of the excavation did not exhibit any soil impact. However, the areas of 3, 6, 10 and 13 were not vertically defined and showed hydrocarbon impact to a depth of 9.0 below excavation bottom. Area 1 did not show any detectable hydrocarbon impact, however, it did exhibit chloride concentrations of 2,280 mg/kg at 0-1' to 1,040 mg/kg at 9.0' below the excavation bottom. Areas 4, 5 and 7 were vertically defined with TPH concentrations decreasing with depth below 1,000 mg/kg at depths of 3.0' and 5.0' below excavation bottom.

Based on the results, Highlander recommended the installation of boreholes in Areas 1, 3, 6, 10 and 13 to define the vertical extents of the hydrocarbon impact in the bottom of the excavation.

Borehole Installation

Excavation Bottom

On May 13, 2004, Highlander supervised the installation of boreholes (BH-1 through BH-5) using an air-rotary type drilling rig to define the vertical extents of the hydrocarbon impact in Areas 3, 6, 10 and 13 and to define the chloride extents in Area 1. The borehole locations are shown in Figure 4.

Based on the borehole data, the hydrocarbon impact had migrated deep into the subsurface soils and appeared to be a threat to groundwater. Boreholes (BH-1, BH-2, BH-3 and BH-4), installed in the bottom of the excavation, did not vertically define the hydrocarbon impact at the Site. On some of the boreholes, deeper soil samples could not be collected due to the sandy formation, which did not allow the boreholes to remain open. Referring to Table 2, the OVM readings and TPH levels were both elevated with some of the BTEX levels above the RRAL. At Area 1, the chloride

impact in BH-5 did decrease with depth to 304 mg/kg at 30.0' below excavation bottom.

Perimeter Boreholes

On May 13, 2004, boreholes (BH-6, BH-7 and BH-8) were installed northwest of the excavation to further delineate the horizontal extent of hydrocarbon impact. These boreholes were only installed to a depth of 30' below surface to confirm if subsurface soils were impacted in this area. In September 2005, borehole (BH-9) was installed in the bottom of the excavation to define the east extents. On September 2004, boreholes (BH-10 and BH-11) were installed south of the excavation. The borehole locations are shown in Figure 4.

Northwest of the excavation, BH-8 exhibited no hydrocarbon impact in the subsurface soils, however, boreholes (BH-6 and BH-7) did exhibit impact to subsurface soils to a depth of 30' below surface. In boreholes BH-9, BH-10 and BH-11, no hydrocarbon impact was encountered. Based on the data, the horizontal extents appeared to be defined.

At the request of the NMOCD, on May 24, 2005 and August 31, 2005, boreholes (BH-12 and BH-13) were installed for additional delineation and to confirm the impact was fully delineated in all directions. BH-12 and BH-13 were installed at the northwest corner and on the north-northeast edge of the excavation, respectively. In BH-12, no TPH concentrations at or above laboratory reporting limits were detected, with the exception of the 10'-12' sample, which had a TPH concentration of 18.4 mg/kg. In addition, BH-13 did not exhibit any TPH concentrations at or above reporting limits. BTEX was not at or above reporting limits for either borehole.

It is evident from the boreholes and excavation performed at this site that there was very little lateral migration of hydrocarbons in subsurface soils and the impact is confined to the excavation. Based upon the data, and utilizing existing borehole data, iso-concentration maps were generated to show the approximate boundary of the 1,000 mg/kg TPH impacted soil and elevated BTEX in the subsurface soils. The map is included as Figure 5.

CAPPING

Referring to Figures 5 and 6, a 40-mil thickness plastic liner (cap) was proposed to properly isolate the remaining soil with elevated BTEX and TPH concentrations. The total area proposed to be capped measured approximately 100' x 180'. NMOCD gave verbal approval for the capping on October 18, 2005. To prepare the Site, soils in the vicinity of BH-6 and BH-7 were excavated to a depth of 3.5' below surface. This impacted soil was placed into the bottom of the excavation to be isolated under the cap. A sand layer 4" to 6" (bedding) was placed in the bottom of the excavation to protect the liner from puncture. Prior to capping, the dimensions of the excavation were approximately 100' x 200' x 3.5' to 4.0'deep. On December 13, 2005, the 40-mil liner was installed at the Site. The liner was supplied and installed by Big D Lining System Company located in Midland, Texas. Once the liner was installed, a 6" sand layer was placed on top of the liner for additional protection. The remaining open excavation was backfilled and crowned with clean material to grade.

GROUNDWATER INVESTIGATION

Monitor Well Installation and Sampling

Between September 17, 2004 and May 25, 2005, Highlander supervised the installation of three monitor wells (MW-1 through MW-3). MW-1 was installed immediately south of the excavation, while MW-2 and MW-3 were installed north of the excavation. Phase separated hydrocarbons were measured in monitor well MW-1 while dissolved phase hydrocarbons in amounts less than the New Mexico Water Quality Control Commission (WQCC) standards were detected in monitor well MW-3.

In order to complete delineation of the groundwater impacts to the site, on July 17, 2006 Highlander supervised the installation of two additional monitor wells (MW-4 and MW-5) to the east and southeast of the excavation. The monitor well locations are shown on Figure 6. The boring logs and well completion diagrams are included in Appendix A.

On September 22, 2006 Highlander gauged four of the five monitor wells (MW-2 was not gauged since the well was damaged and inaccessible). Monitor well (MW-1) had measurable phase-separated hydrocarbons (PSH) with a thickness of 2.63 feet. Due to the PSH, MW-1 was not purged or sampled. However, MW-3, MW-4, and MW-5 were purged and sampled for BTEX and chloride. Analytical results show trace amounts of BTEX in monitor well MW-3, with no BTEX detected in MW-4 or MW-5. Chlorides ranged from 95.7 milligrams per liter (mg/L) in MW-5 to 606 mg/L in MW-4. The groundwater gauging data is included as Table 3, while the groundwater analyses are shown in Table 4. A groundwater gradient map is shown as Figure 7, while a dissolved benzene isopleth map is included as Figure 8. As shown on Figure 7, the gradient appears to be in a southeasterly direction. The site has been placed on a quarterly monitoring program.

Quality Assurance/Quality Control

Groundwater samples were collected as soon as possible after the groundwater returned to its static level. Each well was inspected for the presence of phase-separated hydrocarbons (PSH). Groundwater samples were collected using clean disposable polyethylene bailers and disposable line. The samples were transferred into labeled and preserved containers provided by the laboratory. All of the samples were delivered under proper chain-of-custody control to Environmental Labs of Texas, Inc., Odessa, Texas. The groundwater samples were analyzed for chloride by method 300.0, and Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) by method EPA 8021B. Copies of the laboratory analyses are enclosed in Appendix B.

Monitor Well Completions

The monitor wells were drilled using air/water rotary drilling techniques, and constructed according to EPA and NMOCD standards. The monitor wells were constructed using two (2) inch diameter schedule 40 PVC threaded casing and factory slotted screen. Assuming the depth to groundwater was 100' below surface, one monitor well (MW-1) was drilled to a depth of 115' below surface. To ensure proper screening above the groundwater, a total of forty (40) feet of screen was placed in the well. Monitor wells (MW-2, MW-3, MW-4 and MW-5) were drilled to depths of 102', 101', 100' and 100' below surface, respectively. Approximately 20 feet of 0.020 slotted screen

was placed in each of the four wells, with 15 feet of screen below the water table and 5 feet above.

The well screen was surrounded with a graded silica sand to a depth approximately 2-3 feet above the screen. A layer of bentonite pellets, approximately 3 feet thick was placed in the borehole above the sand. The remainder of the borehole was filled with cement and bentonite grout to about one (1) foot below ground. MW-1 and MW-2 were completed with steel manholes and MW-3, MW-4, and MW-5 were secured with locking steel protectors. All well locations contained a concrete pad measuring approximately 3 feet by 3 feet. The monitor well completion details are shown in Appendix B.

Following installation, the wells were developed by hand bailing using a dedicated hand bailer to remove fine grained sediment, disturbed during drilling, and to ensure collection of representative groundwater samples. Water removed from the well was placed in a 55-gallon drum. Copies of well completion logs are included in Appendix B.

PROPOSED WORK PLAN FOR SOIL AND GROUNDWATER

Groundwater Assessment

In order to complete the groundwater assessment at the site, a water well inventory will be performed to encompass a ½-mile radius around the facility. The inventory will include a review of water well records on the New Mexico Office of the State Engineer W.A.T.E.R.S. database and United States Geologic Survey (USGS) website. Any water wells denoted on the USGS 7.5 minute topographic quadrangle map within the search radius will be inspected.

Soil and Groundwater Remediation System

Highlander proposes to install a dual-phase extraction system to be comprised of one Xitech pump and a Soil Vapor Extraction System (SVE) placed within the impacted areas at the site. In order to complete the installation, Highlander will have two 4 inch monitor wells installed in the areas of highest BTEX placed approximately 30 feet apart. An SVE pilot study plan will be performed utilizing the two newly installed monitor wells. Upon completion of the pilot study plan, the data will be evaluated and a work plan submitted. In addition, monitor well MW-1 will be replaced with a 4" diameter well and a Xitech pump will be installed in MW-1 to recover PSH.

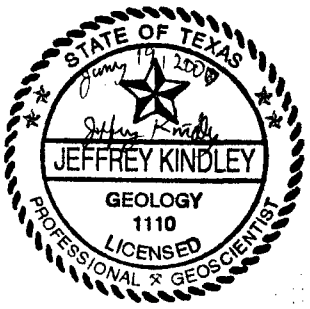
The wells for the pilot study plan will be screened from approximately 10 feet bgs to approximately 10 feet within the water table or 95 feet bgs. The well screens for the two SVE wells and one (4) inch well will be surrounded with a graded silica sand to the top of the well screen. A layer of bentonite pellets, approximately 3 feet thick will be placed in the borehole above the sand. The remainder of the borehole will be filled with cement and bentonite grout to about one (1) foot below ground. The wells will either be completed with steel manholes or with locking steel protectors. All well locations contained a concrete pad measuring approximately 3 feet by 3 feet.

Following installation, the wells will be developed by hand bailing using a dedicated hand bailer to remove fine grained sediment, disturbed during drilling, and to ensure collection of representative groundwater samples. Water removed from the wells will be placed in a 55-gallon drum and retained at the Site until disposal can be arranged.

Annual Reporting

An annual summary report will be prepared and submitted to the NMOCD, during the first quarter of each year, covering the previous year's activities. The report will summarize all activities conducted at the site, during that year. Additionally, the report will include conclusions and recommendations, if necessary, for system modifications, ongoing remediation and additional investigation, if deemed necessary.

If you have any question or comments concerning the assessment or the activities performed at the Site, please call me at (432) 682-4559.



Respectfully submitted,
Highlander Environmental Corp.

Jeffrey Kindley, P.G.
Senior Environmental Geologist

cc: Pat Ellis –Pogo
Don Riggs – Pogo
Larry Johnson – NMOCD, Hobbs, NM.

CHRONOLOGY OF EVENTS

CHRONOLOGY OF EVENTS

POGO PRODUCING COMPANY
E.C. HILL "A, B AND C" TANK BATTERY
SECTION 27, TOWNSHIP 23 SOUTH, RANGE 37 EAST, LEA COUNTY
NEW MEXICO.

August 14, 2003	The NMOCD approved the work plan, dated July 23, 2003, to defer the assessment work until the facility was inactive.
August 29, 2003	Highlander submitted a revised work plan, dated August 29, 2003. Pogo Producing proposed to perform soil assessment once the tank battery was dismantled. The work plan consisted of the installation of boreholes.
November 2003	Pogo shut down the production to the tank battery and started to dismantle the tanks, vessel and piping.
February 2004	Impacted soils at the former tank battery were excavated to a depth of 5.0' below surface. A total of 4,640 cubic yards of impacted soil was excavated and properly disposed. The excavation measured approximately 100' x 120' and 50' x 120'.
February 20, 2004	Highlander supervised the installation of fifteen (15) test trenches in the bottom of the excavation, using a backhoe. Several areas inside the excavation were not vertically defined and boreholes were recommended for delineation.
May 13, 2004	Highlander supervised the installation of eight (8) boreholes (BH-1 through BH-8) to define the vertical extent of the soil impact. Five (5) boreholes were installed inside the excavation and three (3) boreholes were installed north of the excavation for horizontal extents.
June, 2004	Highlander submitted a work plan, dated June 28, 2004. Pogo Producing proposed to install a monitor well to evaluate the

groundwater qualities at the Site.

September 8, 2004	Highlander supervised the installation of the monitor well (MW-1). Additional boreholes (BH-9, BH-10 and BH-11) were installed to define the horizontal extents of the soil impact in the excavation. The impact area in the excavation measured approximately 100' x 180'.
September 17, 2004	Highlander purged and sampled monitor well (MW-1). The depth groundwater was measured at 88.46 TOC.
October 12, 2004	Highlander purged and re-sampled monitor well (MW-1).
February 2005	Highlander prepared a work plan, dated February 8, 2005. Work plan consisted of capping the impacted soils and installation of additional monitor wells (MW-2 and MW-3).
May 24 & 25, 2005	Highlander installed two (2) additional monitor wells (MW-2 and MW-3).
June 17, 2005	Monitor wells MW-1, MW-2 and MW-3 were gauged.
June 24, 2005	Highlander purged and sampled monitor wells (MW-2 and MW-3). MW-1 contained a trace of PSH of 0.03' and was not sampled.
July 2005	Highlander submitted a work plan, dated July 11, 2005, to installed additional boreholes (BH-12 and BH-13) to delineate the area to be capped.
August 31, 2005	Highlander installed BH-13 for additional delineation northeast of the excavation.
August 2005	Highlander submitted an interim report dated August 29, 2005. The report detailed the installation of the MW-2 and MW-3.
September 2005	Highlander submitted Report, dated September 19, 2005, on the additional borehole data for the delineate area to be capped.
November 14, 2005	Highlander purged and samples MW-1, MW-2 and MW-3. MW-3 contained PSH of 0.12'.
December 21, 2005	Highlander submitted the 2006 Annual Groundwater Monitoring Report

March 22, 2006	Highlander was onsite to perform first semi-annual sampling event for 2006.
July 17, 2006	Highlander was onsite to drill and install monitor wells MW-4 and MW-5.
September 22, 2006	Highlander onsite to perform the second semi-annual sampling event for 2006.

FIGURES

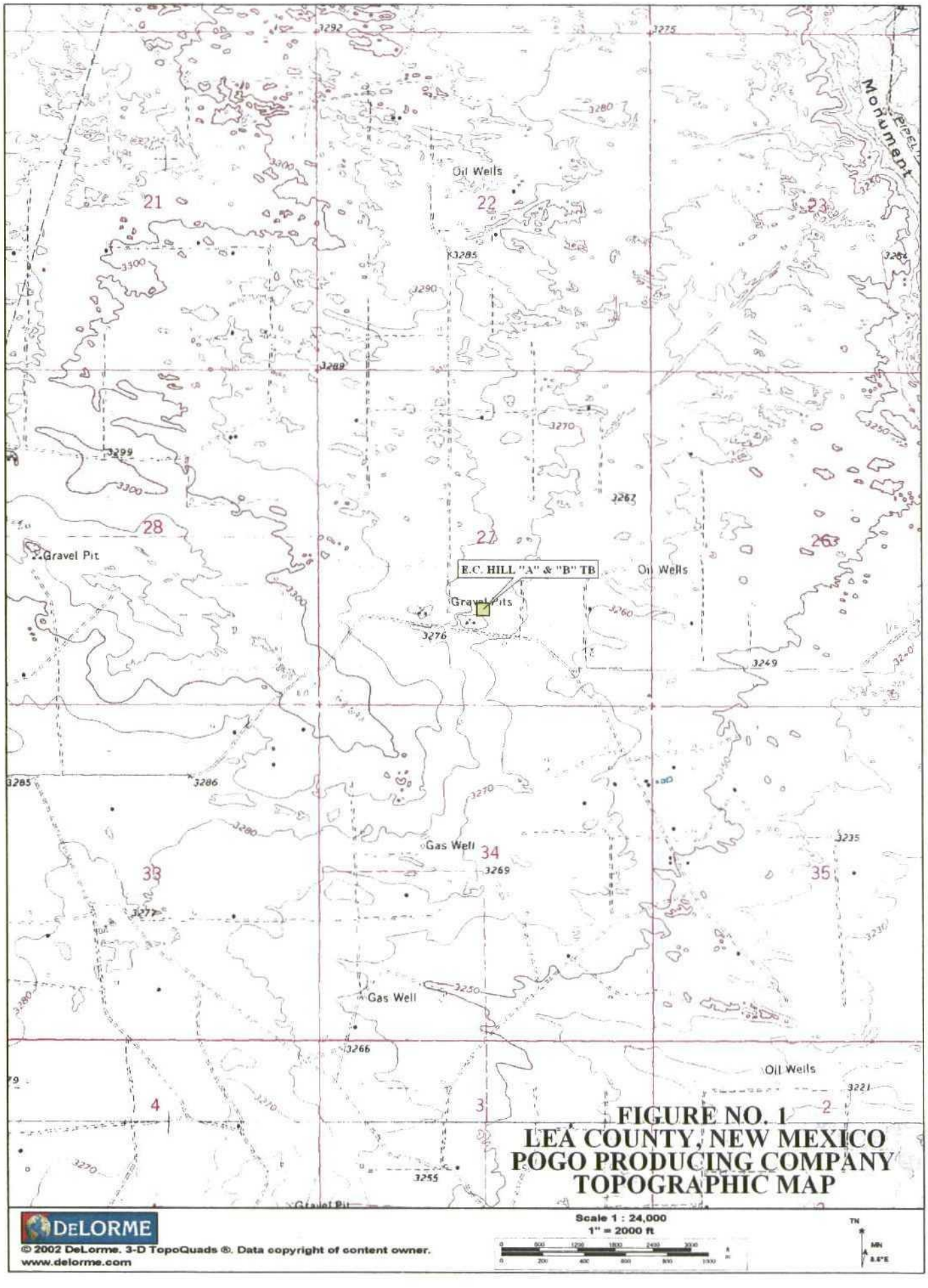


FIGURE NO. 1
LEA COUNTY, NEW MEXICO
POGO PRODUCING COMPANY
TOPOGRAPHIC MAP

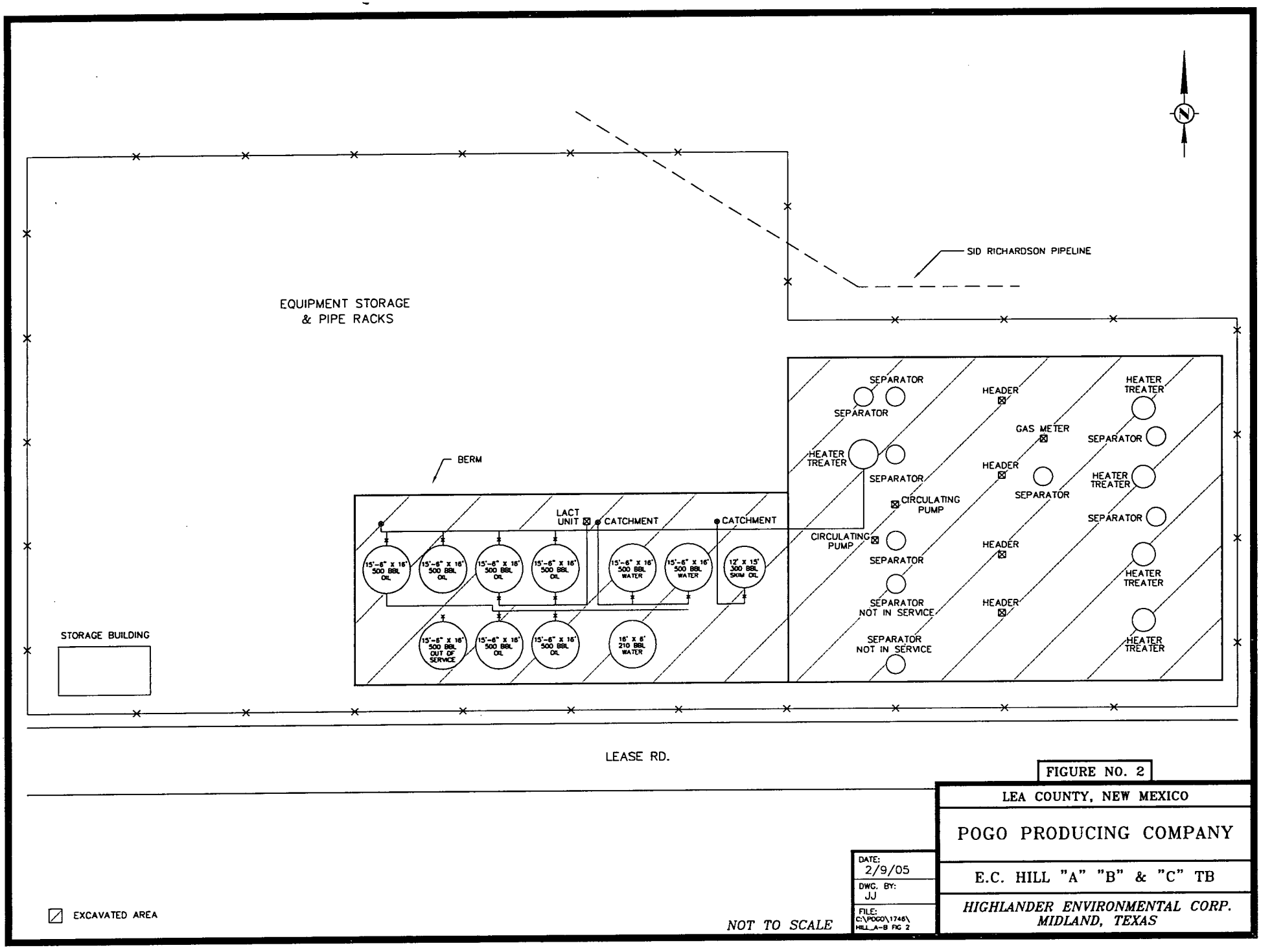


FIGURE NO. 2

LEA COUNTY, NEW MEXICO

POGO PRODUCING COMPANY

E.C. HILL "A" "B" & "C" TB

HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS

DATE: 2/9/05
DWG. BY: JJ
FILE: C:\POGO\1746\HILL_A-B FIG 2

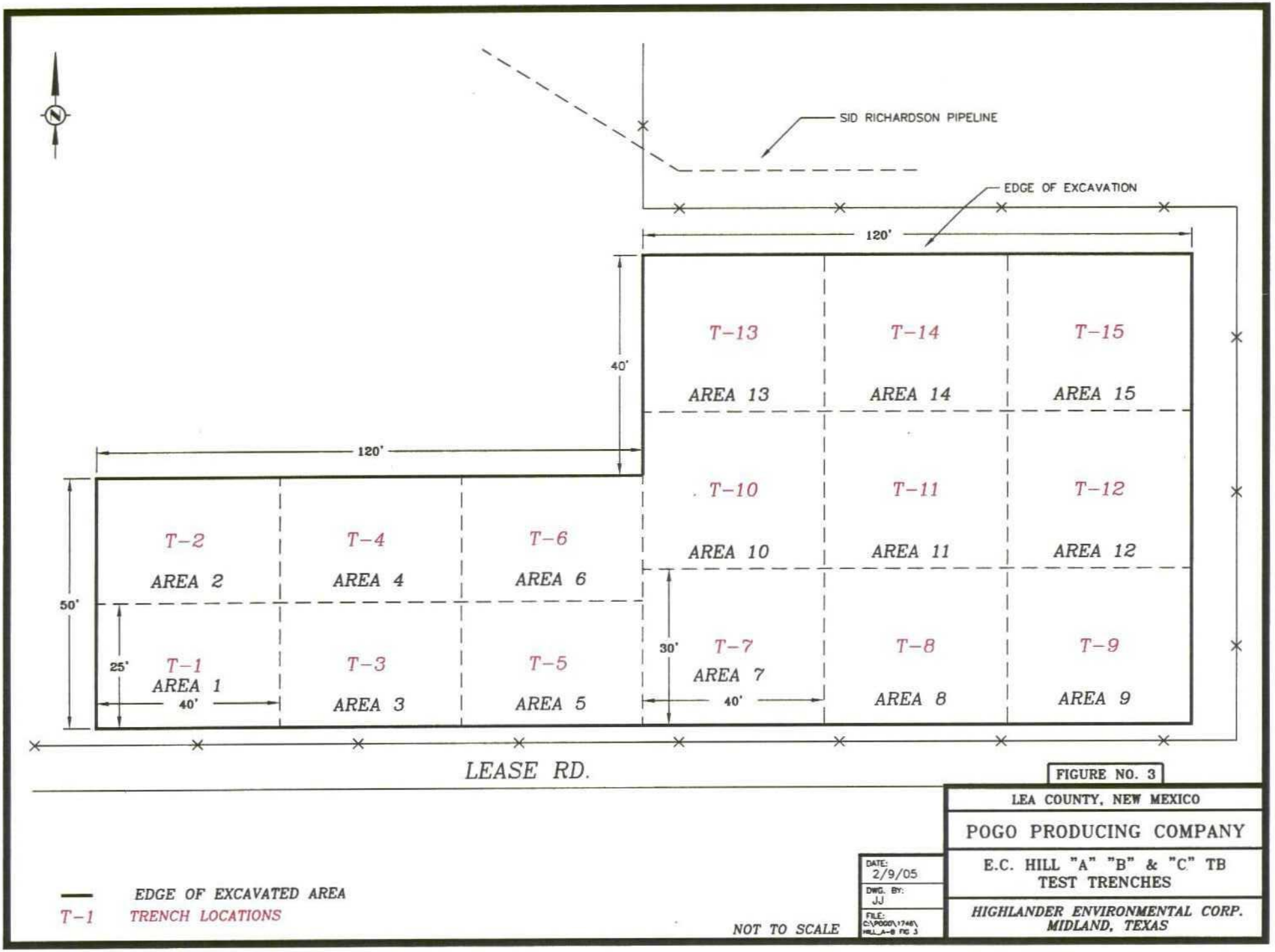


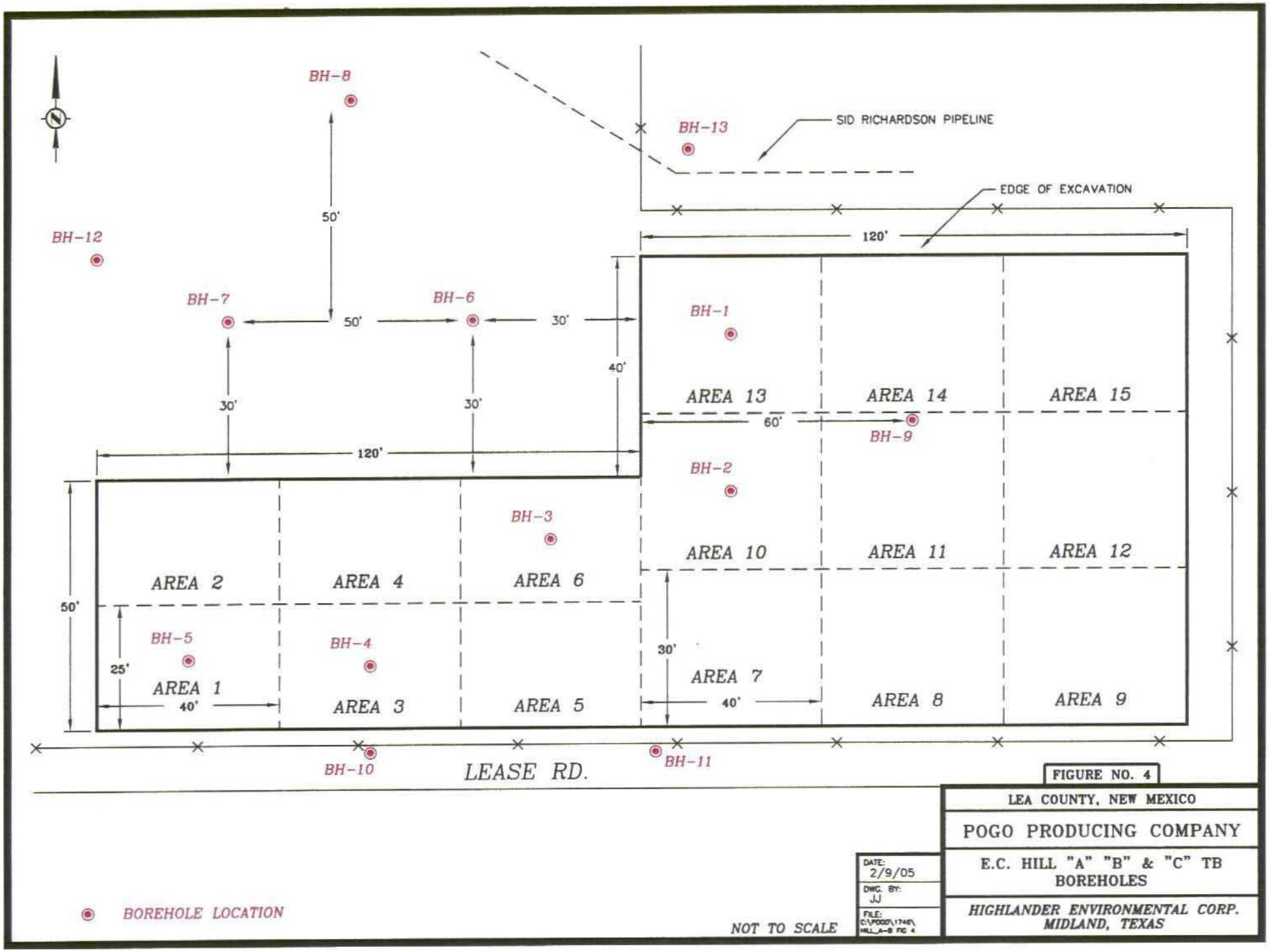
FIGURE NO. 3

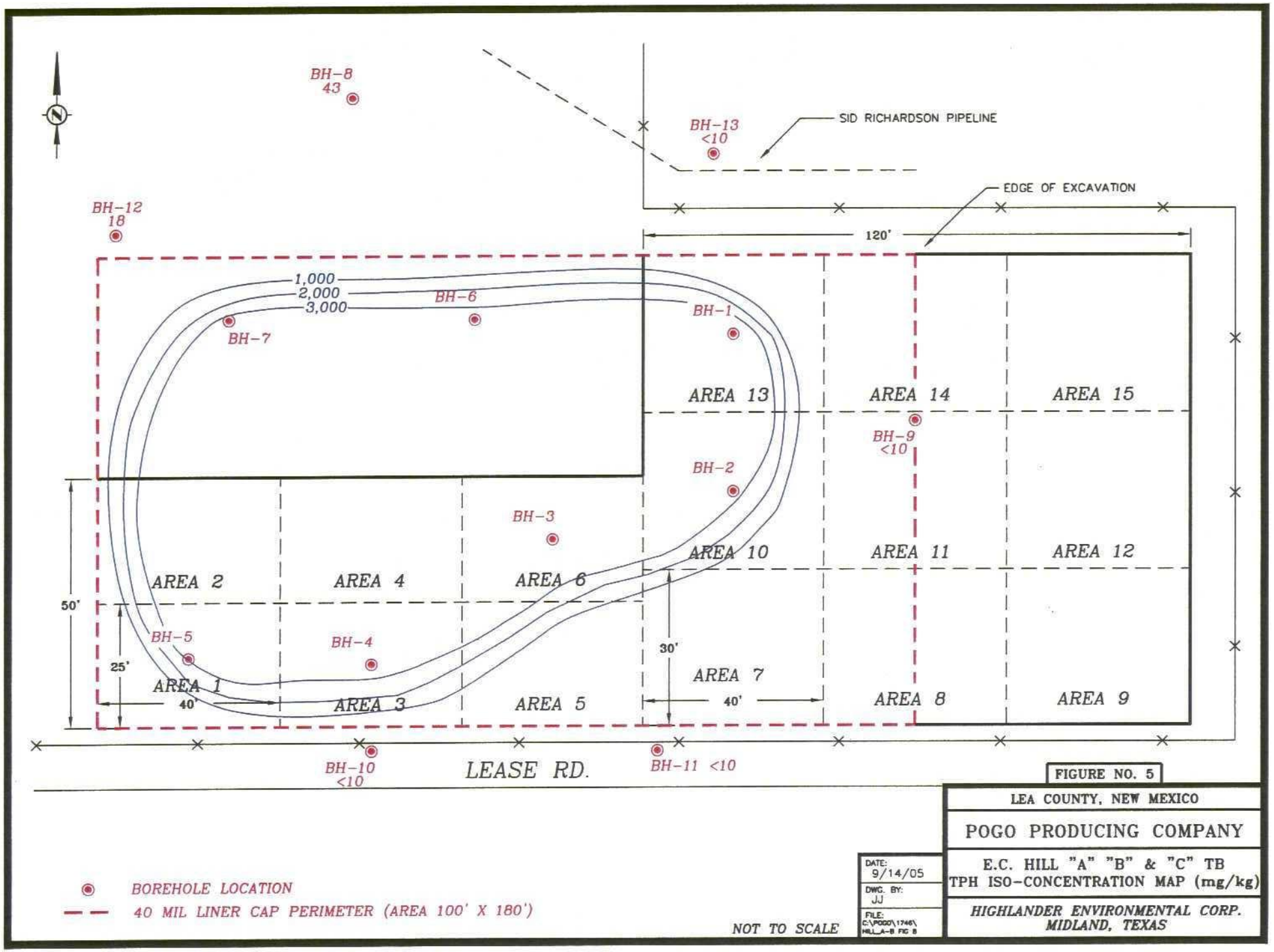
LEA COUNTY, NEW MEXICO

POGO PRODUCING COMPANY

E.C. HILL "A" "B" & "C" TB
TEST TRENCHES

HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS


BH-8
BH-13
SID RICHARDSON PIPELINE
EDGE OF EXCAVATION
50'
120'
BH-12
BH-7
BH-6
50'
30'
BH-1
40'
30'
30'
AREA 13
AREA 14
AREA 15
60'
BH-9
120'
BH-2
BH-3
AREA 10
AREA 11
AREA 12
AREA 2
AREA 4
AREA 6
50'
BH-5
BH-4
25'
30'
AREA 7
AREA 1
40'
AREA 3
AREA 5
40'
AREA 8
AREA 9
BH-10
BH-11
LEASE RD.
BOREHOLE LOCATION
NOT TO SCALE
FIGURE NO. 4
LEA COUNTY, NEW MEXICO
POGO PRODUCING COMPANY
E.C. HILL "A" "B" & "C" TB
BOREHOLES
DATE: 2/9/05
DWG. BY: JJ
FILE: C:\POGO\1746\HILL_A-B FIG 4
HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS


BH-8
43
BH-13
<10
SID RICHARDSON PIPELINE
EDGE OF EXCAVATION
BH-12
18
120'
1,000
2,000
3,000
BH-6
BH-7
BH-1
AREA 13
AREA 14
AREA 15
BH-9
<10
BH-2
BH-3
AREA 10
AREA 11
AREA 12
AREA 2
AREA 4
AREA 6
50'
BH-5
BH-4
25'
30'
AREA 7
AREA 1
40'
AREA 3
AREA 5
40'
AREA 8
AREA 9
BH-10
<10
LEASE RD.
BH-11 <10
BOREHOLE LOCATION
40 MIL LINER CAP PERIMETER (AREA 100' X 180')
NOT TO SCALE
DATE: 9/14/05
DWG. BY: JJ
FILE: C:\POGO\1746\HILL_A-B FIG 5
FIGURE NO. 5
LEA COUNTY, NEW MEXICO
POGO PRODUCING COMPANY
E.C. HILL "A" "B" & "C" TB
TPH ISO-CONCENTRATION MAP (mg/kg)
HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS

MONITOR WELL LOCATIONS

EXCAVATED AREA

NOT TO SCALE

FIGURE NO. 6

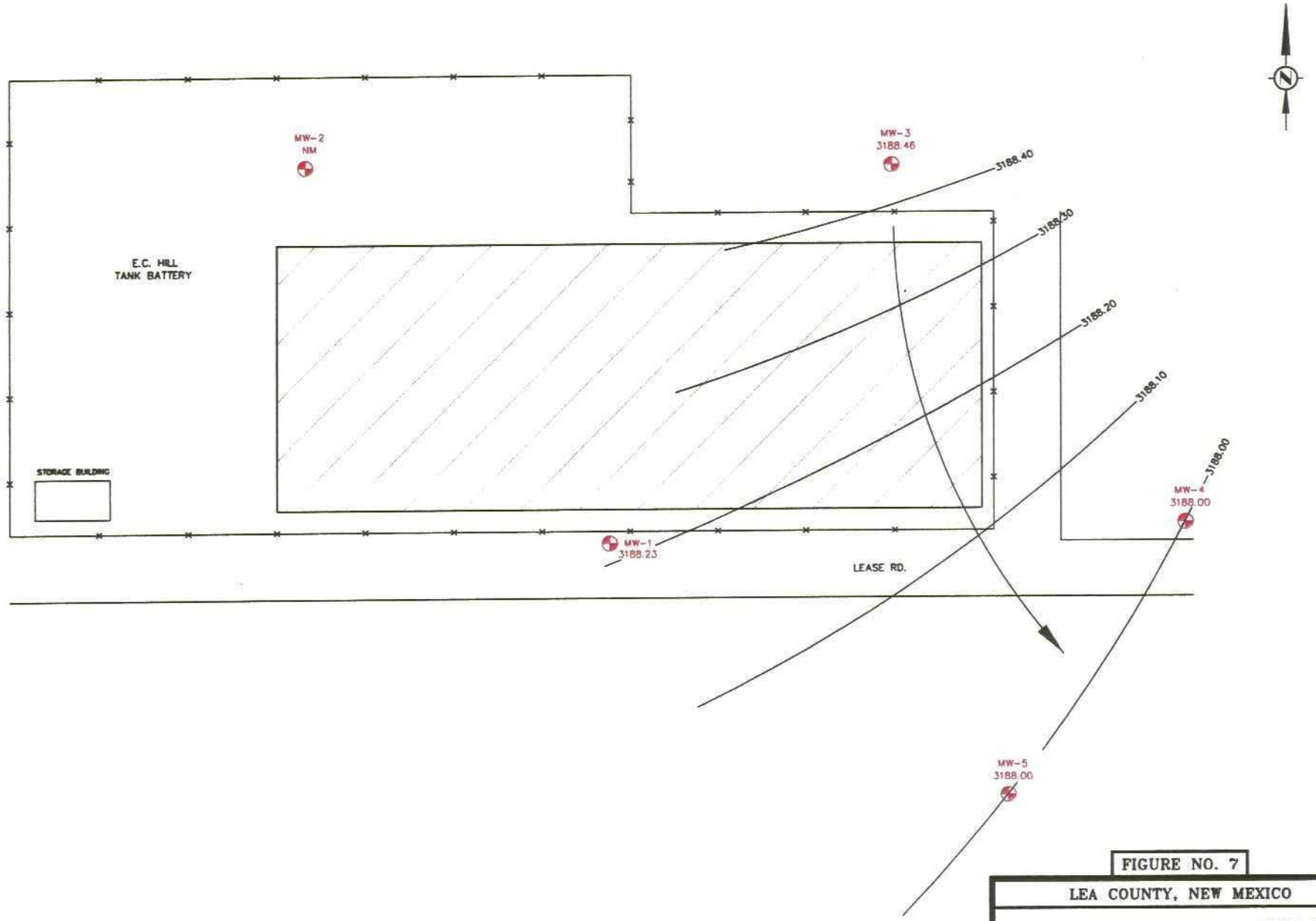
LEA COUNTY, NEW MEXICO

POGO PRODUCING COMPANY

E.C. HILL "A" "B" & "C" TB
MONITOR WELL LOCATION MAP 9/22/06

DATE: 8/30/05
DWG. BY: JJ
FILE: C:\POGO\1746\HILL_A-B DW

HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS



NM= NOT MEASURED

MONITOR WELL LOCATIONS

EXCAVATED AREA

NOT TO SCALE

FIGURE NO. 7

LEA COUNTY, NEW MEXICO

POGO PRODUCING COMPANY

E.C. HILL "A" "B" & "C" TB
GROUNDWATER GRADIENT MAP 9/22/06

DATE:	1/4/07
DWG. BY:	JJ
FILE:	C:\POGO\1746\HILL_A-B dw

HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS

NM= NOT MEASURED (WELL DAMAGED)

MONITOR WELL LOCATIONS

EXCAVATED AREA

PSH= PHASE SEPARATED HYDROCARBONS

BENZENE RESULTS IN mg/L

NOT TO SCALE

FIGURE NO. 8

LEA COUNTY, NEW MEXICO

POGO PRODUCING COMPANY

E.C. HILL "A" "B" & "C" TB

DISSOLVED BENZENE ISOPLETH MAP 9/22/06

DATE: 1/4/07

DWG. BY: JJ

FILE: C:\POGO\1746\HILL_A-B CW

HIGHLANDER ENVIRONMENTAL CORP.
MIDLAND, TEXAS

TABLES

Table 1
Pogo Producing Company
E.C. Hill A & B TANK BATTERY
Trench Installation
Lea County, New Mexico

O&G/1746/Table 1

Sample ID	Sample Date	Sample Depth (ft)	TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg	Xylene (mg/kg)	Chloride (mg/kg)
			C6-C-12	C12-C35	Total					
T-1	2/20/2004	0-1'	<10.0	19.9	19.9	-	-	-	-	2280
		3.0'	-	-	-	-	-	-	-	2550
		7.0'	-	-	-	-	-	-	-	2020
		9.0'	-	-	-	-	-	-	-	1040
T-2	2/20/2004	0-1'	<10.0	17.1	17.1	-	-	-	-	71
T-3	2/20/2004	0'-1'	356	1,730	**2,090**	-	-	-	-	142
		3.0'	2,570	7,470	**10,000**	-	-	-	-	-
		5.0'	1,500	4,090	**5,600**	-	-	-	-	-
		7.0'	1,540	3,770	**5,310**	-	-	-	-	-
		9.0'	1,520	3,970	**5,490**	-	-	-	-	-
T-4	2/20/2004	0-1'	201	3480	**3860**	-	-	-	-	142
		3.0'	<10.0	80.9	80.9	-	-	-	-	-
T-5	2/20/2004	0-1'	249	2,010	**2,260**	-	-	-	-	298
		3.0'	<10.0	10.4	10.4	-	-	-	-	-
T-6	2/20/2004	0-1'	1,540	8,410	**9,950**	0.569	0.271	1.91	6.27	404
		3.0'	1,430	8,150	**9,580**	-	-	-	-	-
		5.0'	1,800	8,830	**10,600**	-	-	-	-	-
		7.0'	916	4,070	**4,980**	-	-	-	-	-
		9.0'	1,350	6,000	**7,350**	-	-	-	-	-
T-7	2/20/2004	0-1'	148	4,430	**4,580**	-	-	-	-	383
		3.0'	85.2	3,860	**3,950**	-	-	-	-	-
		5.0'	<10.0	779	779	-	-	-	-	-
T-8	2/20/2004	0-1'	<10.0	16.8	16.8	-	-	-	-	99

Table 1
Pogo Producing Company
E.C. Hill A & B TANK BATTERY
Trench Installation
Lea County, New Mexico

O&G/1746/Table 1

Sample ID	Sample Date	Sample Depth (ft)	TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg	Xylene (mg/kg)	Chloride (mg/kg)
			C6-C-12	C12-C35	Total					
T-9	2/20/2004	0-1'	<10.0	<10.0	<10.0	-	-	-	-	234
T-10	2/20/2004	0-1'	1,180	3,500	**4,680**	0.173	0.635	2.28	7.39	276
		3.0'	1,390	4,060	**5,450**	-	-	-	-	-
		5.0'	2,150	6,880	**9,030**	-	-	-	-	-
		7.0'	943	3,410	**4,350**	-	-	-	-	-
		9.0'	795	3,080	**3,880**	-	-	-	-	-
T-11	2/20/2004	0-1'	<10.0	<10.0	<10.0	-	-	-	-	142
T-12	2/20/2004	0-1'	<10.0	11.1	11.1	-	-	-	-	99
T-13	2/20/2004	0-1'	1,170	5,520	**6,690**	0.285	0.607	1.35	3.28	213
		3.0'	1,320	5,030	**6,350**	-	-	-	-	-
		5.0'	1,850	6,290	**8,140**	-	-	-	-	-
		7.0'	1,410	4,440	**5,850**	-	-	-	-	-
		9.0'	1,740	4,880	**6,620**	-	-	-	-	-
T-14	2/20/2004	0-1'	<10.0	84.3	84.3	-	-	-	-	596
T-15	2/20/2004	0-1'	<10.0	36.8	36.8	-	-	-	-	574

(-) = Not Analyzed
T = Trench (Installed with backhoe)
Sample Depths = 5 feet below excavation bottom

Table 2
Pogo Producing Company
E. C. Hill A&B Tank Battery
Borehole Installation
Lea County, New Mexico

Sample ID	Date Sampled	Depth (ft)	OVM (ppm)	TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				C6-C12	C12-C35	Total					
BH-1 (T-13)	5/13/2004	5-6	270	-	-	-	-	-	-	-	-
		10-11	439	-	-	-	-	-	-	-	-
		15-16	606	1,100	3,490	4,590	-	-	-	-	-
		20-21	658	-	-	-	-	-	-	-	-
		25-26	613	-	-	-	-	-	-	-	-
		30-31	902	872	3,420	4,290	-	-	-	-	-
		35-36	897	-	-	-	-	-	-	-	-
		40-41	942	-	-	-	-	-	-	-	-
		45-46	728	-	-	-	-	-	-	-	-
		50-51	925	7,730	14,100	21,800	5.1	20.8	15.7	48.1	
BH-2 (T-10)	5/13/2004	5-6	142	-	-	-	-	-	-	-	-
		10-11	167	-	-	-	-	-	-	-	-
		15-16	320	432	2,230	2,660	-	-	-	-	-
		20-21	447	-	-	-	-	-	-	-	-
		30-31	618	516	1,560	2,080	-	-	-	-	-
		40-41	847	-	-	-	-	-	-	-	-
		50-51	861	779	2,440	3,220	-	-	-	-	-
		60-61	147	-	-	-	-	-	-	-	-
		70-71	725	-	-	-	-	-	-	-	-
		80-81	405	1,670	4,770	6,440	<0.025	0.157	0.227	1.307	-

Table 2
Pogo Producing Company
E. C. Hill A&B Tank Battery
Borehole Installation
Lea County, New Mexico

Sample ID	Date Sampled	Depth (ft)	OVM (ppm)	TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				C6-C12	C12-C35	Total					
BH-3 (T-6)	5/14/2004	5-6	260	-	-	-	-	-	-	-	-
		10-11	541	-	-	-	-	-	-	-	-
		15-16	720	2,020	7,250	9,270	-	-	-	-	-
		20-21	836	-	-	-	-	-	-	-	-
		30-31	561	623	3,140	3,760	-	-	-	-	-
		40-41	1022	-	-	-	-	-	-	-	-
		50-51	450	1,010	5,290	6,300	-	-	-	-	-
		60-61	567	-	-	-	-	-	-	-	-
		70-71	554	1,280	5,500	6,780	0.110	1.05	1.54	6.77	-
BH-4 (T-3)	5/14/2004	5-6	1800	-	-	-	-	-	-	-	-
		10-11	1811	-	-	-	-	-	-	-	-
		15-16	2100	2,710	5,460	8,170	1.94	22.50	23.20	62.80	-
		20-21	1941	-	-	-	-	-	-	-	-
		30-31	2131	1,490	3,340	4,830	-	-	-	-	-
		50-51	1395	-	-	-	-	-	-	-	-
		70-71	960	1,090	4,390	5,480	-	-	-	-	-
BH-5 (T-1)	5/14/2004	10-11	400	644	2,800	3,440	-	-	-	-	2,760
		15-16	200	586	3,020	3,610	<0.025	0.0616	0.0705	0.4776	744
		20-21	340	-	-	-	-	-	-	-	723
		30-31	39	36.8	386	423	-	-	-	-	304

(-) Not Analyzed

Table 2
Pogo Producing Company
E. C. Hill A&B Tank Battery
Borehole Installation
Lea County, New Mexico

Sample ID	Date Sampled	Depth (ft)	OVM (ppm)	TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				C6-C12	C12-C35	Total					
BH-6	5/14/2004	5-6	500	1,610	4,420	6,030	-	-	-	-	-
		10-11	962	1,870	3,490	5,360	-	-	-	-	-
		20-21	1081	-	-	-	-	-	-	-	-
		30-31	1131	3,220	6,770	9,990	0.0386	5.09	5.32	20.6	-
BH-7	5/17/2004	5-6	5	<10.0	2,070	2,070	-	-	-	-	-
		10-11	390	521	1,760	2,280	-	-	-	-	-
		20-21	659	-	-	-	-	-	-	-	-
		30-31	556	843	2,530	3,370	<0.025	0.194	0.116	3.33	-
BH-8	5/17/2004	5-6	2	<10.0	42.5	42.5	-	-	-	-	-
		10-11	2	<10.0	<10.0	<10.0	-	-	-	-	-
		20-21	1	-	-	-	-	-	-	-	-
		30-31	1	-	-	-	-	-	-	-	-
BH-9	9/9/2004	10-11	1	<10.0	<10.0	<10.0	-	-	-	-	-
		20-21	0	<10.0	<10.0	<10.0	-	-	-	-	-
		30-31	0	<10.0	<10.0	<10.0	-	-	-	-	-
BH-10	9/9/2004	10-11	0	<10.0	<10.0	<10.0	-	-	-	-	-
		20-21	0	<10.0	<10.0	<10.0	-	-	-	-	-
		30-31	1	<10.0	<10.0	<10.0	-	-	-	-	-
BH-11	9/8/2004	40-41	1	<10.0	<10.0	<10.0	-	-	-	-	-
		60-61	3	<10.0	<10.0	<10.0	-	-	-	-	-

(-) Not Analyzed

Table 2
Pogo Producing Company
E. C. Hill A&B Tank Battery
Borehole Installation
Lea County, New Mexico

Sample ID	Sampled	Depth (ft)	OVM (ppm)	TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
				C6-C12	C12-C35	Total					
BH-12	5/24/2005	5-6	1	-	-	-	-	-	-	-	-
		10-11	0	<10.0	18.4	18.4	<0.025	<0.025	<0.025	<0.025	-
		15-16	0	-	-	-	-	-	-	-	-
		20-21	1	<10.0	<10.0	<10.0	<0.025	<0.025	<0.025	<0.025	-
		25-26	0	-	-	-	-	-	-	-	-
		30-31	0	-	-	-	-	-	-	-	-
		35-36	1	<10.0	<10.0	<10.0	<0.025	<0.025	<0.025	<0.025	-
BH-13	8/31/2005	5-6	0	<10.0	<10.0	<10.0	<0.025	<0.025	<0.025	<0.025	-
		10-11	0	-	-	-	-	-	-	-	-
		15-16	1	<10.0	<10.0	<10.0	<0.025	<0.025	<0.025	<0.025	-
		20-21	0	-	-	-	-	-	-	-	-
		25-26	1	<10.0	<10.0	<10.0	<0.025	<0.025	<0.025	<0.025	-
		30-31	1	-	-	-	-	-	-	-	-
		35-36	0	-	-	-	-	-	-	-	-
		40-41	1	<10.0	<10.0	<10.0	<0.025	<0.025	<0.025	<0.025	-

(-) Not Analyzed

Table 3
Pogo Producing Company
E.C. Hill A and B Tank Battery
Summary of Groundwater Elevations and PSH Thickness

Well/ Borehole ID	Date Measurement	Well Total Depth (ft)	Product (ft) (TOC)	Water level (ft) (TOC)	PSH Thickness (ft)	Top of Casing Elevation, feet AMSL	Groundwater Elevation (ft)
MW-1	9/17/2004	115	-	88.46	0	3274.52	3186.06
	6/17/2005	115	86.01	86.04	0.03	3274.52	3188.48
	11/14/2005	115	85.82	85.94	0.12	3274.52	3188.49
	3/22/2006	115	85.89	87.14	1.25	3274.52	3188.32
	9/22/2006	115	85.63	88.26	2.63	3274.52	3188.23
MW-2	6/17/2005	102	-	86.04	0	3274.99	3188.95
	11/14/2005	102	-	85.9	0	3274.99	3189.09
	3/22/2006	102	-	86.08	0	3274.99	3188.91
	9/22/2006	102	NM	NM	NM	NM	NM
MW-3	6/17/2005	101	-	88.01	0	3276.48	3188.45
	11/14/2005	101	-	87.96	0	3276.48	3188.50
	3/22/2006	101	-	87.99	0	3276.48	3188.49
	9/22/2006	101	-	88.02	0	3276.48	3188.46
MW-4	9/22/2006		-	87.22	0		
MW-5	9/22/2006		-	87.04	0		

(-) No data (TOC) Top of casing
(MW-1) Groundwater elevation corrected using 0.75 specific gravity

Table 4
Pogo Producing Company
E.C. Hill A, B & C Tank Battery
Summary of Analysis of Groundwater Samples
Lea County, New Mexico

Sample ID	Sample Date	PSH Thickness (ft)	Benzene (mg/l)	Toluene (mg/l)	Ethyl-benzene (mg/l)	Xylene (mg/l)	Chloride (mg/l)
MW-1	9/17/2004	0	0.0385	0.0146	0.00694	0.0341	195
	10/12/2004	0	0.111	0.0197	0.0166	0.0699	133
	6/24/2005	0.03	-	-	-	-	-
	11/14/2005	0.12	0.495	0.0809	0.137	0.253	178
	3/22/2006	1.25	-	-	-	-	-
	9/22/2006	2.63	-	-	-	-	-
MW-2	6/24/2005	0	<0.001	<0.001	<0.001	<0.001	102
	11/14/2005	0	<0.001	<0.001	<0.001	<0.001	61.9
	3/22/2006	0	<0.001	<0.001	<0.001	<0.001	63
	9/22/2006	NM	NM	NM	NM	NM	NM
MW-3	6/24/2005	0	0.00166	0.0026	0.00143	0.0137	420
	11/14/2005	0	0.0037	<0.001	0.00132	0.006	310
	3/22/2006	0	0.0028	<0.001	0.00397	0.0047	285
	9/22/2006	0	0.00232	<0.001	<0.001	<0.001	330
MW-4	9/22/2006	0	<0.001	<0.001	<0.001	<0.001	606
MW-5	9/22/2006	0	<0.001	<0.001	<0.001	<0.001	95.7

(-) Not Analyzed
NM - Not measured

APPENDIX A

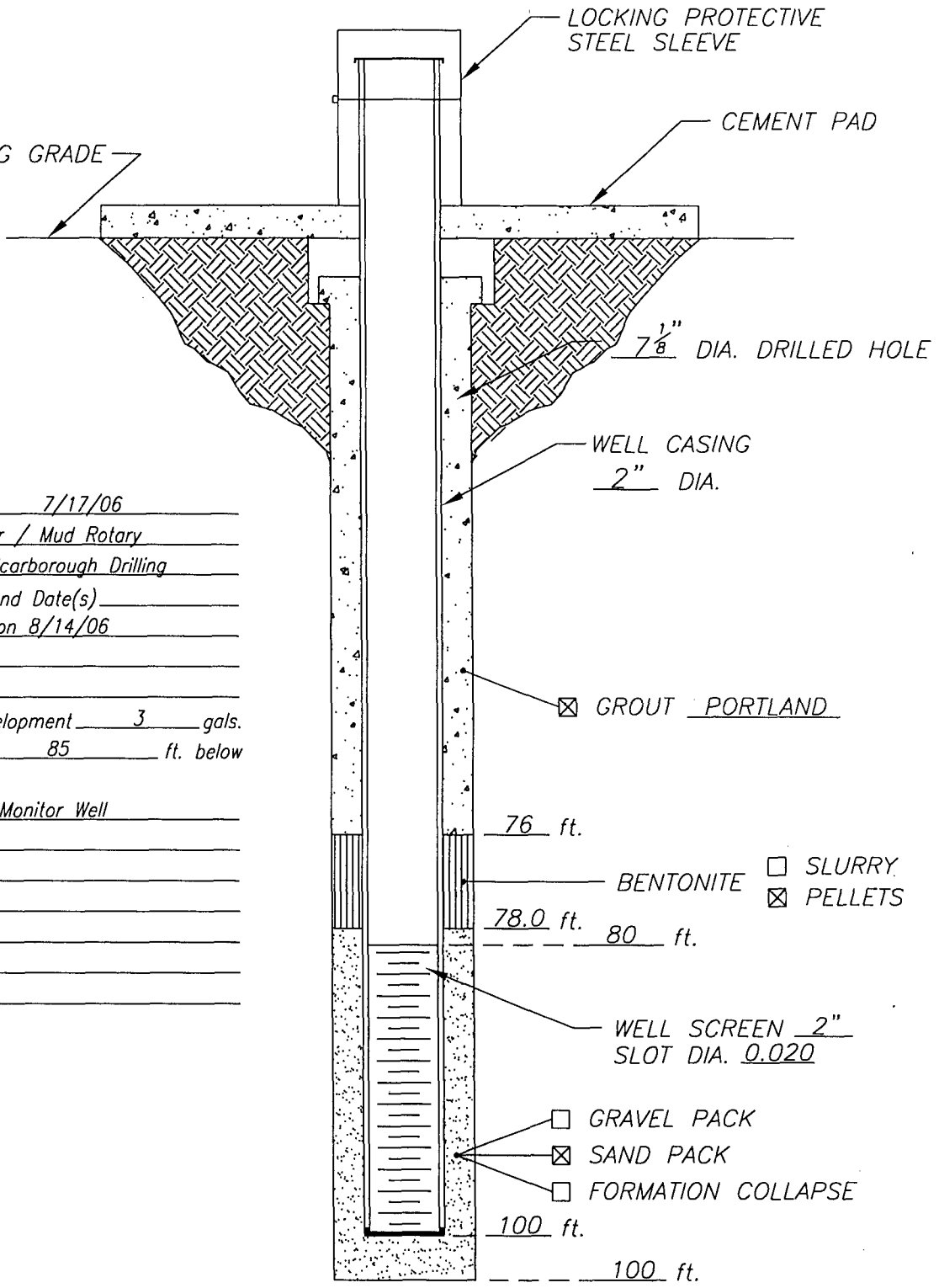
SAMPLE LOG

Boring/Well: MW-4
Project Number: 1746
Client: Pogo Producing Company
Site Location: E.C. Hill "A" "B" & "C" TB
Location: Lea County, New Mexico
Total Depth 100
Date Installed: 07/17/06

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
0-5	--	Topsoil and white caliche
5-10	--	White caliche
10-15	--	White caliche to 12 feet then tan/pink fine grain sand
15-20	--	Tan/pink fine grain sand with sandstone intermixed
20-25	--	Tan/brown fine grain sand with sandstone intermixed
25-30	--	Tan/brown fine grain sand with sandstone intermixed
30-35	--	Tan/brown fine grain sand with sandstone intermixed
35-40	--	Tan/brown fine grain sand with sandstone intermixed
40-45	--	Tan/brown fine grain sand with sandstone intermixed
45-50	--	Tan/brown fine grain sand with sandstone intermixed
50-55	--	Tan/brown fine grain sand with sandstone intermixed
55-60	--	Tan/brown fine grain sand with sandstone intermixed
60-65	--	Tan/brown fine grain sand with sandstone intermixed
65-70	--	Tan/brown fine to very fine grain sand
70-75	--	Tan/brown fine to very fine grain sand
75-80	--	Tan/brown fine to very fine grain sand
80-85	--	Tan/brown fine to very fine grain sand with trace amounts of sandstone
85-90	--	Tan/brown fine to very fine grain sand with trace amounts of sandstone
90-95	--	Tan/brown fine to very fine grain sand with trace amounts of sandstone
95-100	--	Tan/brown fine to very fine grain sand with trace amounts of sandstone

Total Depth is 100 feet Groundwater encountered at 85 feet bgs

WELL CONSTRUCTION LOG



Installation Date(s) 7/17/06
Drilling Method Air / Mud Rotary
Drilling Contractor Scarborough Drilling
Development Technique(s) and Date(s)
Hand Bailed on 8/14/06

Water Removed During Development 3 gals.
Static Depth to Water 85 ft. below Ground Level
Well Purpose Monitor Well

Remarks

DATE: 11/13/06	CLIENT: POGO PRODUCING COMPANY	WELL NO.
Highlander Environmental	PROJECT: E. C. HILL A, B & C TB	MW-4
	LOCATION: Lea County, New Mexico	

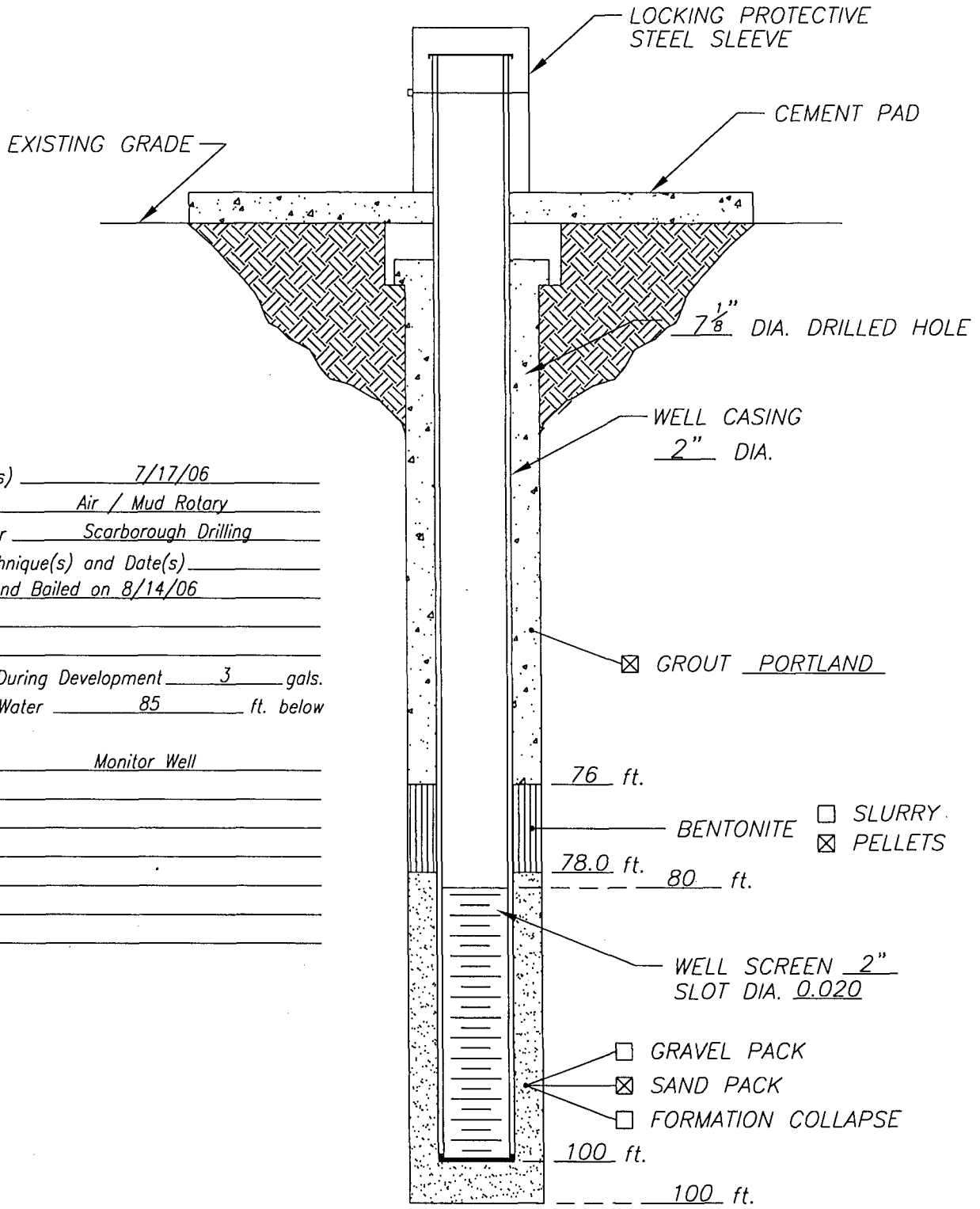
SAMPLE LOG

Boring/Well: MW-5
Project Number: 1746
Client: Pogo Producing Company
Site Location: E.C. Hill "A" "B" & "C" TB
Location: Lea County, New Mexico
Total Depth 100
Date Installed: 07/17/06

DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
0-5	--	Topsoil and white caliche
5-10	--	White caliche with very fine grain sand
10-15	--	Ta n fine to very fine sand with some caliche intermixed
15-20	--	Tan/brown fine to very fine grained sand with sandstone intermixed
20-25	--	Tan/brown fine to very fine grained sand with sandstone intermixed
25-30	--	Tan/brown fine to very fine grained sand with sandstone intermixed
30-35	--	Tan/brown fine to very fine grained sand with sandstone intermixed
35-40	--	Brown fine grained sand with sandstone intermixed
40-45	--	Brown fine grained sand with sandstone intermixed
45-50	--	Brown fine grained sand with sandstone intermixed
50-55	--	Reddish brown fine grained sand with sandstone intermixed
55-60	--	Tan/brown sandstone intermixed with fine grain sand
60-65	--	Reddish brown fine to very fine grained sand
65-70	--	Reddish brown fine to very fine grained sand with sandstone intermixed
70-75	--	Reddish brown fine to very fine grained sand
75-80	--	Reddish brown fine to very fine grained sand
80-85	--	Reddish brown fine to very fine grained sand
85-90	--	Reddish brown fine to very fine grained sand
90-95	--	Reddish brown fine to very fine grained sand
95-100	--	Reddish brown fine to very fine grained sand

Total Depth is 100 feet Groundwater encountered at 85 feet bgs

WELL CONSTRUCTION LOG



Installation Date(s) 7/17/06
Drilling Method Air / Mud Rotary
Drilling Contractor Scarborough Drilling
Development Technique(s) and Date(s)
Hand Bailed on 8/14/06

Water Removed During Development 3 gals.
Static Depth to Water 85 ft. below Ground Level
Well Purpose Monitor Well

Remarks

DATE: 11/13/06	CLIENT: POGO PRODUCING COMPANY	WELL NO.
Highlander Environmental	PROJECT: E. C. HILL A, B & C TB	MW-5
	LOCATION: Lea County, New Mexico	

APPENDIX B

ENVIRONMENTAL LAB OF

12600 West I-20 East - Odessa, Texas 79765

Analytical Report

Prepared for:

Ike Tavarez

Highlander Environmental Corp.

1910 N. Big Spring St.

Midland, TX 79705

Project: Pogo/ E.C. Hill A & B TB

Project Number: 1786

Location: Lea Co., NM

Lab Order Number: 6I25010

Report Date: 10/03/06

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ E.C. Hill A & B TB
Project Number: 1786
Project Manager: Ike Tavarez

Fax: (432) 682-3946

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-3	6I25010-01	Water	09/22/06 12:00	09-25-2006 13:45
MW-4	6I25010-02	Water	09/22/06 10:25	09-25-2006 13:45
MW-5	6I25010-03	Water	09/22/06 10:55	09-25-2006 13:45

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ E.C. Hill A & B TB
Project Number: 1786
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Organics by GC
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3 (6I25010-01) Water									
Benzene	**0.00232**	0.00100	mg/L	1	EI62809	09/28/06	09/29/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*94.0 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*106 %*	*80-120*		"	"	"	"	
MW-4 (6I25010-02) Water									
Benzene	**J [0.000619]**	0.00100	mg/L	1	EJ60107	10/01/06	10/02/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*81.5 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*110 %*	*80-120*		"	"	"	"	
MW-5 (6I25010-03) Water									
Benzene	ND	0.00100	mg/L	1	EJ60107	10/01/06	10/02/06	EPA 8021B	
Toluene	ND	0.00100	"	"	"	"	"	"	
Ethylbenzene	ND	0.00100	"	"	"	"	"	"	
Xylene (p/m)	ND	0.00100	"	"	"	"	"	"	
Xylene (o)	ND	0.00100	"	"	"	"	"	"	
Surrogate: a,a,a-Trifluorotoluene		*81.0 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*85.0 %*	*80-120*		"	"	"	"	

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ E.C. Hill A & B TB
Project Number: 1786
Project Manager: Ike Tavarez

Fax: (432) 682-3946

General Chemistry Parameters by EPA / Standard Methods
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-3 (6I25010-01) Water									
Chloride	**330**	5.00	mg/L	1	EI62720	09/27/06	09/27/06	SW846-9253	
MW-4 (6I25010-02) Water									
Chloride	**606**	5.00	mg/L	1	EI62720	09/27/06	09/27/06	SW846-9253	
MW-5 (6I25010-03) Water									
Chloride	**95.7**	5.00	mg/L	1	EI62720	09/27/06	09/27/06	SW846-9253	

Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EI62809 - EPA 5030C (GC)										
Blank (EI62809-BLK1)				Prepared: 09/28/06 Analyzed: 09/29/06						
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00100	"							
Xylene (o)	ND	0.00100	"							
Surrogate: a,a,a-Trifluorotoluene	*32.6*		*ug/l*	*40.0*		*81.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*40.5*		*"*	*40.0*		*101*	*80-120*			
LCS (EI62809-BS1)				Prepared: 09/28/06 Analyzed: 09/29/06						
Benzene	0.0436	0.00100	mg/L	0.0500		87.2	80-120			
Toluene	0.0415	0.00100	"	0.0500		83.0	80-120			
Ethylbenzene	0.0460	0.00100	"	0.0500		92.0	80-120			
Xylene (p/m)	0.0814	0.00100	"	0.100		81.4	80-120			
Xylene (o)	0.0415	0.00100	"	0.0500		83.0	80-120			
Surrogate: a,a,a-Trifluorotoluene	*33.3*		*ug/l*	*40.0*		*83.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*33.7*		*"*	*40.0*		*84.2*	*80-120*			
Calibration Check (EI62809-CCV1)				Prepared: 09/28/06 Analyzed: 09/29/06						
Benzene	55.4		ug/l	50.0		111	80-120			
Toluene	48.7		"	50.0		97.4	80-120			
Ethylbenzene	47.6		"	50.0		95.2	80-120			
Xylene (p/m)	96.3		"	100		96.3	80-120			
Xylene (o)	47.8		"	50.0		95.6	80-120			
Surrogate: a,a,a-Trifluorotoluene	*40.7*		*"*	*40.0*		*102*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*44.3*		*"*	*40.0*		*111*	*80-120*			
Matrix Spike (EI62809-MS1)		**Source: 6I25008-07**		Prepared: 09/28/06 Analyzed: 09/29/06						
Benzene	0.0420	0.00100	mg/L	0.0500	ND	84.0	80-120			
Toluene	0.0407	0.00100	"	0.0500	ND	81.4	80-120			
Ethylbenzene	0.0466	0.00100	"	0.0500	ND	93.2	80-120			
Xylene (p/m)	0.0822	0.00100	"	0.100	ND	82.2	80-120			
Xylene (o)	0.0406	0.00100	"	0.0500	ND	81.2	80-120			
Surrogate: a,a,a-Trifluorotoluene	*32.4*		*ug/l*	*40.0*		*81.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*43.4*		*"*	*40.0*		*108*	*80-120*			

Highlander Environmental Corp.
1910 N. Big Spring St.
Midland TX, 79705

Project: Pogo/ E.C. Hill A & B TB
Project Number: 1786
Project Manager: Ike Tavarez

Fax: (432) 682-3946

Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EI62809 - EPA 5030C (GC)										
Matrix Spike Dup (EI62809-MSD1)	**Source: 6I25008-07**			Prepared: 09/28/06 Analyzed: 09/30/06						
Benzene	0.0476	0.00100	mg/L	0.0500	ND	95.2	80-120	12.5	20	
Toluene	0.0426	0.00100	"	0.0500	ND	85.2	80-120	4.56	20	
Ethylbenzene	0.0408	0.00100	"	0.0500	ND	81.6	80-120	13.3	20	
Xylene (p/m)	0.0883	0.00100	"	0.100	ND	88.3	80-120	7.16	20	
Xylene (o)	0.0428	0.00100	"	0.0500	ND	85.6	80-120	5.28	20	
Surrogate: a,a,a-Trifluorotoluene	*36.5*		*ug/l*	*40.0*		*91.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*47.4*		*"*	*40.0*		*118*	*80-120*			
Batch EJ60107 - EPA 5030C (GC)										
Blank (EJ60107-BLK1)				Prepared: 10/01/06 Analyzed: 10/02/06						
Benzene	ND	0.00100	mg/L							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00100	"							
Xylene (o)	ND	0.00100	"							
Surrogate: a,a,a-Trifluorotoluene	*32.0*		*ug/l*	*40.0*		*80.0*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*34.9*		*"*	*40.0*		*87.2*	*80-120*			
LCS (EJ60107-BS1)				Prepared: 10/01/06 Analyzed: 10/02/06						
Benzene	0.0445	0.00100	mg/L	0.0500		89.0	80-120			
Toluene	0.0405	0.00100	"	0.0500		81.0	80-120			
Ethylbenzene	0.0470	0.00100	"	0.0500		94.0	80-120			
Xylene (p/m)	0.0852	0.00100	"	0.100		85.2	80-120			
Xylene (o)	0.0413	0.00100	"	0.0500		82.6	80-120			
Surrogate: a,a,a-Trifluorotoluene	*33.9*		*ug/l*	*40.0*		*84.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*41.7*		*"*	*40.0*		*104*	*80-120*			

Organics by GC - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EJ60107 - EPA 5030C (GC)										
Calibration Check (EJ60107-CCV1)				Prepared: 10/01/06 Analyzed: 10/03/06						
Benzene	48.4		ug/l	50.0		96.8	80-120			
Toluene	43.2		"	50.0		86.4	80-120			
Ethylbenzene	44.1		"	50.0		88.2	80-120			
Xylene (p/m)	88.6		"	100		88.6	80-120			
Xylene (o)	44.0		"	50.0		88.0	80-120			
Surrogate: a,a,a-Trifluorotoluene	*37.5*		"	*40.0*		*93.8*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*45.1*		"	*40.0*		*113*	*80-120*			
Matrix Spike (EJ60107-MS1)	**Source: 6I27005-01**			Prepared: 10/01/06 Analyzed: 10/02/06						
Benzene	0.120	0.00100	mg/L	0.0500	0.0690	102	80-120			
Toluene	0.0533	0.00100	"	0.0500	0.0115	83.6	80-120			
Ethylbenzene	0.0450	0.00100	"	0.0500	0.00202	86.0	80-120			
Xylene (p/m)	0.0820	0.00100	"	0.100	0.000489	81.5	80-120			
Xylene (o)	0.0417	0.00100	"	0.0500	0.000958	81.5	80-120			
Surrogate: a,a,a-Trifluorotoluene	*34.1*		*ug/l*	*40.0*		*85.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*32.3*		"	*40.0*		*80.8*	*80-120*			
Matrix Spike Dup (EJ60107-MSD1)	**Source: 6I27005-01**			Prepared: 10/01/06 Analyzed: 10/02/06						
Benzene	0.119	0.00100	mg/L	0.0500	0.0690	100	80-120	1.98	20	
Toluene	0.0514	0.00100	"	0.0500	0.0115	79.8	80-120	4.65	20	M8
Ethylbenzene	0.0490	0.00100	"	0.0500	0.00202	94.0	80-120	8.89	20	
Xylene (p/m)	0.0819	0.00100	"	0.100	0.000489	81.4	80-120	0.123	20	
Xylene (o)	0.0412	0.00100	"	0.0500	0.000958	80.5	80-120	1.23	20	
Surrogate: a,a,a-Trifluorotoluene	*32.9*		*ug/l*	*40.0*		*82.2*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*34.3*		"	*40.0*		*85.8*	*80-120*			

12600 West I-20 East - Odessa, Texas 79705 - (432) 563-1800 - Fax (432) 563-1713

General Chemistry Parameters by EPA / Standard Methods - Quality Control
Environmental Lab of Texas

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EI62720 - General Preparation (WetChem)										
Blank (EI62720-BLK1)				Prepared & Analyzed: 09/27/06						
Chloride	0.00	5.00	mg/L							
LCS (EI62720-BS1)				Prepared & Analyzed: 09/27/06						
Chloride	91.5	5.00	mg/L	100		91.5	80-120			
Matrix Spike (EI62720-MS1)		Source: 6I25010-01		Prepared & Analyzed: 09/27/06						
Chloride	798	5.00	mg/L	500	330	93.6	80-120			
Matrix Spike Dup (EI62720-MSD1)		Source: 6I25010-01		Prepared & Analyzed: 09/27/06						
Chloride	803	5.00	mg/L	500	330	94.6	80-120	0.625	20	
Reference (EI62720-SRM1)				Prepared & Analyzed: 09/27/06						
Chloride	50.0		mg/L	50.0		100	80-120			

Notes and Definitions

M8	The MS and/or MSD were below the acceptance limits. See Blank Spike (LCS).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Raland K Tuttle Date: 10-03-06

Raland K. Tuttle, Lab Manager
Celey D. Keene, Lab Director, Org. Tech Director
Peggy Allen, QA Officer
Jeanne Mc Murrey, Inorg. Tech Director
LaTasha Cornish, Chemist
Sandra Sanchez, Lab Tech.

Analysis Request and Chain of Custody Record

HIGHLANDER ENVIRONMENTAL CORP.

1910 N. Big Spring St.
Midland, Texas 79705

(432) 682-4559 Fax (432) 682-3946

PAGE: 1 OF: 1

CLIENT NAME: Pogo SITE MANAGER: Ike Tavarez

PROJECT NO.: 1786 PROJECT NAME: Pogo / E.C. Hill AGI TB
Lea County, NM

LAB I.D. NUMBER 61256lc	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL 40mL glass	HNO3	ICE 250mL HPDE	NONE	ANALYSIS REQUEST (Circle or Specify Method No.): BTEX 8020/602	MTBE 8020/602	TPH 418.1 8015 MOD. TX1005	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8240/8260/624	GC/MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 608/608	EDB, TSS, pH, TDS, Chlorides	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)
-01	9/22/06	12:00	W		X	MW - 3	3	N	X		X		X													X			
-02	9/22/06	10:25	W		X	MW - 4	3	N	X		X		X													X			
-03	9/22/06	10:55	W		X	MW - 5	3	N	X		X		X													X			

RELINQUISHED BY: (Signature) Date: 09/25/06 Time: ~~1600~~ 1345
RECEIVED BY: (Signature) Date: Time:
SAMPLED BY: (Print & Sign) Ray Taylor / Jeremy Jones Date: 9/22/06 Time:

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS AIRBILL #
HAND DELIVERED UPS OTHER:

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:

RECEIVING LABORATORY: ELT
ADDRESS:
CITY: Odessa STATE: TX ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) Jaime McMurray
DATE: 09-25-06 TIME: 1345

HIGHLANDER CONTACT PERSON: Ike Tavarez

Results by:
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

MATRIX: W-Water A-Air SD-Solid S-Soil SL-Sludge O-Other

REMARKS: 2.5 °C w/seals on 250 mL HDPE

Please Fill out all copies – Laboratory retains yellow copy – Return original copy to Highlander Enviromental Corp. – Project Manager retains pink copy – Accounting receives Gold copy.

Environmental Lab of Texas

Variance/ Corrective Action Report- Sample Log-In

Client: Highlander Environmental

Date/ Time: 09-25-06 @ 1345

Lab ID # : 6I25010

Initials: JMM

Sample Receipt Checklist

					Client Initials
#1	Temperature of container/ cooler?	(Yes)	No	2.5 °C	
#2	Shipping container in good condition?	(Yes)	No		
#3	Custody Seals intact on shipping container/ cooler?	Yes	No	(Not Present)	
#4	Custody Seals intact on sample bottles/ container? 250mL	(Yes)	No	Not Present	
#5	Chain of Custody present?	(Yes)	No		
#6	Sample instructions complete of Chain of Custody?	(Yes)	No		
#7	Chain of Custody signed when relinquished/ received?	(Yes)	No		
#8	Chain of Custody agrees with sample label(s)?	(Yes)	No	ID written on Cont./ Lid	
#9	Container label(s) legible and intact?	(Yes)	No	Not Applicable	
#10	Sample matrix/ properties agree with Chain of Custody?	(Yes)	No		
#11	Containers supplied by ELOT?	(Yes)	No		
#12	Samples in proper container/ bottle?	(Yes)	No	See Below	
#13	Samples properly preserved?	(Yes)	No	See Below	
#14	Sample bottles intact?	(Yes)	No		
#15	Preservations documented on Chain of Custody?	(Yes)	No		
#16	Containers documented on Chain of Custody?	(Yes)	No		
#17	Sufficient sample amount for indicated test(s)?	(Yes)	No	See Below	
#18	All samples received within sufficient hold time?	(Yes)	No	See Below	
#19	VOC samples have zero headspace?	(Yes)	No	Not Applicable	

Variance Documentation

Contact: _____ Contacted by: _____ Date/ Time: _____

Regarding: _____

Corrective Action Taken:

Check all that Apply:

- ☐ See attached e-mail/ fax
- ☐ Client understands and would like to proceed with analysis
- ☐ Cooling process had begun shortly after sampling event