

Midland, Texas

October 7, 2005

Mr. Larry Johnson Environmental Engineer Specialist Oil Conservation Division- District I 1625 N. French Drive Hobbs, New Mexico 88240



RE: Assessment and Closure Report for the (Arch) Pogo Producing Company, Manda B Tract C Tank Battery located in Section 28, Township 22 South, Range 37 East, Unit Letter C, Lea County, New Mexico.

Dear Mr. Johnson:

Highlander Environmental Corp. (Highlander) was contacted by (Arch) Pogo Producing Company to assess a spill on the Manda B Tract C Tank Battery located in Section 28, Township 22 South, Range 37 East, Unit Letter C, Lea County, New Mexico (Site). The State of New Mexico C-141 (Initial) is shown in Appendix C. The Site is shown on Figure 1.

Background

According to the State of New Mexico C-141 report, the spill occurred on September 22, 2003 from an overflow of an oil tank. The facility had no firewall constructed around the tanks. An unknown volume of oil was released and 3 barrels of oil was recovered. The fluids from the release flowed to the southwest corner of the battery and then flowed down the lease road. The impacted area at the battery measured approximately 15' x 30' and the area on the lease road measured approximately 325' long by 1' to 2' wide. The spill areas on the pad and lease road were immediately back dragged with a backhoe. The spill areas are shown on Figure 2.

On September 24, 2003, Highlander personnel installed an auger hole using a stainless steel bucket-type hand auger to evaluate and attempt to delineate the extent of impacted soil. The auger hole was placed inside the tank battery fence line.

Soil samples were collected at depths of 0-1' and 2-2.5', 4-4.5', 5-5.5' and 6.5' below surface for TPH evaluation by method 8015M, BTEX by method 8021B and chloride by method SW 846-9252. The sample at 0-1', exceeded the RRAL for TPH and total BTEX with TPH at 25,440 mg/kg and total BTEX at 503.5 mg/kg. The deeper sample at 2-2.5' showed TPH to be below the method detection limit.

Chloride concentrations decreased with depth, however, deeper samples could not be collected due to the dense, caliche formation. The chloride impact appeared to be from older spills from the tank battery.

A work plan was prepared and submitted to the NMOCD on October 14, 2003. Pogo proposed to excavate impacted soils and collect deeper confirmation samples. Due to the tank location, the area of excavation was estimated at 12' x 15'.

Groundwater and Regulatory

According to published data from "Geology and Groundwater Resources of Lea County, New Mexico", dated 1952, one water well with a water level of 66.1'was reported in Section 28, Township 22 South, Range 37 East. The New Mexico State Engineer Office database did not show any wells in Section 28, Township 22 South, Range 37 East. However, several wells were reported in the surrounding Sections, with average depth to groundwater of 65'(Section 21), 65' (Section 26) and 60'(Section 34). The well records are shown in Appendix A.

A risk-based evaluation was 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. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 1,000 mg/kg.

Assessment/Borehole Installation

Prior to performing excavation, a hollow-stem auger rig was utilized to collect subsurface soil samples. On September 9, 2005, one soil boring (BH-1) was installed in the spill areas to delineate subsurface impact. Soil samples were collected at three intervals (5'-6'; 10'-11'; and 15'-16'). The soil samples were analyzed for chloride. Chloride concentrations decreased dramatically from 4,290 mg/kg (5-6') to 348 mg/kg (15'-16'). The laboratory reports and the chain of custody documentation are included in Appendix B.

Soil Remediation and Sampling

On September 9, 2005, the site was excavated to remove the surficial TPH and BTEX impact, exceeding the RRAL. The excavation measured approximately 15' x 20' x 2'. The excavation is shown in Figure 3. Once this excavation was performed, a composite sample was collected in the excavation bottom hole for TPH, BTEX and chloride evaluation. The TPH and BTEX levels were all below reporting limits. The composite sample showed a chloride concentration of 156 mg/kg. Based on the initial auger hole data, the chloride level in the excavation was expected to be somewhat elevated. It appears the soils impacted with chlorides may have been confined to the immediate vicinity of the borehole.



Conclusions and Closure Request

The TPH and BTEX impacted soils above the RRAL were removed and hauled to disposal. The elevated chloride detected in the borehole showed a decreasing concentration with depth. The composite sample did not show an elevated chloride concentration. The elevated chlorides appear to be confined to the immediate vicinity of the borehole and do not appear to be a threat to groundwater. Based on the assessment and remediation performed, Pogo requests closure of this site. A copy of the C-141 (Final) is included in Appendix C.

If you require any additional information or have any questions or comments concerning the assessment report, please call.

HIGHDANDER ENVIRONMENTAL CORP,

Ike Tavarez

Project Manager/Geologist

cc: Don Riggs – Pogo Producing Company
Pat Ellis – Pogo Producing Company



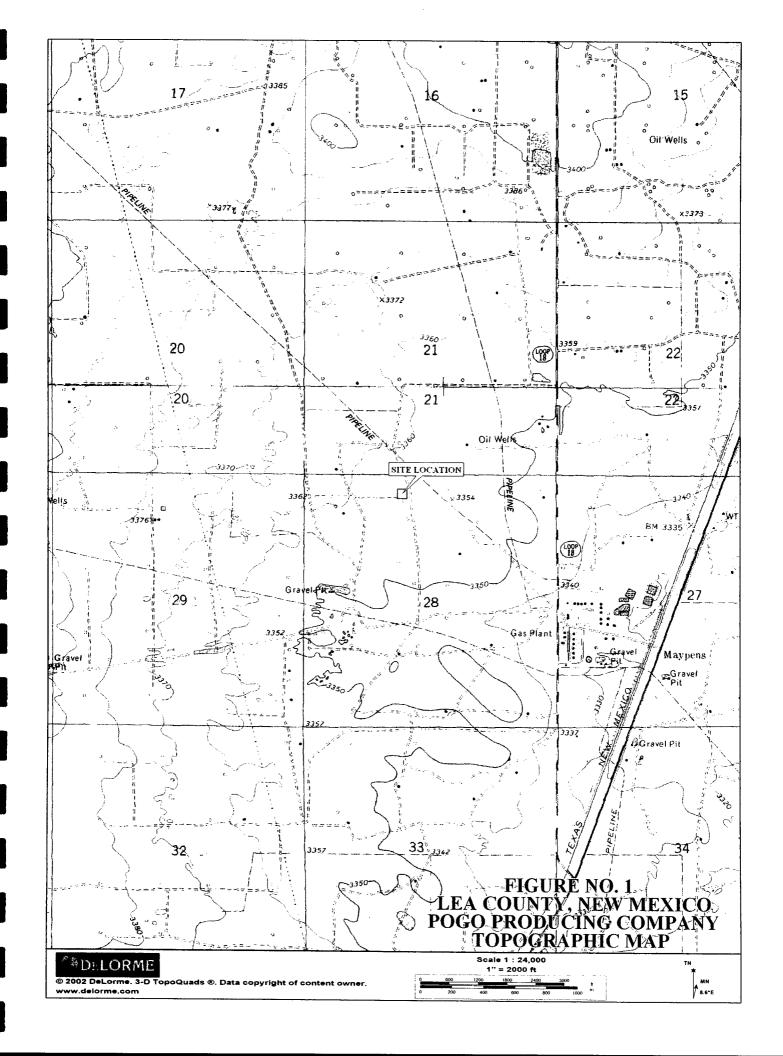
SITE INFORMATION

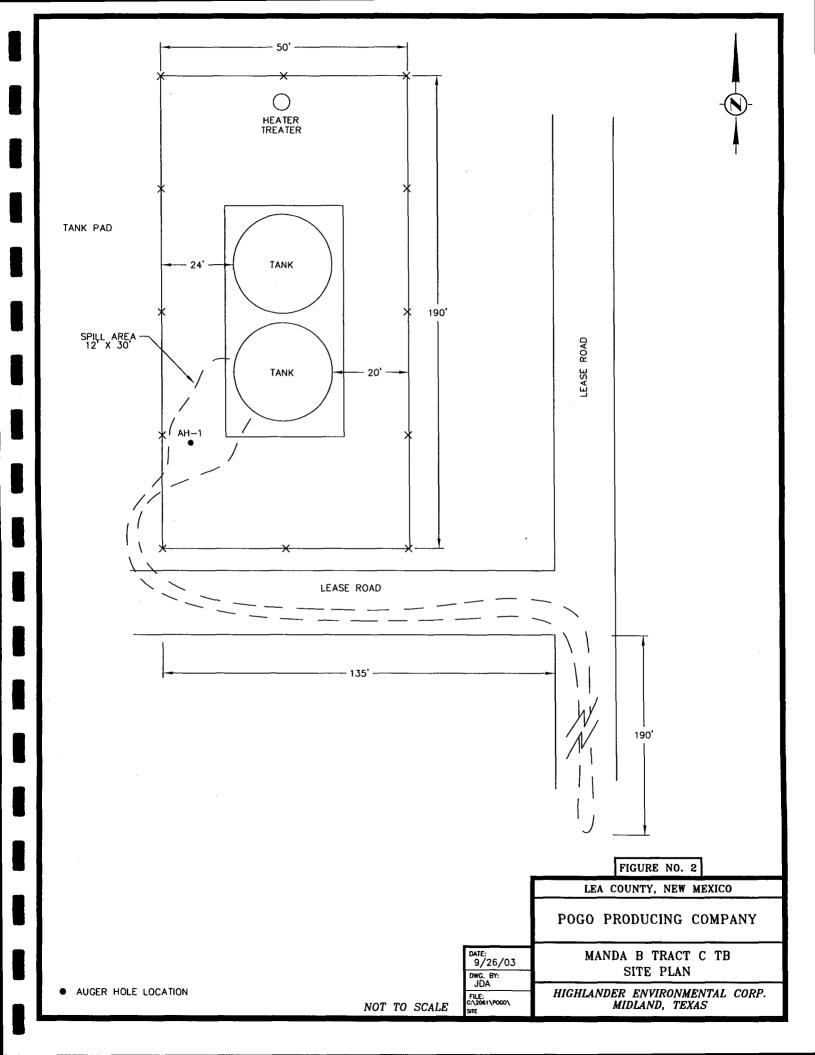
Report Type: CLOSURE REPORT

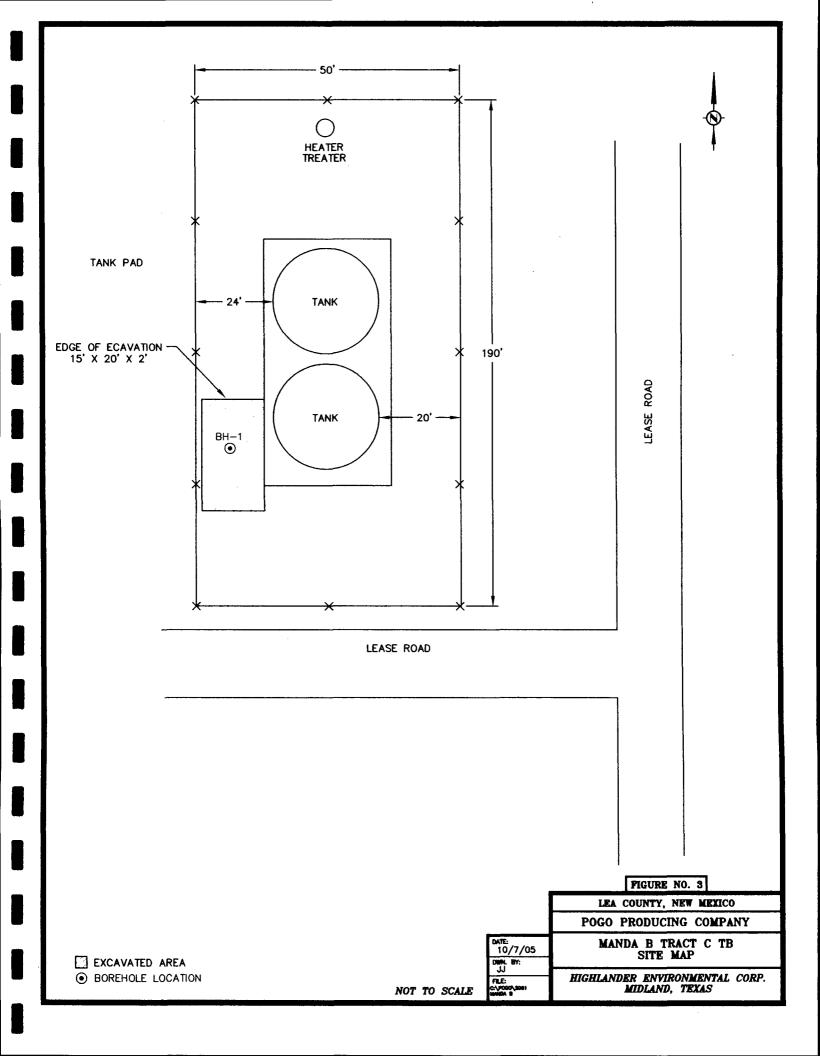
Site:			t C Tank Battery	
Company:			ng Company (Arch Petroleu	ım)
Section, Townsh	ip and Range	Section 28, T2:	2S, R37 E	
Unit Letter:		С		
Lease Number:				
County:		Lea		
GPS:		32° 22' 07.7", 10	03° 10' 11.7"	
Surface Owner:		-		
Mineral Owner:				
Directions:		From Eunice inte	rsection of 234 and 207 (loop 1	8), go south 5.0 miles on 207
		turn right (east) o	nto lease road, go east 0.5 mile	es and turn right (north),
		go 0.5 miles and	tank battery on left side of road	
Date Released:	1. 15 A. 17 A. 18 A.	9/22/2003		
Type Release:		Oil		
Source of Contam	ination:	Tank overflow		
Fluid Released:		unknown		
Fluids Recovered:		3 barrels		
中的學術為為強				
Name:	Pat Ellis		Don Riggs	lke Tavarez
Company:	Pogo Producin	g Company	Pogo Producing Company	Highlander Environmental Corp.
Address:	300 N. Marienf	eld St.	5 Greenway Plaza, Suite 2700	1910 N. Big Spring
P.O. Box	Box 10340			
City:	Midland Texas	, 79701-7340	Houston, Texas 77046	Midland, Texas
Phone number:	(432) 685-8100	0	(713) 297-5045	(432) 692- 4559
Email:	EllisP@pogopi	roducing.com	riggsd@pogoproducing.com	itavarez@hec-enviro.com

Depth to Groundwater:		Ranking Score		Site Data
<50 ft		20		
50-99 ft		10		Average Depth >50 BS
>100 ft.		0		
WellHead Protection:		Ranking Score		Site Data
Water Source <1,000 ft., Private <200 ft.		20		None
Water Source >1,000 ft., Private >200 ft.		0		
Surface Body of Water:		Ranking Score		Site Data
<200 ft.		20		None
200 ft - 1,000 ft.		10		None 19202122
>1,000 ft.		00		None None 1920 21 22 22
Total Ranking Score:		10		1011213141838
				(E)
				[2]
				1.7 m
Be	enzene	Total BTEX	TPH	

FIGURES







APPENDIX A

New Mexico Office of the State Engineer Well Reports and Downloads

Township: 22S	Range: 37E Sections:	
NAD27 X:	Y: Zone:	Search Radius:
County:	Basin:	Number: Suffix:
Owner Name: (First)	(Last)	C Non-Domestic C Domestic All
Well / Surf	The state of the s	, Avg Depth to Water Report & w.
	, Water Column Re	dort in the second second
	Clear Form WATERS	Menu Help

AVERAGE DEPTH OF WATER REPORT 10/03/2003

•								(Depth	Water	in Feet)
Bsn	Tws	Rng S	ec	Zone	Х	Y	Wells	Min	Max	Avg
CP	22S	37E 0	5				2	79	90	85
CP	22S	37E 0	9				2	8.5	94	90
CP	22S	37E 1	4				1	65	65	65
CP	22S	37E 1	5				7	75	185	125
CP	22S	37E 1	8				1	190	190	190
CP	22S	37E 2	1				1	65	65	65
CP	22S	37E 2	4				1	60	60	60
CP	22S	37E 2	6				1	65	65	65
CP	22S	37E 3	4				1	60	60	60

Record Count: 17

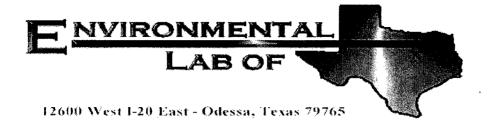
20S 35E	20\$ 36E	20\$ 37E	20S 3820S 39E
30 74 79 77 79 35 31 22 23 35 21 79	30 38 39 37 30 35 35 35 35 35 35 35 35 35 35 35 35 35	, 20 20 24 21 20 25 21 27 28 24 25 27	31 20 31 32 32 32 32 37 37 37 37 37 37 37 37 37 37 37 37 37
	, , , , , , , , , , , , , , , , , , ,		
, , ,, ,, ,,		• • • • • • • • • • • • • • • • • • • •	
21S 34E	215 35 = 1	1 1 1	21S 37E21S 38E
n 20 70 77 70 71 70 70 70 70 70 70 70 70 70 70 70 70 70	╀━╌╂━╌╂═┈╂━┈╂━╌╂		3 40 124
	20 20 3- 31 31 31 3 4 3 4 6	2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	5
	g g 1g 11 12 1	4	
22S 34E	22\$ 35E	22S 36E	22S 38E
25 27 A 23 25 25 25 25 25 25 25 25 25 25 25 25 25	30 30 27 30 20 30 30 30 30 30 30 30 30 30 30 30 30 30	* * * * * * * * * * * * * * * * * * *	2S-37E
	, , , , , ,		
• • • • · · · · · · · · · · · · · · · ·	12 10 10 11 12 1		· · · · · · · · · · · · · · · · · · ·
23\$ 34E	23S 35E	23S 36E	235 37E23S 38E
21 22 25 25 25 25 27 27 28 27 27 27 27 27 27 27 27 27 27 27 27 27	25 26 27 27 28 27 1 27 27 28 29 29 29 20 21	20 20 20 27 20 25 30 21 22 25 26 27 20 20 20 20 20 20 20 20 20 20 20 20 20	
10 10 10 10 10 10 10 10 10 10 10 10 10 1	, , , , ,		
7 2 2	0 10 10 10 10		
	24\$ 35E	24\$ 36E	249 37E24S 38E
0 30 30 27 20 31 20 32 32 32 32 32 32 32 32 32 32 32 32 32		20 24 28 27 29 20 20 20 20 20 20 20 20 20 20 20 20 20	29 20 27 26 22 30 25 26 27 27 27 27 27 27 27 27 27 27 27 27 27
	, , , ,	, , , , , , , ,	
	17 16 16 14 12	19 17 19 19 11 12 18	25 27 12 5 2 3 C F
25S 34E	25S 35E	25S 36E	25537E25S 38E
31 22 33 31 30 30 30	12 22 14 25 26	31, 32 33 34 35 30 34	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
		9 9 1 1 2 1 6 y 8 9 90 1 12 12 17	
26S 34E			26S 37E26S 38E
10 20 1, 27 27 2- 10 20 20 20 20 20 20	20 21 22 21 21 22 24 24 25 25 26 26 26 26 26 26 26 26 26 26 26 26 26	10 20 21 22 24 10 22 28 28 27 29 29 20	25 27 27 14 20 15 29 70 77 80 25 30 24
11 10 20 31 30 30 30 30 30 30 30 30 30 30 30 30 30	7 7 7 7 7 7	>	n 13 b n n 11 b
			B. Jan T.

TABLE 6. RECORDS OF WELLS IN SOUTHERN LEA COUNTY, N. MEX. (continued)

		TORVI		o. Medical		20 111 00000	2000	2			1 := := 1.	(continued)
						Wate	Water level					
				Depth	Altitude	Depth be- low land	Date	Year	Surface diam-			
	Location No.	Owner	Aquifer	of well (feet)	of well (feet)	Surface (feet)	meas. ured	com- pleted	S	Method Use of of lift water	Use of water	Remarks
<u>-</u>	22.37.21.421	1	To(?)	,	3.360	62.0	953		5	z	z	
•	22.331	Skelly Oil Co.	To(?)	115±	3,350	0.69	9-29-53	1949		Ë	In,D	Skelly Eunice Plant 1, well 12. EY
	० १९ १९ १	So Sime		X77	2 24	л С	10-14.53	I	4	2	z	40 gpm. Open and uncased
	23.441	O. I. Boyd	;	+ 02	1 60	, r.c.	10-12-53	i	: 1	. 4	·	Dug.
	23.441a		l co	1 +1	3,335	55.2	10-12-53	ı	71/2	Z	z	1
	24.133a	G. Sims	Qa!	127M	3,322	59.3	4.21.55	1	10	ij	Z	I
	24.133b	do.	Qai	80	i	ì	1	ł	1	Ľ	z	Chemical analysis in table 8.
	25.313	Marshal Drinkard	ard Qal	M69	3,300	50.1	10-14-53	1945	131/2	Z.	z	1
مج	27.334b	Skelly Oil Co.	Qal	127M	3,335	54.4	953	1	8 22 8	Z	Z	간
•	27.410	do.	To	182	ı	1	i	1	7	Te	In,D	EY 25 gpm. Perforations 150-170
7.	600				ģ	. 99			ò	Ž	7	reet.
*	* 22:31:28:323	Clower Drilling Co.	ie)	l	5,333	1.00	953	I	Z.	<u>z</u> ,	Z,	1
	34.221	Humble Oil Co.	Qal	229	3,520	ı	1	1938	ı	i	In	WBZ 58-61 feet, 138-146 feet, 185-
			and Tr									192 feet. EY 22 gpm.
	36.141a	Tom Linebury	Qal	40	3,300	32.2	10.12.54	ł	j	Ľ	S	ı
	36.141b	do.	Qal	46	3,300	31:1	6-3-55	1	ę	z	z	1
	22.38.18.234	The Texas Co.	Ļ	386M	3,360	180	1053	1953	ı	ij	L L	WBZ gray sand, 325-380 feet. EY
	19.222	do.	Ţ	1	3,365	146.0	10.14.53	1	7	z	z	20 gpin.
	23.32.4.222	C. H. and W. O.	Ľ.	550	3,630	I	I	1861	80	L۳	s	EY 10 gpm.
		James								;		
	21.222	Frank and Char	rles Tr	550	3,700	200	ı	1	œ	ij	S	1
	23.33.12.322	James San Simon Ranch Tr	ch Tr	400	3,685	1	ł	1953	ı	Ľ	s	WBZ 370-400 feet.
	23.33.28.334	Brinninstool	Ţ	575	3,675	200	1	ł	ı	ľ,	D,S	EY 2.5 gpm.
	23.34.1.444	San Simon	Qal	144 ± M		137.3	11-25-53	ı	9	z	z	1
	;	Ranch	ŀ		0				c	:		
	31.340	Continental Oil Co.	ıı	9/9	3,620	1	!	1953	8	17	uı	Et 4/ gpm. Chemical analysis in table 8.

G. Sims G. Sims G. Sims do. Qal — — — — — — — — — — — — —	99 96 95 914	οþ	۲	197	9.400	187.4	11-23-53	i	ŀ	Ľ	s	1
Humble Oil Co. Qal	061 -	, m;			3 350	47.6	10.14.53	ì	ł	Z	z	Open, uncased hole.
Humble Oil Co. Qal 86M 3,366 5.3 10.9.53 — Sindair Oil and To 120 3,425 90. 10.9.53 — 1946 Gas Co. Cities Service To — 52M 3,426 10.9.7 9.28.53 — 1946 Oil Co. City of Eunice To 155 3,445 110 1953 1953 1953 city of Eunice To 155 3,445 110 1951 1951 1951 city of Eunice To 155 3,446 114.8 3.6.54 1952 1953 city of Eunice To 155 3,435 110 1951 1951 1951 Sinclair Oil and To 116±M 3,436 90.1 9.28.53 — 1946 Gas Co. Skelly Oil Co. To 166 M 3,400 60 1953 1946 do. To 166 M 3,400 72.7 9.29.53 1946 do. To 104±M 3,410 85.5 9.29.53 1946 do. To 104±M 3,410 85.5 9.29.53 1946 do. To 104±M 3,410 85.5 9.29.53 1946 do. To — 3,335 458.7 10.16.53 — 1945 do. Skelly Oil Co. To — 3,345 10.16.53 — 1946 do. Qal 59M 3,335 53.3 10.14.53 — 1947 do. To 186 3,386 81.0 9.29.53 1947 do. To 186 3,386 81.0 9.29.53 1947 do. To 185 3,386 81.0 9.29.53 1947 do. To 185 3,386 81.0 9.29.53 1947 do. To 185 3,385 81.0 9.29.53 1947	701.1		Ž.	I	0000	?				1	v	Chemical analysis in table 8.
Humble Oil Co. Qal 86M 3,360 53.3 10. 9.53 — 1946 Sinclair Oil and To 120 3,425 90 — 1946 Gas Co. — 52M 3,420 Dry 9.28.53 — 1946 do. To 155 3,445 110 1953 1953 1963 Let Shell Oil Co. To 155 3,445 110 1953 1953 1953 1954 A tumble Oil Co. To 168 3,400 60 1955 1956 Shell Oil Co. To 168 3,400 60 1955 1946 do. To 164 — < <139 — 1950 Humble Oil Co. To 164 — < 139 — 1950 Shell Oil Co. To 164 — < 1995 1946 do. To 104 + M 3,410 85.5 9.29.53 1946 do. To 104 + M 3,410 85.5 9.29.53 1946 Humble Oil Co. To 104 + M 3,410 85.5 9.29.53 1946 do. To 104 + M 3,410 85.5 9.29.53 1946 Humble Oil Co. To 220 3,400 100 1950 Skelly Oil Co. To 104 + M 3,410 85.5 9.29.53 1946 do. To 220 3,400 100 1950 Skelly Oil Co. To 220 3,400 100 1950 A do. Qal 59M 3,335 53.3 10.14.53 — do. Qal 59M 3,335 53.3 10.14.53 — do. To 135 3,385 81.0 9.28.53 1947	1.440	do.	e O	1	1	ļ	١	l	1	ָרְ בְּי	; د	
Sinclair Oil and To 120 3,425 90 — 1946 Gas Co. Gas Co. Cities Service To — 3,390 75.8 9.29.53 — Oil Co. City of Eunice To 155 3,445 110 1953 1953 1963 a Eunice Ceme- To 155 3,445 110 1952 1953 1953 1954 do. To 164 — < <139 90.1 9.28.53 — 1956 Skelly Oil Co. To 168 3,430 90.1 9.28.53 1944 do. To 164 — < <139 90.1 9.28.53 1944 do. To 164 — < <139 — 1956 Humble Oil Co. To 164 M 3,410 85.5 9.29.53 1946 do. To 104 M 3,410 85.5 9.29.53 1946 Humble Oil Corp. To 104 M 3,410 85.5 9.29.53 1946 do. To 104 M 3,410 85.5 9.29.53 1946 Cut Oil Corp. To 220 3,400 100 1950 — 1956 Humble Oil Corp. To 220 3,400 100 1955 1955 Leo Sims Qal — 3,335 81.0 9.16.53 — 1945 do. Qal 199M 3,335 53.9 10.14.53 — 1947 do. Qal 59M 3,335 53.9 10.14.53 — 1947 do. To 135 3,385 81.0 9.28.53 1947	2.442	Humble Oil Co.	Oal	86M	3,360	53.3	10.9.53	ı	7	Z	Z,	Initial yield, og gpm.
Gas Co. Gas Co. Gas Co. Gites Service To 52M 3,420 Dry 9-28-53 — Oil Co. City of Eunice To 155 3,445 110 1953 1953 — City of Eunice To 155 3,445 110 1951 1952 1 Eunice Ceme. To 115±M 3,435 108.2 9-29-53 — tery Assoc. City of Eunice To 115±M 3,435 108.2 9-29-53 — Cas Co. Skelly Oil Co. To 164 — < <139 — 1950 Skelly Oil Co. To 104±M 3,410 85.5 9-29-53 1946 do. Humble Oil Co. To 104±M 3,410 85.5 9-29-53 1946 do. Humble Oil Co. To 104±M 3,410 85.5 9-29-53 1946 Gulf Oil Corp. Coll Coll Corp. Coll Corp. Coll Coll Corp. Coll Coll Corp. Coll Coll Corp. Coll Corp. Coll Coll Corp. Coll Corp. Coll Coll Corp. Coll Coll Corp. Coll Coll Corp. Coll Corp. Coll Coll Coll Corp. Coll Coll Corp. Coll Coll Coll Corp. Coll Coll Corp. Coll Coll Corp. Coll Coll C	3.133	Sinclair Oil and	<u>ئ</u> ,	120	3,425	96	ı	1946	i	'n	Д	ı
do. 52M 3,420 Dry 9-28-53 − Oil Co. City of Eunice To 155 3,445 110 1953 1953 Oil Co. To 155 3,445 110 1953 1953 cty Assoc. To 115 ± M 3,435 108.2 9-29-53 − cty Assoc. Gill Stronger To 115 ± M 3,435 110 1951 1951 Sinclair Oil and To To 115 ± M 3,430 90.1 9-29-53 − Cas Co. Gas Co. Skelly Oil Co. To 164 − 1950 Shell Oil Co. To 166 M 3,400 60 1953 1946 Au umble Oil Co. To 166 M 3,400 70 1945 − Ao. To 172		Gas Co.										
Cities Service To — 8.390 75.8 9.29.53 — Oil Co. City of Eunice To — 155 3,445 110 1953 1953 1963 1960 do. To 155 3,446 114.8 3.6.54 1952 1963 1963 1963 1963 1963 1964 1965 1964 1965 1965 1965 1965 1965 1965 1966 1965 1966 1966	3.134	do.	1	52M	3.420	Dry	9-28-53	1	1	Z,	z	1
Oil Co. City of Eunice do. To 155 3,445 110 1953 1953 1 do. To 155 3,445 110 1952 1 Eunice Ceme. To 115±M 3,435 108.2 9-29-53 — Eury Assoc. City of Eunice To 115±M 3,435 110 1951 1951 Sinclair Oil and To 114±M 3,436 90.1 9-28-53 — Gas Co. Skelly Oil Co. To 168 3,400 60 1953 1956 Humble Oil Co. To 166 3,400 60 1953 1946 do. To 172 — 1945 Humble Oil Corp. To 104±M 3,410 85.5 9-29-53 1946 Gulf Oil Corp. To 220 3,400 100 1955 Culf Oil Corp. To 220 3,400 100 1955 Leo Sims Qal 100M 3,350 45.3 10-16-53 — Leo Sims Qal 29M 3,355 53.9 10-14-53 — do. To 135 3,386 81.0 9-28-53 — do. Qal 59M 3,385 83.3 10-14-53 — do. To 135 — 3,380 81.0 9-53 — do. To 135 — 3,385 81.0 9-53 — do. To 135 — 3,385 81.0 9-53 — A. Gally Oil Co. To 135 — 3,386 81.0 9-53 3 1947	3.440	Cities Service	To	i	3,390	75.8	9.29-53	1	72	z	z	1
City of Eunice To 155 3,445 110 1953 1953 1 do. To 155 3,440 114.8 3.6.54 1952 1 tery Assoc. City of Eunice Ceme. To 115±M 3,435 108.2 9.29.53 — cery Assoc. City of Eunice To 155 3,435 110 1951 1951 Sinclair Oil and To 114±M 3,430 90.1 9.28.53 — Cas Co. Skelly Oil Co. To 164 — <139 — 1950 Alumble Oil Co. To 166 3,400 60 1953 1936 do. To 172 — — 1945 Humble Oil Co. To 104±M 3,410 85.5 9.29.53 1946 do. To 104±M 3,410 85.5 9.29.53 1946 Cut Oil Corp. To 20 3,400 100 1950 — 1945 Cut Oil Corp. To 20 3,400 100 1950 — 1946 Skelly Oil Co. To 104±M 3,410 85.5 9.29.53 1940 Cut Oil Corp. To 20 3,400 100 1950 — 1946 Skelly Oil Co. Qal 100M 3,356 85.9 10.14.53 — 1040 do. Qal 59M 3,355 53.3 10.14.53 — 1040 do. Qal 59M 3,355 53.3 10.14.53 — 1040 do. To 135 3,385 80.9 9.28.53 1947		Oil Co.										
do. To 155 3.440 114.8 3.6.54 1952 1 tery Assoc. To 115±M 3.435 108.2 9.29.53 −	4.211	City of Eunice	To	155	3,445	110	1953	1953	10	Te	<u>م</u> _	Well 12. Initial yield, 100 gpm;
a Eunice Ceme- To 1155 3,440 114.8 3-6-54 1952 1 tery Assoc. Gry Assoc. Gry Of Eunice To 115±M 3,435 108.2 9-29-53 — Sinclair Oil and To 114±M 3,430 90.1 9-28-53 — Gas Co. Skelly Oil Co. To 164 — <139 — 1950 Alumble Oil Co. To 166 M 3,400 60 1953 1936 do. To 166 — — 1945 Humble Oil Cor To 104±M 3,410 85.5 9-29-53 1944 do. To 104±M 3,410 85.5 9-29-53 1946 Gulf Oil Corp. To 220 3,400 100 1950 — Gulf Oil Corp. To 220 3,400 100 1950 — Leo Sims Qal 100M 3,350 45.3 10-16-53 — Leo Sims Qal 59M 3,355 53.9 10-14-53 — do. Qal 59M 3,355 53.3 10-14-53 — do. To 135 — 3,385 81.0 9-53 — do. To 135 — 3,385 81.0 9-53 — do. To 135 — — — — — — — — Skelly Oil Co. To 135 3,385 81.0 9-28-53 1947											-	yield in 1953, 60 gpm.
a Eunice Ceme To 115 ± M 3,435 108.2 9-29-53 — tery Assoc. City of Eunice To 155 3,435 110 1951 1951 Sinclair Oil and To 114 ± M 3,430 90.1 9-28-53 — Gas Co. Skelly Oil Co. To 168 3,400 60 1953 1936 do. To 166 — — — 195 1944 do. To 172 — — — 1945 Humble Oil Corp. To 104 ± M 3,410 85.5 9-29-53 1944 do. To 104 ± M 3,410 85.5 9-29-53 1946 Culf Oil Corp. To 220 3,400 100 1950 — 1945 Culf Oil Corp. To 220 3,400 100 1950 — 1945 Leo Sims Qal — 3,355 81.0 9-29-53 1952 Leo Sims Qal — 3,355 53.9 10-16-53 — 10-16-53 do. Qal 59M 3,355 53.9 10-14-58 — 10-14-58 — — — — — — — — — — — — — — — — — — —	4.213	do.	ů	155	3,440	114.8	3-6-54	1952	10	Te	д	Well 11. EY 60 gym.
(city of Eunice Sinclair of Eunice Sinclair of Eunice Sinclair of Eunice Cas according to Sinclair of European Europea	4.214a	Eunice Ceme-	To	115±M	3,435	108.2	9-29-53	1	67,	Z	z	ł
City of Eunice To 155 3,435 110 1951 1951 Sinclair Oil and To 114±M 3,430 90.1 9.28·53 − Gas Co. Skelly Oil Co. To 164 − <139 − 1956 1936 1936 do. To 166 3,400 60 1953 1936 do. To 160		tery Assoc.										
Shelly Oil Co. To 164 — <139 - 1956 Shelly Oil Co. To 168 3,400 60 1953 1956 do. To 168 3,400 60 1953 1956 do. To 168 3,400 60 1953 1944 do. To 172 — 1946 Humble Oil Corp. To 20 3,400 100 1950 Skelly Oil Corp. To 20 3,400 100 1950 Skelly Oil Corp. To 20 3,400 100 1950 Leo Sims Qal 84M 3,355 53.9 10.16.53 do. Qal 59M 3,355 53.9 10.14.53 do. Qal 59M 3,355 53.9 10.14.53 do. Qal 59M 3,355 53.8 10.14.53 do. Qal 59M 3,355 53.8 10.14.53 do. To 136 3,385 80.9 9.28.53 1947	22.37.4.233	City of Eunice	T _o	155	3,435	110	1951	1951	8	Te		Well 9.
Gas Co. Skelly Oil Co. To 164 — < 1950 — 1950 Shell Oil Co. To 166 M. 3,400 60 1953 1936 do. To 166 — — — 1945 do. To 172 — — — 1946 do. To 172 — — — 1946 Gulf Oil Corp. To 220 3,400 100 1950 — — 1946 Leo Sims Qal 100M 3,355 81,0 9.29.53 —	4.421	Sinclair Oil and	To	114±M		90.1	9-28-53	1	7.28	z	z	l
Skelly Oil Co. To 164 — <189 — 1950 Shell Oil Co. To 168 3,400 60 1953 1936 do. To 160 — — 1945 do. To 160 — — 1945 Humble Oil Co. To 104±M 3,410 85.5 9.29.53 1946 Gulf Oil Corp. To 220 3,400 100 1950 — 1946 Skelly Oil Corp. To 2,395 81.0 9.29.53 1940 Leo Sims Qal 94M 3,346 53.9 10.16.53 1952 Leo Sims Qal 59M 3,355 53.3 10.14.53 — 100. 14.53 — 10		Gas Co.										
Shell Oil Co. To 168 3.400 60 1953 1956 a Humble Oil Co. To 166M 3.400 72.7 9.29.53 1944 do. To 160 — — — 1946 do. To 104±M 3.410 85.5 9.29.53 1940 Gulf Oil Corp. To 220 3.400 100 1950 Skelly Oil Co. Qal 100M 3.355 81.0 9.29.53 Leo Sims Qal 84M 3.340 53.9 10.16.53 do. Qal 59M 3.355 53.3 10.14.53 H. O. Sims To — 3.385 80.9 9.28.53 — 1 Skelly Oil Co. To 135 3.385 80.9 9.28.53 1947	4.424	Skelly Oil Co.	To	164	ı	<139	1	1950	828	Ä	In,D	Skelly Eunice Plant 1, well 13. Ini- tial yield, 150 gpm; dropped to
Shell Oil Co. To 168 3,400 60 1953 1936 Humble Oil Co. To 166M 3,400 60 1953 1944 do. To 166 — — — 1945 do. To 104±M 3,410 85.5 9.29.53 1946 Gulf Oil Corp. To 220 3,400 100 1950 — 1946 Culf Oil Corp. To 220 3,400 100 1950 — 1946 Culf Oil Corp. To 220 3,400 100 1950 — 1952 Leo Sims Qal 100M 3,395 81.0 9.29.53 — 1 C. Sims Qal 84M 3,340 53.9 10.16.53 — 1 do. Qal 59M 3,345 53.9 10.14.53 — 1 do. Qal 59M 3,385 53.9 10.14.53 — 1 do. To 135 — 3,385 80.9 9.28.53 1947												20 gpm.
Humble Oil Co. To 166M 3,400 72.7 9-29-53 1944 do. To 172 — 1945 do. To 104±M 3,410 85.5 9-29-53 1946 Humble Oil Corp. To 220 3,400 100 1950 — 1946 Gulf Oil Corp. To 220 3,400 100 1950 — 1950 Leo Sims Qal — 3,395 81,0 9-29-53 1952 Leo Sims Qal 59M 3,350 45,3 10-16-53 — 1950 do. Qal 59M 3,355 53.9 10-14-53 — 1950 do. Qal 59M 3,355 53.3 10-14-53 — 1950 do. Qal 59M 3,355 53.3 10-14-53 — 1950 do. To 136 3,385 80.9 9-28-53 1947	8 441	Shell Oil Co.	T ₀	168	3.400	09	1953	1936	65/8	Ľ	Д	1
do. To 160 — — — 1945 do. To 172 — — — 1946 do. To 172 — — — 1946 Humble Oil Co. To 104±M 3,410 85.5 9.29.53 1940 Gulf Oil Corp. To 220 3,400 100 1950 — 1986 Skelly Oil Co. To — 3,395 81.0 9.29.53 — 1980 Leo Sims Qal 100M 3,350 45.3 10.16.53 — 1982 G. Sims Qal 84M 3,340 53.9 10.14.53 — 1984 do. Qal 59M 3,335 53.3 10.14.53 — 1990 do. Qal 59M 3,355 53.3 10.14.53 — 1990 do. To 136 3,385 80.9 9.28.53 1947	0 4143	Humble Oil Co.	To	166M	3.400	72.7	9-29-53	1944	276 276	z	Z	Greenwood well
Humble Oil Co. To 172 — — — 1946 Humble Oil Corp. To 220 $3,400$ 100 1950 — 1960 Gulf Oil Corp. To 220 $3,400$ 100 1950 — 1950 Skelly Oil Corp. To — 3.395 81.0 $9.29.53$ 1940 Leo Sims Qal 3.345 58.7 $10.16.53$ — 1960 G. Sims Qal 3.345 53.9 $10.14.53$ — $10.16.53$	0.831	Q.	, E	160	ı	1	l	1945	7.2	Нe	Д	well
Humble Oil Co. To $104\pm M$ 3,410 85.5 9.29.53 1940 Gulf Oil Corp. To 220 3,400 100 1950 — 8.895 81.0 9.29.53 — 1950 — 20 Qal 100M 3,350 45.3 10·16·53 — 10·16·53 — 40. Qal 59M 3,346 53.9 10·14·53 — 40. Qal 59M 3,345 58.9 10·14·53 — 10·16·53 — 40. Qal 59M 3,346 53.9 10·14·53 — 10·16·53	100.0	5 6	: F	179	J	I	ı	1946	4	Ţe	Ľ	Humble-1. L. Greenwood well 5.
Humble Oil Co. To $104\pm M$ 3,410 85.5 9.29.53 1940 Gulf Oil Corp. To 220 3,400 100 1950 - 1950 - 20.8 Skelly Oil Co. To 20 3,400 100 100 1950 - 20.8 Skelly Oil Co. To 20 100M 3,350 45.3 10.16.53 1952 - 20.8 Sins Qal - 3,345 58.7 10.16.53 - 20.8 G. Sins Qal 59M 3,340 53.9 10.14.53 - 20.8 G. Sins To 20 59M 3,350 81.0 9. 53 - 20.8 Skelly Oil Co. To 136 3,385 80.9 9.28.53 1947	CCC'A	no.	2	1								Water used for oil well flooding.
Gulf Oil Corp. To 220 3,400 100 1950 — Skelly Oil Corp. To — 3,395 81.0 9.29.53 — 1 Leo Sims Qal — 3,345 58.7 10-16-53 1952 — 3,345 68.7 10-16-53 — 60. Qal 59M 3,346 58.9 10-14-53 — 1 do. Qal 59M 3,355 58.9 10-14-53 — 1 do. Qal 59M 3,355 58.9 10-14-53 — 1 do. Qal 59M 3,355 58.9 10-14-53 — 1 do. To 135 3,385 80.9 9.28-53 1947	99 27 0 441	Humble Oil Co.	Ļ	104 + M		85.5	9-29-53	1940	673	z	z	Humble-J. L. Greenwood well 1.
Skelly Oil Co. To — 3.395 81.0 9.29.53 — 1 Leo Sims Qal 100M 3.350 45.3 10.16.53 — 1 C, Sims Qal 84M 3.346 58.7 10.16.53 — do, Qal 59M 3.385 53.9 10.14.53 — 1 do, Qal 59M 3.385 53.3 10.14.53 — 1 A, O, Sims To 13 — 3.380 81.0 953 — Skelly Oil Co. To 135 — — — — — do, To 136 3.385 80.9 9.28.53 1947	10.213	Gulf Oil Core.	To	220		100	1950	1	ı	ŗ	Д	Gulf-Brunson lease well.
Leo Sims Qal	10 320	Skelly Oil Co.	To	1		81.0	9.29-53	I	11/2	z	Z	1
Leo Sims Qal — 3,345 58.7 10-16-53 — 6. Sims Qal 84M 3,340 53.9 10-14-53 — 10-16-53 — 10-14-53 — 10	11 394	1	Oal	100M	3.350	45.3	10-16-53	1952	'n	z	Z	ı
G. Sims Qal 84M 3,340 53.9 10.14.53 — 1 do. Qal 59M 3,355 53.9 10.14.53 — 1 do. Qal 59M 3,335 53.3 10.14.53 — 1 H. O. Sims To — 3,380 81.0 9 · 53 — Skelly Oil Co. To 135 — — — — — — — — — — — — — — — — — — —	11.444	Leo Sims	Oal Iso	1	3,345	58.7	10-16-53	ı	878	Ľw	S	1
do. Qal 59M 3,335 53.9 10.14-53 — 1 do. Qal 59M 3,335 53.3 10.14-53 — 1 H.O. Sims To _ 3,380 81.0 953 — 5 Skelly Oil Co. To 135 — = _ — — — — — — — — — — — — — — —	12.114	G. Sims) o	84M	3,340	53.9	10-14-53	ı	7	z	z	1
a do, Qai 59M 3,335 53.3 10.14-53 H. O. Sims To	19 448	ę	Oal	59M	3,335	53.9	10.14-53	i	15	z	z	ı
H. O. Sims To _ 3,880 81.0 953 _ Skelly Oil Co. To 135	19 4483	5	, C	59M	3,335	53.3	10.14-53	i	i	z	Z.	Uncased and open.
Skelly Oil Co. To 135 — — — — — — — — — — — — — — — — — — —	14.222	E O Sime	y F	<u>.</u>	3.380	81.0	953	ı	4 %	Ľ	D,S	ı
do. To 136 3,385 80.9 9-28-53 1947	16.439	Skelly Oil Co	É	135	1	ı	1	ı	7	Ë	In,D	Skelly Eunice Plant 1, well 11. EY
do. To 136 3,385 80.9 9.28.53 1947		ion in financial		}								40 gpm.
	16,443	do.	To	136	3,385	80.9	9-28-53	1947	% %	Ξ	In,D	Skelly Eunice Plant 1, well 10.
— T'o(?) — 3,380 76.5 9· ∙53 —	22.37.21.221	1	To(?)	ì	3,380	76.5	953	ı	2%	Z.	Z	1

APPENDIX B



Analytical Report

Prepared for:

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

Project: Pogo/ Manda B Project Number: 2061 Location: Lea Co., NM

Lab Order Number: 5113017

Report Date: 09/19/05

1910 N. Big Spring St. Midland TX, 79705 Project: Pogo/ Manda B

Project Number: 2061 Project Manager: Ike Tavarez Fax: (432) 682-3946

Reported: 09/19/05 14:00

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH-1 (5-6)	5113017-01	Soil	09/09/05 00:00	09/13/05 16:00
BH-1 (10-11)	5113017-02	Soil	09/09/05 00:00	09/13/05 16:00
BH-1 (15-16)	5113017-03	Soil	09/09/05 00:00	09/13/05 16:00
#1 Composite	5113017-04	Soil	09/09/05 00:00	09/13/05 16:00

1910 N. Big Spring St. Midland TX, 79705 Project: Pogo/ Manda B

Project Number: 2061 Project Manager: Ike Tavarez Fax: (432) 682-3946

Reported: 09/19/05 14:00

Organics by GC Environmental Lab of Texas

Anabas	D- mla	Reporting	t1=i+=						
Analyte	Result	Limit	Units 	Dilution	Batch	Prepared	Analyzed	Method	Notes
#1 Composite (5113017-04) Soil									
Benzene	ND	0.0250	mg/kg dry	25	E151618	09/16/05	09/16/05	EPA 8021B	
Toluene	ND	0.0250	**	•	*	"	tr	н	
Ethylbenzene	ND	0.0250	n	**	15	**	"	"	
Xylene (p/m)	ND	0.0250	н	**	**	"	•	"	
Xylene (o)	ND	0.0250	*	**		н	n	,,	
Surrogate: a,a,a-Trifluorotoluene		85.0 %	80-1	20	"	,,	"	,,	
Surrogate: 4-Bromofluorobenzene		88.8 %	80-1	20	"	"	"	"	
Gasoline Range Organics C6-C12	ND	10.0	mg/kg dry	1	EI51513	09/15/05	09/15/05	EPA 8015M	
Diesel Range Organics >C12-C35	ND	10.0	"	q	*	w	n		
Total Hydrocarbon C6-C35	ND	10.0	"	"		,,	n		
Surrogate: 1-Chlorooctane		74.4 %	70-1	30	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	,,	"	u u	
Surrogate: 1-Chlorooctadecane		80.0 %	70-i	30	"	"	и	"	

1910 N. Big Spring St. Midland TX, 79705 Project: Pogo/ Manda B

Project Number: 2061 Project Manager: Ike Tavarez Fax: (432) 682-3946

Reported: 09/19/05 14:00

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

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
BH-1 (5-6) (5113017-01) Soil						· · · · · · · · · · · · · · · · · · ·			
Chloride	4290	50.0	mg/kg	100	E151603	09/15/05	09/15/05	EPA 300.0	
BH-1 (10-11) (5113017-02) Soil									
Chloride	746	10.0	mg/kg	20	El51603	09/15/05	09/15/05	EPA 300.0	
BH-1 (15-16) (5113017-03) Soil					. =				
Chloride	348	10.0	mg/kg	20	E151603	09/15/05	09/15/05	EPA 300.0	
#1 Composite (5113017-04) Soil									
Chloride	156	5.00	mg/kg	10	E151603	09/15/05	09/15/05	EPA 300.0	
% Moisture	2.1	0.1	%	1	EI51420	09/14/05	09/14/05	% calculation	

Highlander Environmental Corp. 1910 N. Big Spring St. Midland TX, 79705 Project: Pogo/ Manda B

Project Number: 2061 Project Manager: 1ke Tavarez Fax: (432) 682-3946

Reported: 09/19/05 14:00

Organics by GC - Quality Control Environmental Lab of Texas

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch El51513 - Solvent Extraction (GC)				-						
Blank (E151513-BLK1)				Prepared &	Analyzed	: 09/15/05				
Gasoline Range Organics C6-C12	ND	10.0	mg/kg wet							
Diesel Range Organics >C12-C35	ND	10.0	"							
Total Hydrocarbon C6-C35	ND	10.0	"							
Surrogate: I-Chlorooctane	4X.3		mg kg	50.0		97.0	70-130			-
Surrogate: 1-Chlorooctadecane	40.0		"	50.0		80.0	70-130			
LCS (E151513-BS1)				Prepared &	Analyzed	: 09/15/05				
Gasoline Range Organics C6-C12	399	10.0	mg/kg wet	500		79.8	75-125			
Diesel Range Organics >C12-C35	434	10.0		500		86.8	75-125			
Total Hydrocarbon C6-C35	833	10.0	**	1000		83.3	75-125			
Surrogate: 1-Chlorooctane	49.4		mg kg	50.0		98.8	70-130			
urrogate: 1-Chlorooctadecane	45.4		"	50.0		90.8	70-130			
Calibration Check (E151513-CCV1)				Prepared; ()9/15/05 A	nalyzed: 09	9/16/05			
Gasoline Range Organics C6-C12	416		mg/kg	500		83.2	80-120	•		**
Diesel Range Organics > C12-C35	434		*	500		86.8	80-120			
Total Hydrocarbon C6-C35	850		"	1000		85.0	80-120			
Surrogate: 1-Chlorooctane	50.5			50.0		101	0-200			
Surrogate: 1-Chlorooctadecane	53.0		"	50.0		106	0-200			
Matrix Spike (E151513-MS1)	Sour	ce: 5113017	-04	Prepared: (09/1 <i>5</i> /05 A	nalyzed: 09	9/16/05			
Gasoline Range Organics C6-C12	509	10.0	mg/kg dry	511	ND	99.6	75-125			
Diesel Range Organics >C12-C35	551	10.0	n	511	ND	108	75-125			
Total Hydrocarbon C6-C35	1060	10.0		1020	ND	104	75-125			
Surrogate: 1-Chlorooctane	53.0		mg kg	50.0		106	70-130			
Surrogate: 1-Chlorooctadecane	58		"	50.0		117	70-130			
Matrix Spike Dup (EI51513-MSD1)	Sour	ce: 5113017	-04	Prepared: (09/15/05 A	malyzed: 09	9/16/05			
Gasoline Range Organics C6-C12	498	10.0	mg/kg dry	511	ND	97.5	75-125	2.18	20	
Diesel Range Organics >C12-C35	520	10.0		511	ND	102	75-125	5.79	20	
Total Hydrocarbon C6-C35	1020	10.0	. "	1020	ND	100	75-125	3.85	20	
Surrogate: 1-Chlorooctane	53		mg kg	50.0		107	70-130			
Surrogate: 1-Chlorooctadecane	58.0		**	50.0		116	70-130			

1910 N. Big Spring St. Midland TX, 79705 Project: Pogo/ Manda B

Project Number: 2061 Project Manager: Ike Tavarez Fax: (432) 682-3946

Reported: 09/19/05 14:00

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
	кезин	Liniii	Onts	Leves	Result	ONEC	Lillits	KI-D	Lulli	140162
Batch EI51618 - EPA 5030C (GC)										
Blank (El51618-BLK1)				Prepared &	: Analyzed:	09/16/05				
Benzene	ND	0.0250	mg/kg wet							
Toluene	ND	0.0250	"							
Ethylbenzene	ND	0.0250	**							
Xylene (p/m)	ND	0.0250	v							
Xylene (o)	ND	0.0250	**							
Surrogate: a,a.a-Trifluorotoluene	93.2		ug kg	100		93.2	80-120			
Surrogate: 4-Bromofluorobenzene	86.2		"	100		86.2	80-120			
LCS (E151618-BS1)				Prepared &	Analyzed:	09/16/05				
Benzene	86.2		ug/kg	100		86.2	80-120			
Foluene	90.7			100		90.7	80-120			
Ethylbenzene	102		"	100		102	80-120			
Kylene (p/m)	195		"	200		97.5	80-120			
Xylene (o)	102		"	100		102	80-120			
Surrogate: a.a.a-Trifluorotoluene	95.4		"	100		95.4	80-120			
Surrogate: 4-Bromofluorobenzene	97.5		"	100		97.5	80-120			
Calibration Check (EI51618-CCV1)				Prepared: (09/16/05 A	nalyzed: 09	9/19/05			
Веплене	80.2		ug/kg	100		80.2	80-120			
Toluene	82.0		n	100		82.0	80-120			
Ethylbenzene	93.7			100		93.7	80-120			
Xylene (p/m)	180		**	200		90.0	80-120			
Xylene (o)	98.0		**	100		98.0	80-120			
Surrogate: a.a.a-Trifluorotoluene	86.0	•	ıi.	100		86.0	0-200			
Surrogate: 4-Bromofluorobenzene	94.4		"	100		94.4	0-200			
Matrix Spike (E151618-MS1)	Sou	rce: 5115013	-03	Prepared: (09/16/05 A	nalyzed: 09	9/17/05			
Benzene	86.2		ug/kg	100	ND	86.2	80-120			
Toluene	91.0		**	100	NĐ	91.0	80-120			
Ethylbenzene	106		**	100	ND	106	80-120			
Xylene (p/m)	201		**	200	ND	100	80-120			
Xylene (o)	111		47	100	ND	111	80-120			
Surrogate: a.a.a-Trifluorotoluene	91.0		·· · "	100		91.0	80-120			
Surrogate: 4-Bromofluorobenzene	107		"	100		107	80-120			

1910 N. Big Spring St. Midland TX, 79705 Project: Pogo/ Manda B

Project Number: 2061 Project Manager: Ike Tavarez Fax: (432) 682-3946

Reported: 09/19/05 14:00

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 El51618 - EPA 5030C (GC)		 							
Matrix Spike Dup (E151618-MSD1)	Sourc	e: 5115013-03	Prepared: (09/16/05 Ai	nalyzed: 09)/17/05			
Benzene	80.6	ug/kg	100	ND	80.6	80-120	6.71	20	
Toluene	84.4	11	100	ND	84.4	80-120	7.53	20	
Ethylbenzene	93.6	14	100	ND	93.6	80-120	12.4	20	
Xylene (p/m)	179		200	ND	89.5	80-120	11.1:	20	
Xylene (o)	96.8		100	ND	96.8	80-120	13.7	20	
Surrogate: a.a.a-Trifluorotoluene	- ··· · · · · · · · · · · · · · · · · ·		100		81.7	80-120			
Surrogate: 4-Bromofluorobenzene	91.7	**	. 100		91.7	80-120			

1910 N. Big Spring St. Midland TX, 79705 Project: Pogo/ Manda B

Project Number: 2061 Project Manager: Ike Tavarez Fax: (432) 682-3946

Reported: 09/19/05 14:00

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

		Reporting		Spike	Source	0/5	%REC	p.n	RPD	.,
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch El51420 - General Preparation (Prep)	· · · · · · · · · · · · · · · · · · ·				,					
Blank (EI51420-BLK1)	-	_		Prepared &	Analyzed:	09/14/05				
% Solids	100		%					•		
Duplicate (E151420-DUP1)	Sourc	e: 5113009-0	1	Prepared &	Analyzed:	09/14/05				
% Solids	96.2		%		97.6			1.44	20	
Duplicate (E151420-DUP2)	Sourc	e: 5113010-0	4	Prepared &	Analyzed:	09/14/05				
% Solids	98.1		%		98.1	-		0.00	20	
Duplicate (E151420-DUP3)	Sourc	e: 5114002-0	3	Prepared &	Analyzed:	09/14/05				
% Solids	99.9		%	* * * * * * * * * * * * * * * * * * *	99.9			0,00	20	
Batch El51603 - Water Extraction										
Blank (EI51603-BLK1)				Prepared &	Analyzed:	09/15/05				
Chloride	ND	0.500	mg/kg					•		
LCS (E151603-BS1)				Prepared &	Analyzed:	09/15/05				
Chloride	8.59		mg/L	10.0		85.9	80-120			
Calibration Check (EI51603-CCV1)				Prepared &	Analyzed:	09/15/05				
Chloride	8,66		mg/L	10.0	• "	86.6	80-120			
Duplicate (EI51603-DUPI)	Sourc	e: 5113016-0	4	Prepared &	Analyzed:	09/15/05				
Chloride	896	10.0	mg/kg	• •	897			0.112	20	

1910 N. Big Spring St. Midland TX, 79705 Project: Pogo/ Manda B

Project Number: 2061 Project Manager: Ike Tavarez Fax: (432) 682-3946

Reported: 09/19/05 14:00

Notes and Definitions

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:	Kaland	KJul
Cenari Annrovea Bv.		

Date:

9/19/2005

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.

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-563-1800.

PAGE: OF: AMALYSIS REQUEST	(Circle or Specify Method No.)	Scotti	90 9	39/0229 39/0921 93	COS/ CASE AND SECULATION OF SECURATION OF SECULATION OF SECURATION OF S	Lest 200/ hcb. 2000 CCM2 2000 CCM2 AOF SCI LLYS 2000 LLYS 2000 LLYS 2000 LLYS 2000 LLYS 2000 LLYS 2000 LLYS 2000 LLYS 2000 LLYS 2000		***	y .	× ×			Shipping of Chine a stay affect was:	HY: (Cirole) P	HAND DELIVERED UPS OTHER: Results by:	HIGHLANDER CORTACT FERNOW: RUSH Charges	116 Part Com	Freier Manager reteins nink conv Arcounting Feedives Gold conv.
Analysis Request and Chain of Custody Record	COON TAINING CONTRACT AND THE TAINING	4NDER EINVIROINMEINTAL 1910 N. Big Spring St. Midland, Texas 79705	(432) 682-4559 Fax (432) 682-3946	ching and the more	Marda B CONTR	LAB ID. DATE THE SAMPLE DESTRICTION HOLE OF THE TAIL TO THE TAIL TO THE TAIL THE TAIL TO THE TAIL TAIL TAIL TAIL TAIL TAIL TAIL TAIL	19/05 S	x x x	1 (21-51) 1-HE SOUND 60	3 9/4/65 5 x # (Conjuscite.			RELIGIOUS BY. (Signature) Dete: (2) INCRIVED BY. (Signature) Date: Time:	RECEIVED BY: (Signature)	RELEVENTING BY: (Signature) Dete: RECEIVED BY: (Signature) Time:	BECEVED BY: (Meneture)	M. manner	CONDITION THEN RECEIPED OF 100 W/ HATTER T-Takes A-ALT SD-Said REMARKS: 3.0.0. 40 c gloss t-scalls 9-304 SL-Stade O-Other 100 C 1

Seel on cooler

Environmental Lab of Texas Variance / Corrective Action Report – Sample Log-In

Client: Highlander				
Date/Time: 9/15/65 16:00				
Order #: 5 <u>5</u> 13017				
Initials:		,	•	
Sample Receipt	Checkli	st		
Temperature of container/cooler?	Yes	No I	3.0 C	
Shipping container/cooler in good condition?	Yes	No		
Custody Seals intact on shipping container/cooler?	Yes	No	Not present	
Custody Seals intact on sample bottles?	Y⊋s	No	Not present	
Chain of custody present?	Yes	No		
Sample Instructions complete on Chain of Custody?	Yes	No		
Chain of Custody signed when relinquished and received?	Yes	No		
Chain of custody agrees with sample label(s)	Yes	No		•
Container labels legible and intact?	Yes	No		
Sample Matrix and properties same as on chain of custody?	YES	No		
Samples in proper container/bottle?	Yes	No		
Samples properly preserved?	Yes	No		
Sample bottles intact?	Yes	No		
Preservations documented on Chain of Custody?	Xes	No		
Containers documented on Chain of Custody?	Y≘s .	No		
Sufficient sample amount for indicated test?	Yes	No		
All samples received within sufficient hold time?	Yes	No		
VOC samples have zero headspace?	Yes?	No	Not Applicable	·
Other observations:				
Variance Docum Contact Person: Date/Time: Regarding:				
	*	····		
Corrective Action Taken:	THE PERSON NAMED IN COLUMN TWO		and a market dig singularity of a promision of the control of the	intellingipte francistes a secure traper on properties and them
	·············		and the state of t	and the second section of the section of
		·	Philippinhia	
				and the second section of the second section of the second section of the second section of the second section

APPENDIX C

District (- (505) 393-6161
P. O. Box 1980
Hobbs. NM 88241-1980
District II - (505) 748-1283
811 South First
Artesia, NM 88210
District III - (505) 334-6178
1000 Rio Brazos Road
Artes. NM 87410
District IV - (505) 827-7131

State of New Mexico

Energy Minerals and Natural Resources Department

Oil Conservation Division 2040 South Pacheco Street Santa Fe, New Mexico 87505 (505) 827-7131 Form C- 141 Originated 2/13/97

Submit 2 copies to Appropriate District Office in accordance with Rule 116 on back side of form

Release Notit	fication an		ve Action	Initia	i Report	Final Report
Name ARCh Pet Juc		Contact	GARY	<u>, </u>		
EUNICE U.M.		Telephon	(Na 432-	63/	0134	+
MANNA B - 7RACK-		Felity 1	TANKI	BATHE	7 Y	
Surface Owner Mineral C	wner			Lease	No.	
	ATION OF	RELEASE				
C 28 22 37-6	South Line Fr	et from the	East/Yest Line Cou	. /	A	
NAT	UREOFF	ELEASE				
Type of Release		Volume	(Helesse N/A	Vol	ume Recoven	3
570RAGE TANK RANG	DUR		Hour of Cocurrence		and Hour of 22/03	1:00 PM
No Not Require		If YES, T	o Whomil	C55A9	E FOR S	ilvit Bicker
By Whom: GARIWETIS		Date and	Hour 9/21/03		150	
Was Watermark Reached? Yes Who		U YES, V	olunte Impacing the Wa	tercourse.		
If a Waterward was Impacted, Describe Polly (Attach Additional Sheets If)	Necessary)					
DEEMBE CAUSE of Problem and Remodul Action Taken (Attach Additional St ADD Floods o HDA TER - NEATER DUMPED AT OIL STOCKAGE TO NE QUER.	Heets If Necess	AMD O	WATE L FIN STOCK	R LA	VE BUR	inckcoup uwing
Describe Arts Affected and Cleanup Action Taken. (Access Additional Sheets	If Necessary)	A .1 ~				· · · · · · · · · · · · · · · · · · ·
RAW DOWN E DOG OF ROOD, P.U. F	Then	PIL PL	Dena Loc	DAIN ATIB	אם מאמיל לאני אלא הא	1.00
Road-Notifiers Highlandur Enviro 70	LOOKE	NO PEC	iden on cla	ر سال	۵	
Instepy certify that the information given above it true and complete in the best are returned to report and/or file certain release notifications and perform correctly. It month by the NMOCD marked at 'final Report' does not reflect the open contamination that pose a threat to ground water, surface water, furnish health or operation of responsing bility for compliance with any other federal, state, or local	of my knowledg	nerstand brus s with chiese su sinch blirotte notifice of a	d that pursuant to NMC y endanger public health perations have fulled to a	OCD rules at or the covid	nd regulations	rentediate
in many wells			QU CONSES	VATION D	IVISION	
Proces Name GARY WITLS		raved by incr Supervisor.				ļ
Phon Supervisiare	1	roval Date:		Expiration		
9/ez/c3 Phone: 432-631-	0/34. 0	indicens of App	ne val:	}	Attacied	ألسأ

District I 1625 N. French Dr., Hobbs, NM 88240 District II 1301 W. Grand Avenue, Artesia, NM 88210 District III 1000 Rio Brazos Road, Aztec, NM 87410 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

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Form C-141

Revised June 10, 2003

Release Notification and Corrective Action **OPERATOR** Initial Report Final Report Contact: Pat Ellis Name of Company (ARCH) Pogo Producing Company Telephone No. (432) 685-8100 Address: 300 N. Marienfeld, Box 10340, Midland Tx. 79701 Facility Name: Manda B Tract C Tank Battery Facility Type: Tank Battery Mineral Owner Surface Owner: Lease No. LOCATION OF RELEASE East/West Line North/South Line Unit Letter Section Township Range Feet from the Feet from the County 37E 28 228 Lea \mathbf{C} NATURE OF RELEASE Volume of Release Unknown Volume Recovered 3 barrels Type of Release: Oil Date and Hour of Occurrence Date and Hour of Discovery Source of Release Tank ran over. 9/22/03 9/22/03 1:00 pm If YES, To Whom? Was Immediate Notice Given? NMOCD - Left message for Sylvia Dickey By Whom? Scott Hodges Date and Hour 9/22/03 1.50 pm Was a Watercourse Reached? If YES, Volume Impacting the Watercourse. ☐ Yes ☒ No If a Watercourse was Impacted, Describe Fully.* Describe Cause of Problem and Remedial Action Taken.* Water line backed up and flooded heater. Heater dumped all water and oil in stock tank, running oil storage tank over. 3 barrels of oil picked up. Describe Area Affected and Cleanup Action Taken.* All fluids stayed on pad and edge of road. The fluid was picked up and the location dragged. Contacted Highlander Environmental Corp. Samples were taken, and area was excavated to 2.0' below ground surface. Confirmation samples were taken. Closure Report prepared and submitted to the NMOCD for review I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. OIL CONSERVATION DIVISION Signature: ENVIRE ET Approved by District Supervisor: Printed Name: Ike Tavarez, P.G. (Highlander Environmental Corp.) 5.3.07 Title: Sr. Geologist/Sr.Project Manager Approval Date: **Expiration Date:** E-mail Address: <u>itavarez@hec-enviro.com</u> Conditions of Approval: Attached

Phone: (432) 682-4559

10/7/05

^{&#}x27; Attach Additional Sheets If Necessary