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REPORTS

DATE:

2000



**NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT**

OIL CONSERVATION DIVISION
DISTRICT I HOBBES
PO BOX 1980, Hobbs, NM 88241
(505) 393-6161
FAX (505) 393-0720

12365

Jennifer A. Salisbury
CABINET SECRETARY

February 21, 2000

Pogo Producing Co.
Attn: Clay Osborn
300 N. Marienfeld Ste. 600
Midland, Texas 79701

Re: Remediation Plan on Nancy Stephens #4 Well
UL -Sec 24-T21S-R37E

Dear Mr. Osborn:

The New Mexico Oil Conservation Division (NMOCD) is in receipt of the remediation plan submitted by Highlander Environmental Corp. on February 1, 2000. **The NMOCD hereby approves the work plan with the following conditions:**

1. Pogo shall notify the NMOCD at least 48 hours in advance of the scheduled activities such that the NMOCD has the opportunity to witness the events and/or split samples during NMOCD's normal working hours.
2. Pogo shall submit a site assessment and/or a remediation plan after the determination of vertical and horizontal extent of contamination.
3. Please submit to the NMOCD a copy with the assessment and/or remediation plan of all analyticals taken prior to remediation procedures.
4. Please include in the information submitted a map plotting the locations as well as the depths of each sample collected.

If you have any further questions, or need any assistance please do not hesitate to write or call me at (505) 393-6161 ext...113.

Sincerely,

Donna Williams

Environmental Engineer Specialist

cc: Roger Anderson - Environmental Bureau Chief
Chris Williams - District I Supervisor



Highlander Environmental Corp.

Midland, Texas

April 25, 2000

Ms. Donna Williams
Environmental Bureau
Oil Conservation Division
1625 N. French Drive
P.O. Box 1980
Hobbs, New Mexico 88240

RE: Closure Report for Leak Area located at the Pogo Nancy Stephens #4 Well, Lea County, New Mexico

Dear Ms. Williams,

Highlander Environmental Corp. (Highlander) was contacted by Pogo Producing Company (Pogo) to assess a leak that occurred at the Pogo Nancy Stephens #4 Well in Lea County, New Mexico. The Site is located in Section 24, Township 21 South, Range 37 East. Based on published data, the depth to groundwater in this area is greater than 50' below surface.

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 remediation 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 on the regional groundwater data, the proposed recommended remedial action level (RRAL) for TPH is 1,000 mg/kg.

Background

On October 23, 1999, the leak occurred at the Pogo Nancy Stephens #4 Well and reportedly oversprayed an area of approximately 70' x 495', off the well pad. The impact appears to be surficial and no standing fluids (oil and water) were noted, due to the overspray. Pogo has utilized a brush hog to scrape and blend the area.

Site Inspection and Assessment

On March 23, 2000, Highlander inspected the leak area located at the Pogo Nancy Stephens #4 (overspray area). The surface impact measured approximately 150' x 25', north of

the well pad. Two composite soil samples (0-0.5' and 0.5'-1.0') were collected from the overspray area. Figure 1 shows the spill area and sample locations. The soil samples were evaluated for Total Petroleum Hydrocarbon (TPH) by method EPA 418.1, Benzene, Toluene, Ethylbenzene and Xylene (BTEX) by method SW 846-8020 and chloride by method SW846-9252. The results are shown in Table 1.

Table 1
(concentration in mg/kg)

Sample ID	Depth	TPH	B	T	E	X	Chloride
#1	0-.05	200	ND	ND	ND	4.6	17.5
#1	0.5-1.0	230	NA	NA	NA	NA	17.5

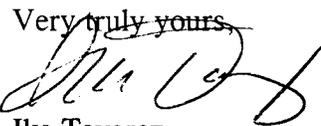
ND - Not Detected
NA - Not Analyzed

Referring to Table 1, the composite soil samples did not exceed the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases. The TPH was below the RRAL of 1,000 mg/kg. The benzene level was below the method detection limit and the total BTEX was less than the RRAL of 50 mg/kg. The chloride levels detected appear to be at background concentrations.

Recommendation

1. The soil concentrations do not exceed the RRAL concentrations for the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases. Based on the analysis, closure for the spill area is recommended for the Site.

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

Very truly yours,

 Ike Tavarez
 Geologist/Project Manager

cc: Don Riggs - Pogo Producing Co.
Rex Jasper - Pogo Producing Co.



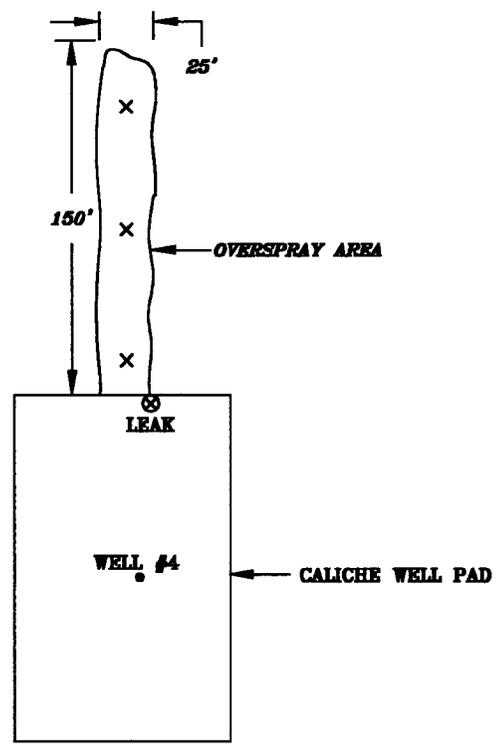


FIGURE NO. 1

LEGEND
x GRAB SAMPLE FOR COMPOSITE

DATE:
04/7/00
DWL BY:
JDA
FILE:
04/08/00/0001

NOT TO SCALE

LEA COUNTY, NEW MEXICO
POGO PRODUCING COMPANY
NANCY STEPHENS #4
HIGHLANDER ENVIRONMENTAL CORP. MIDLAND, TEXAS



HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
 (713) 660-0901

Highlander Environmental Corp

Certificate of Analysis Number:

00030717

Report To: Highlander Environmental Corp
 Ike Tavarez
 1910 N. Big Spring Street

Midland
 Texas
 79705-

ph: (915) 682-4559 fax: (915) 682-3946

Fax To: Highlander Environmental Corp
 Ike Tavarez

fax: (915) 682-3946

Project Name: Pogo/Nancy Stephens #4

Site: Pogo/Nancy Stephens #4

Site Address: Lea County

Lea County NM

PO Number:

State:

State Cert. No.:

Date Reported:

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
#1 (0-0.5 FT) COMPOSITE	00030717-01	Soil	3/23/00	3/24/00 10:00:00 AM		<input type="checkbox"/>
#1 (0.5-1.0 FT) COMPOSITE	00030717-02	Soil	3/23/00	3/24/00 10:00:00 AM		<input type="checkbox"/>

Gina M. Tatosian
 Tatosian, Gina
 Senior Project Manager

4/6/00
 Date

Joel Grice
 Laboratory Director
 Ted Yen
 Quality Assurance Officer



HOUSTON LABORATORY
 8880 INTERCHANGE DRIVE
 HOUSTON, TEXAS 77054
 (713) 660-0901

Client Sample ID #1 (0-0.5 FT) COMPOSITE Collected: 3/23/00 SPL Sample ID: 00030717-01

Site: Pogo/Nancy Stephens #4

Analyses/Method	Result	Rep.Limit	Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
CHLORIDE, TOTAL			MCL	E325.3	Units: mg/Kg		
Chloride	17.5	10	1		03/30/00 10:15	CV	232384
PURGEABLE AROMATICS			MCL	SW8020A	Units: ug/Kg		
Benzene	ND	1	1		03/29/00 14:38	FB	230679
Ethylbenzene	ND	1	1		03/29/00 14:38	FB	230679
Toluene	ND	1	1		03/29/00 14:38	FB	230679
m,p-Xylene	2.5	1	1		03/29/00 14:38	FB	230679
o-Xylene	2.1	1	1		03/29/00 14:38	FB	230679
Xylenes, Total	4.6	1	1		03/29/00 14:38	FB	230679
Surr: 1,4-Difluorobenzene	104	% 59-127	1		03/29/00 14:38	FB	230679
Surr: 4-Bromofluorobenzene	91.1	% 48-156	1		03/29/00 14:38	FB	230679

TOTAL PETROLEUM HYDROCARBONS			MCL	E418.1	Units: mg/Kg		
Petroleum Hydrocarbons,TR	200	10	1		03/28/00 12:00	CB	229609

Run ID/Seq #: EX_000328B-229609

Prep Method	Prep Date	Prep Initials
	03/28/2000 12:00	

Qualifiers: ND/U - Not Detected at the Reporting Limit >MCL - Result Over Maximum Contamination Limit(MCL)
 B - Analyte detected in the associated Method Blank D - Surrogate Recovery Unreportable due to Dilution
 * - Surrogate Recovery Outside Advisable QC Limits
 J - Estimated Value between MDL and PQL



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Client Sample ID #1 (0.5-1.0 FT) COMPOSITE Collected: 3/23/00 SPL Sample ID: 00030717-02

Site: Pogo/Nancy Stephens #4

Analyses/Method	Result	Rep.Limit	Dil. Factor	QUAL	Date Analyzed	Analyst	Seq. #
CHLORIDE, TOTAL				E325.3			
Chloride	17.5	10	1		03/30/00 10:15	CV	232391
TOTAL PETROLEUM HYDROCARBONS				E418.1			
Petroleum Hydrocarbons,TR	230	10	1		03/28/00 12:00	CB	229610

Run ID/Seq #: EX_000328B-229610

Prep Method	Prep Date	Prep Initials
	03/28/2000 12:00	

Qualifiers:
 ND/U - Not Detected at the Reporting Limit
 B - Analyte detected in the associated Method Blank
 * - Surrogate Recovery Outside Advisable QC Limits
 J - Estimated Value between MDL and PQL

>MCL - Result Over Maximum Contamination Limit(MCL)
 D - Surrogate Recovery Unreportable due to Dilution

Quality Control Documentation



Quality Control Report

Highlander Environmental Corp

Pogo/Nancy Stephens #4

Analysis: Total Petroleum Hydrocarbons
 Method: E418.1

WorkOrder: 00030717
 Lab Batch ID: R11339

Method Blank

Samples in Analytical Batch:

RunID: EX_000328B-229605	Units: mg/Kg	<u>Lab Sample ID</u>	<u>Client Sample ID</u>
Analysis Date: 03/28/2000 12:00	Analyst: CB	00030717-01A	#1 (0-0.5 FT) COMPOSITE
Preparation Date: 03/28/2000 12:00	Prep By: Method	00030717-02A	#1 (0.5-1.0 FT) COMPOSITE

Analyte	Result	Rep Limit
Petroleum Hydrocarbons,TR	ND	10

Laboratory Control Sample (LCS)

RunID: EX_000328B-229606 Units: mg/Kg
 Analysis Date: 03/28/2000 12:00 Analyst: CB
 Preparation Date: 03/28/2000 12:00 Prep By: Method

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Petroleum Hydrocarbons,TR	200	200	100	86	117

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 00030719-01
 RunID: EX_000328B-229632 Units: mg/Kg
 Analysis Date: 03/28/2000 12:00 Analyst: CB
 Preparation Date: 03/28/2000 12:00 Prep By: Method

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Petroleum Hydrocarbons,TR	970	200	1200	103	200	1200	103	0	8	72	119

Qualifiers: ND/U - Not Detected at the Reporting Limit
 B - Analyte detected in the associated Method Blank
 J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits
 D - Recovery Unreportable due to Dilution



Quality Control Report

Highlander Environmental Corp

Pogo/Nancy Stephens #4

Analysis: Purgeable Aromatics
 Method: SW8020A

WorkOrder: 00030717
 Lab Batch ID: R11366

Method Blank

Samples in Analytical Batch:

RunID: HP_O_000328B-230021 Units: ug/Kg
 Analysis Date: 03/28/2000 21:26 Analyst: FB

Lab Sample ID 00030717-01A
Client Sample ID #1 (0-0.5 FT) COMPOSITE

Analyte	Result	Rep Limit
Benzene	ND	1.0
Ethylbenzene	ND	1.0
Toluene	ND	1.0
m,p-Xylene	ND	1.0
o-Xylene	ND	1.0
Xylenes, Total	ND	1.0
Surr: 1,4-Difluorobenzene	97.1	59-127
Surr: 4-Bromofluorobenzene	94.7	48-156

Laboratory Control Sample (LCS)

RunID: HP_O_000328B-230018 Units: ug/Kg
 Analysis Date: 03/28/2000 20:02 Analyst: FB

Analyte	Spike Added	Result	Percent Recovery	Lower Limit	Upper Limit
Benzene	50	51	101	60	116
Ethylbenzene	50	48	96	68	127
Toluene	50	49	98	64	122
m,p-Xylene	100	100	100	68	129
o-Xylene	50	50	100	68	127
Xylenes, Total	150	150	100	68	129

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 0003454-05B
 RunID: HP_O_000328B-230019 Units: ug/Kg
 Analysis Date: 03/28/2000 20:30 Analyst: FB

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Benzene	ND	20	27	136	20	28	139	1.84	34	35	139
Ethylbenzene	ND	20	25	124	20	25	125	0.941	35	31	137
Toluene	ND	20	27	133	20	27	133	0.287	28	31	137
m,p-Xylene	ND	40	52	131	40	55	138	5.28	38	19	144
o-Xylene	ND	20	25	127	20	27	136	6.59	57	25	139

Qualifiers: ND/U - Not Detected at the Reporting Limit * - Recovery Outside Advisable QC Limits
 B - Analyte detected in the associated Method Blank D - Recovery Unreportable due to Dilution
 J - Estimated value between MDL and PQL



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Quality Control Report

Highlander Environmental Corp

Pogo/Nancy Stephens #4

Analysis: Purgeable Aromatics
 Method: SW8020A

WorkOrder: 00030717
 Lab Batch ID: R11366

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 0003454-05B
 RunID: HP_O_000328B-230019 Units: ug/Kg
 Analysis Date: 03/28/2000 20:30 Analyst: FB

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Xylenes, Total	ND	60	77	128	60	82	137	6.29	38	19	144

Qualifiers: ND/U - Not Detected at the Reporting Limit * - Recovery Outside Advisable QC Limits
 B - Analyte detected in the associated Method Blank D - Recovery Unreportable due to Dilution
 J - Estimated value between MDL and PQL



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Quality Control Report

Highlander Environmental Corp

Pogo/Nancy Stephens #4

Analysis: Chloride, Total
 Method: E325.3

WorkOrder: 00030717
 Lab Batch ID: R11518

Method Blank

Samples in Analytical Batch:

RunID: WET_000330Q-232382 Units: mg/Kg
 Analysis Date: 03/30/2000 10:15 Analyst: CV

Lab Sample ID Client Sample ID
 00030717-01A #1 (0-0.5 FT) COMPOSITE
 00030717-02A #1 (0.5-1.0 FT) COMPOSITE

Analyte	Result	Rep Limit
Chloride	ND	10

Matrix Spike (MS) / Matrix Spike Duplicate (MSD)

Sample Spiked: 00030717-01
 RunID: WET_000330Q-232386 Units: mg/Kg
 Analysis Date: 03/30/2000 10:15 Analyst: CV

Analyte	Sample Result	MS Spike Added	MS Result	MS % Recovery	MSD Spike Added	MSD Result	MSD % Recovery	RPD	RPD Limit	Low Limit	High Limit
Chloride	18	500	525	102	500	508	98.1	3.51	20	91.8	115

Qualifiers: ND/U - Not Detected at the Reporting Limit
 B - Analyte detected in the associated Method Blank
 J - Estimated value between MDL and PQL

* - Recovery Outside Advisable QC Limits
 D - Recovery Unreportable due to Dilution

*Chain of Custody
And
Sample Receipt Checklist*

PHOTOGRAPHIC DOCUMENTATION
POGO - SPILL ASSESSMENT - LEA COUNTY
Nancy Stephens #4



1. View of overspray area.



2. View of overspray area.

PHOTOGRAPHIC DOCUMENTATION
POGO - SPILL ASSESSMENT - LEA COUNTY
Nancy Stephens #4



3. View of overspray area.



4. View of overspray area.