

Highlander Environmental Corp.

Midland, Texas

May 24, 2007

JUN 18 2007 OCD-ARTESIA

Mr. Mike Bratcher Environmental Bureau Oil Conservation Division- District 2 1301 W. Grand Avenue Artesia, New Mexico 88210

RE: Assessment and Closure Plan for a Spill at the Pogo Producing Company, Marine 19 Federal #1 Well, Located in Unit Letter E, Section 19, Township 25 South, Range 27 East, Eddy County, New Mexico.

Dear Mr. Bratcher:

Highlander Environmental Corp. (Highlander) was contacted by Pogo Producing Company (Pogo) to assess a spill at the Marine 19 Federal #1 Well, located in Unit Letter E Section 19, Township 25 South, Range 27 East, Eddy County, New Mexico (Site). The spill location coordinates are N 32° 07' 06" W 104° 14' 01". 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 March 21, 2007, when lighting struck a fiberglass water tank. The tank exploded releasing approximately 200 barrels of produced water inside a line tank battery facility. A portion of the berm washed out in the ensuing heavy rainfall allowing a produced water rainwater mixture to spill out onto the well pad. All free fluid was picked up with a vacuum truck. Due to the heavy volume of rainwater, a total of 780 barrels of fluid was picked up. The spill was confined to the well pad in a 200' x 270' area.

Groundwater and Regulatory

The New Mexico State Engineer's Office database does not show any wells in the vicinity of this facility. In order to evaluate the depth of water at this site, Highlander previously supervised the installation of a temporary well to a total depth of 80' below ground surface. After allowing the well to stand for approximately 8 days, the well was checked and found to be dry. A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for

1910 N. Big Spring • Midland, Texas 79705 ¹ • (432) 682-4559 • Fax (432) 682-3946

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). As the depth to water is greater than 80', but may be less than 100', the proposed RRAL for TPH is 1000 mg/kg.

Assessment and Results

On April 2, 2007, Highlander personnel inspected and sampled the spill area. A total of five (5) auger holes (AH-1 through AH-5) were installed using a stainless steel hand auger to assess the impacted soils. Soil samples were collected at 1 foot intervals and submitted for analysis of TPH by EPA method 8015 modified and chloride by EPA method 300.0. Selected samples were analyzed for BTEX by EPA method 8021B. Laboratory results indicated no TPH or BTEX impact at or above the RRAL and chloride was only found above 250 mg/kg in AH-2 at 0-1.0' (283 mg/kg) and 1.0'-1.5' (1050 mg/kg). Chloride concentrations declined to 236 mg/kg in the 2.0'-2.5' sample. Copies of the laboratory analysis and chain-of-custody documentation are included in Appendix B. The auger hole locations are shown on Figure 2. The laboratory results of the sampling are summarized in Table 2.

Based on the sample data, it appears that there is a relatively small area of residual chloride impact, confined to the well pad, which does not pose a potential future threat to groundwater. As such, Pogo requests closure of this site. A copy of the State of New Mexico Form C-141 (Final) is included in Appendix C.

If you require any additional information or have any questions or comments, please call.

Highlander Environmental Corp.

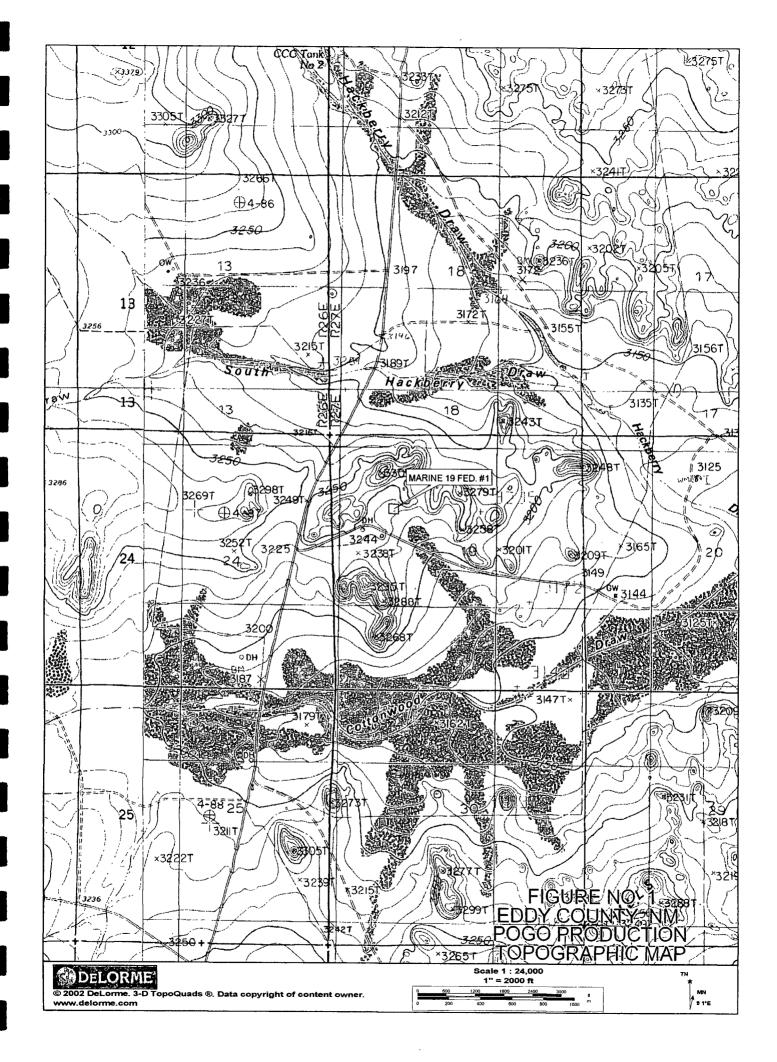
Timothy M. Reed, P.G.

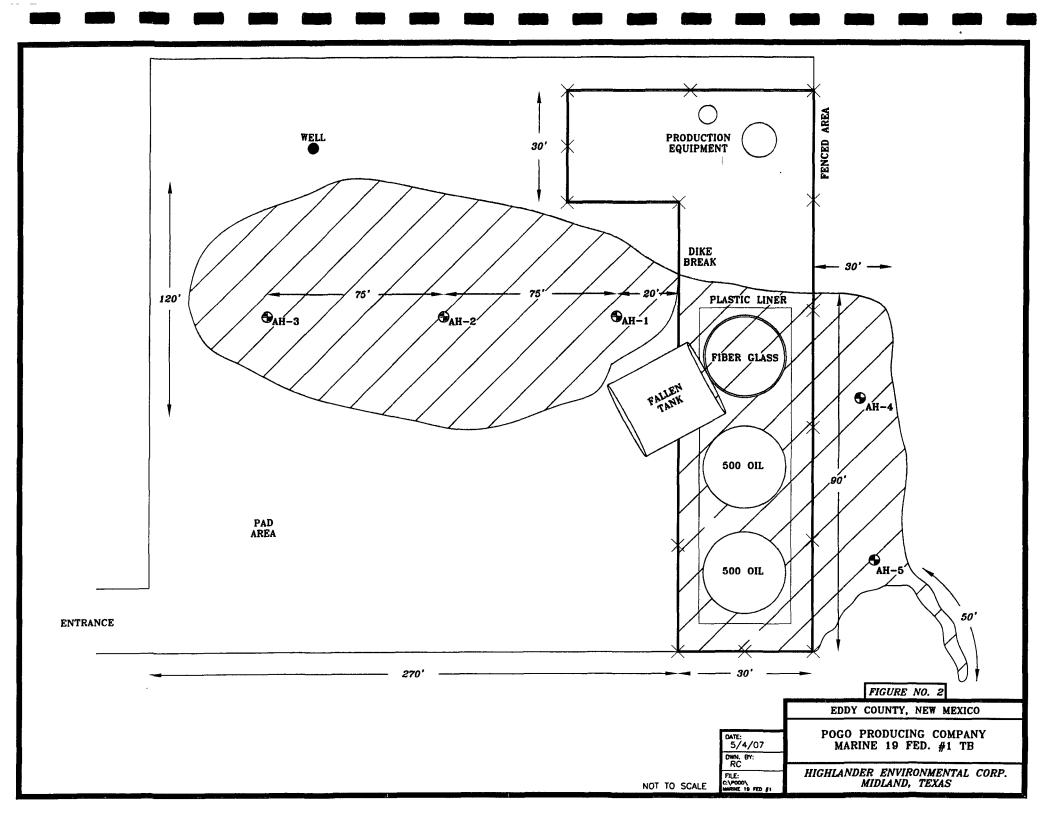
Vice President

cc:

Don Riggs – Pogo Producing Pat Ellis – Pogo Producing







POGO PRODUCING COMPANY

Marine 19 Fed. #1 Eddy County, NM

Sample	Date 17	Sample		TPH (mg/kg)		Benzene	Toluene	Ethlybenzene	Xylene	Chloride
ID	Sampled	Depth (ft)	C6-C12	C12-C35	Total	(mg/kg):	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
#1	4/2/2007	0-1	<1.00	<50.0	<50.0					221
	4/2/2007	1-1.5	-	-	-					184
#2	4/2/2007	0-1	<1.00	<50.0	<50.0	<0.0100	<0.0100	< 0.0100	< 0.0100	283
	4/2/2007	1-1.5	-	-	-					1,050
		2-2.5	-	-	-		-			236
#3	4/2/2007	0-1	<1.00	<50.0	<50.0				· · · · · · · · · · · · · · · · · · ·	188
	4/2/2007	1-1.5	-	-	-					214
#4	4/2/2007	0-1	<1.00	<50.0	<50.0	< 0.0100	< 0.0100	<0.0100	< 0.0100	236.0
	4/2/2007	1-1.5	-		-					<50.0
#5	4/2/2007	0-1	<1.00	<50.0	<50.0					78
	4/2/2007	1-1.5	-	-	_					<50.0

^(-) not analyzed

District I 1625 N. French Dr., Hobbs, NM 88240 District II 136 i W. Grand Avenue, Artesia, NM 88210 District III 1000 Rio Brazos Road, Aztec, NM 87410 District IV

1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy Minerals and Natural Resources

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 For drilling and production facilities, submit to appropriate NMOCD District Office.
For downstream facilities, submit to Santa Fe office

Form C-144 June 1, 2004

Pit or Below-Grade Tank Registration or Closure

,	K covered by a "general plan"? Yes [] No r below-grade tank [] Closure of a pit or below-gr	
Typo of notion. Regionation of a pictor	recover grade tank El erosare er a pri er below gr	ado tana 18
Operator: Latigo Petroleum, Inc. Telephone: (432) 685	e-mail address: Pat Ellis (EllisPo	@pogoproducing.com)
Address: 300 N. Marienfeld St., Box 103040, Midland Tex	as, 79701-7340	
Facility or well name: Marine 19 Federal #1 API #: 30-0153398	31 U/L or Qtr/Qtr Lot 2 Sec 19, T25S	, R27E
County: Eddy Co. Latitude 32° 07° 06" Longitude	te 104° 14'01" NAD: 1927 🗌 1983 🗍	
Surface Owner. Federal X State Private Indian		
<u>Pit</u>	Below-grade tank	
Type. Drilling X Production Disposal	Volume:bbl Type of fluid:	
Workover	Construction material:	
Lined X Unlined	Double-walled, with leak detection? Yes [] If no	ot, explain why not.
Liner type: Synthetic X Thickness 12 mil Clay		
Pit Volume 18M bbl		
Depth to ground water (vertical distance from bottom of pit to seasonal	Less than 50 feet	(20 points)
high water elevation of ground water.)	50 feet or more, but less than 100 feet X	(10 points) 10 points (0 points)
Wellhead protection area: (Less than 200 feet from a private domestic	Yes	(20 points)
water source, or less than 1000 feet from all other water sources.)	No X	(0 points)
Distance to surface water: (horizontal distance to all wetlands, playas,	Less than 200 feet	(20 points)
irrigation canals, ditches, and perennial and ephemeral watercourses.)	200 feet or more, but less than 1000 feet	(10 points)
CORRONWOOD DRAW MILE SOUTHEAST	1000 feet or more X	(0 points)
	Ranking Score (Total Points)	10
If this is a pit closure: (1) Attach a diagram of the facility showing the pit's	s relationship to other equipment and tanks. (2) Indi	cate disposal location: (check the onsite box if
your are burying in place) onsite X offsite \(\square\) If offsite, name of facility	. (3) Attach a general c	description of remedial action taken including
remediation start date and end date. (4) Groundwater encountered: No X Y	es 🔲 If yes, show depth below ground surface	ft. and attach sample results.
(5) Attach soil sample results and a diagram of sample locations and excaval	ions .	
Additional Comments:	•	
On April 2, 2007, Highlander Environmental Corp. supervised the installar	ion of (1) temporary monitor well on the well pad.	The temporary well was installed
to a total depth of 80.0' below surface. The construction log is attached.	No groundwater was encountered during the installat	ion of the well.
On April 10, 2007, Highlander was onsite to measure the depth to ground	vater in the temporary well. No groundwater was en	countered in the well
The temporary well was dry.		
I hereby certify that the information above is true and complete to the best	of my knowledge and belief. I further certify that	the above-described pit or below-grade tank
has been/will be constructed or closed according to NMOCD guideling	es X, a general permit 🔲, or an (attached) alterna	ative OCD-approved plan [].
Date: 4-26-07		1
Printed Name/Title PATRICK L. Ellis	Signature Catruit & &	Ellis
Your certification and NMOCD approval of this application/closure does otherwise endanger public health or the environment. Nor does it relieve regulations	not relieve the operator of liability should the conten	ts of the pit or tank contaminate ground water or
Approval.		
Printed Name/Title	Signature	Date.

APPENDIX B

Lab Analysis

Work Order: 7040533 POGO-Marine 19 Fed. #1 Page Number: 1 of 1 Eddy County, NM

Summary Report

Ike Tavarez Highlander Environmental Services 1910 N. Big Spring Street Midland, TX, 79705

Report Date: April 17, 2007

Work Order: 7040533

Project Location: Eddy County, NM

Project Name:

POGO-Marine 19 Fed. #1

Project Number: 2962

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
120911	#2 0-1	soil	2007-04-02	00:00	2007-04-05
120916	#4 0-1	soil	2007-04-02	00:00	2007-04-05

	·		BTEX		MTBE
	Benzene	Toluene	Ethylbenzene	Xylene	MTBE
Sample - Field Code	(mg/Kg)	(mg/kg)	(mg/Kg)	(mg/Kg)	(mg/kg)
120911 - #2 0-1	< 0.0100	< 0.0100	< 0.0100	< 0.0100	
120916 - #4 0-1	< 0.0100	< 0.0100	< 0.0100	< 0 0100	

6701 Aberdeen Avenue, Suite 9 200 East Sunset Road, Suite E 5002 Basin Street, Suite A1 6015 Harris Parkway, Suite 110 Lubbock, Texas 79424 El Paso, Texas 79922 Midland, Texas 79703

Ft Worth, Texas 76132

800 • 378 • 1296 888 • 588 • 3443 806 • 794 • 1296 915 • 585 • 3443 432 • 689 • 6301 FAX 806 • 794 • 1298 FAX 915 • 585 • 4944 FAX 432 • 689 • 6313

817 • 201 • 5260

E-Mail lab@traceanalysis.com

Analytical and Quality Control Report

Ike Tavarez Highlander Environmental Services 1910 N Big Spring Street Midland, TX, 79705

Report Date: April 17, 2007

Work Order: 7040533

Project Location: Eddy County, NM

Project Name POGO-Marine 19 Fed. #1

Project Number 2962

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc

			Date	Lime	Date
Sample	Description	Matrix	Taken	Taken	Received
120911	#2 0-1	soil	2007-04-02	00:00	2007-04-05
120916	#4 0-1	soil	2007-04-02	00:00	2007-04-05

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed

This report consists of a total of 5 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis Inc.

Dr Blair Leftwich, Director

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank

Case Narrative

Samples for project 'POGO-Marine 19 Fed. #1' were received by TraceAnalysis, Inc. on 2007-04-05 and assigned to work order 7040533. Samples for work order 7040533 were received intact without headspace and at a temperature of 4 deg C.

Samples were analyzed for the following tests using their respective methods.

Test	Method
BTEX	S 8021B

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 7040533 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are preformed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropreate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project

2962

Work Order: 7040533 POGO-Marine 19 Fed. #1 Page Number: 3 of 5 Eddy County, NM

Analytical Report

Sample: 120911 - #2 0-1

Analysis: BTEX QC Batch: 36283 Prep Batch: 31610 Analytical Method· S 8021B
Date Analyzed· 2007-04-09
Sample Preparation: 2007-04-13

Prep Method: S 5035 Analyzed By: ss Prepared By: ss

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Benzene		< 0.0100	mg/Kg	1	0.0100
Toluene		< 0.0100	mg/Kg	1	0.0100
Ethylbenzene		< 0.0100	mg/Kg	1	0.0100
Xylene		< 0.0100	mg/Kg	1	0.0100

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.845	mg/Kg	1	1.00	84	26 - 117.8
4-Bromofluorobenzene (4-BFB)		0.956	${ m mg/Kg}$	1	1.00	96	51.1 - 119.1

Sample: 120916 - #4 0-1

Analysis: BTEX QC Batch: 36283 Prep Batch: 31610 Analytical Method: S 8021B
Date Analyzed: 2007-04-09
Sample Preparation: 2007-04-13

Prep Method: S 5035 Analyzed By ss Prepared By. ss

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Benzene		< 0.0100	mg/Kg	1	0.0100
Toluene		< 0.0100	mg/Kg	1	0.0100
Ethylbenzene		< 0.0100	mg/Kg	1	0.0100
Xylene		< 0.0100	mg/Kg	1	0.0100

Surrogate	Flag	Result	Units	Dilution	${ m Spike} \ { m Amount}$	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.841	mg/Kg	1	1.00	84	26 - 117.8
4-Bromofluorobenzene (4-BFB)		0.956	${ m mg/Kg}$	1	1.00	96	51.1 - 119.1

Method Blank (1) QC Batch: 36283

QC Batch: 36283 Prep Batch: 31610 Date Analyzed: 2007-04-09 QC Preparation: 2007-04-13 Analyzed By: ss Prepared By: ss

		MDL		
Parameter	Flag	Result	$\mathbf{U}\mathbf{nits}$	RL
Benzene		< 0.00110	mg/Kg	0.01
Toluene		< 0.00150	m mg/Kg	0.01
Ethylbenzene		< 0.00160	m mg/Kg	0.01
Xylene		< 0.00410	m mg/Kg	0.01

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Work Order: 7040533 POGO-Marine 19 Fed. #1 Page Number: 4 of 5 Eddy County, NM

Surrogate	Flag	Result	Units	Dilution	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.819	mg/Kg	1	1 00	82	62.6 - 117.6
4-Bromofluorobenzene (4-BFB)		0.784	mg/Kg	1	1.00	78	53.9 - 125.1

Laboratory Control Spike (LCS-1)

QC Batch: 36283 Prep Batch: 31610 Date Analyzed 2007-04-09 QC Preparation: 2007-04-13 Analyzed By: ss Prepared By: ss

	LCS			$_{ m Spike}$	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec	Limit
Benzene	0.912	mg/Kg	1	1.00	< 0.00110	91	68.6 - 123.4
Toluene	0.938	mg/Kg	1	ა 1.00	< 0.00150	94	74 6 - 119.3
Ethylbenzene	0.953	${ m mg/Kg}$	1	1.00	< 0.00160	95	72.3 - 126.2
Xylene	2.90	mg/Kg	1	3.00	< 0.00410	97	76.5 - 121.6

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	0.904	mg/Kg	1	1.00	< 0.00110	90	68.6 - 123.4	1	20
Toluene	0.934	${ m mg/Kg}$	1	1.00	< 0.00150	93	74.6 - 119.3	0	20
Ethylbenzene	0.955	${ m mg/Kg}$	1	1.00	< 0.00160	96	72.3 - 126.2	0	20
Xylene	2.90	mg/Kg	1	3.00	< 0.00410	97	76 5 - 121.6	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec
Surrogate	Result	Result	Units	Dil	Amount	Rec.	Rec	Limit
Trifluorotoluene (TFT)	0.792	0.778	mg/Kg	1	1.00	79	78	64.1 - 118.2
4-Bromofluorobenzene (4-BFB)	0.908	0.905	mg/Kg	1	1.00	91	90	68.7 - 125.8

Matrix Spike (MS-1) Spiked Sample: 120933

QC Batch: 36283 Prep Batch: 31610 Date Analyzed: 2007-04-09 QC Preparation: 2007-04-13

Analyzed By: ss Prepared By: ss

	MS			Spike	Matrix		Rec
Param	Result	Units	Dil	Amount	Result	Rec.	Limit
Benzene	0.975	mg/Kg	1	1.00	< 0.00110	98	64 4 - 115.7
Toluene	1.03	${ m mg/Kg}$	1	1.00	< 0.00150	103	57.8 - 124.4
Ethylbenzene	1.07	${ m mg/Kg}$	1	1.00	< 0.00160	107	64.8 - 125.8
Xylene	3.30	mg/Kg	1	3.00	< 0.00410	110	65.2 - 121.8

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	\mathbf{Units}	Dil	Amount	Result	Rec	Limit	RPD	$_{ m Limit}$
Benzene	0.902	mg/Kg	1	1.00	< 0.00110	90	64.4 - 115.7	8	20
Toluene	0.940	mg/Kg	1	1.00	< 0.00150	94	57.8 - 124.4	9	20
Ethylbenzene	0.969	mg/Kg	1	1.00	< 0.00160	97	64.8 - 125.8	10	20

continued ...

2962

Work Order: 7040533 POGO-Marine 19 Fed. #1 Page Number. 5 of 5 Eddy County, NM

matrix spikes continued . . .

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Xylene	2.98	mg/Kg	1	3.00	< 0.00410	99	65.2 - 121.8	10	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MS	MSD			\mathbf{Spike}	MS	MSD	Rec
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec	Limit
Trifluorotoluene (TFT)	0.769	0.782	mg/Kg	1	1	77	78	52.8 - 121.7
4-Bromofluorobenzene (4-BFB)	0.962	0.956	$_{ m mg/Kg}$	1	1	96	96	66.7 - 131.9

Standard (ICV-1)

QC Batch: 36283

Date Analyzed: 2007-04-09

Analyzed By: ss

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0919	92	85 - 115	2007-04-09
Toluene		${ m mg/Kg}$	0.100	0.0955	96	85 - 115	2007-04-09
Ethylbenzene		m mg/Kg	0.100	0.0984	98	85 - 115	2007-04-09
Xylene		${ m mg/Kg}$	0.300	0.301	100	85 - 115	2007-04-09

Standard (CCV-1)

QC Batch: 36283

Date Analyzed: 2007-04-09

Analyzed By: ss

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0909	91	85 - 115	2007-04-09
Toluene		$_{ m mg/Kg}$	0.100	0.0938	94	85 - 115	2007-04-09
Ethylbenzene		$_{ m mg/Kg}$	0.100	0.0896	90	85 - 115	2007-04-09
Xylene		${ m mg/Kg}$	0.300	0.278	93	85 - 115	2007-04-09

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

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SL-Sludge

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AMPLE CONDITION WHEN RECEIVED: MATRIX: W-Water A-Air SD-Soil SL-Studge O-Other			RE	MARK	S :								•									

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

Work Order: 7040533 POGO-Marine 19 Fed. #1 Page Number: 1 of 2 Eddy County, NM

Summary Report

Ike Tavarez

Highlander Environmental Services

1910 N. Big Spring Street Midland, TX, 79705

Report Date: April 10, 2007

Work Order: 7040533

Project Location: Eddy County, NM

Project Name.

POGO-Marine 19 Fed. #1

Project Number

			Date	\mathbf{Time}	Date
Sample	Description	Matrix	Taken	Taken	Received
120909	#1 0-1	soil	2007-04-02	00:00	2007-04-05
120910	#1 1-1.5	soil	2007-04-02	00:00	2007-04-05
120911	#2 0-1	soil	2007-04-02	00:00	2007-04-05
120912	#2 1-1.5	soil	2007-04-02	00:00	2007-04-05
120913	#2 2-2.5	soil	2007-04-02	00:00	2007-04-05
120914	#3 0-1	soil	2007-04-02	00:00	2007-04-05
120915	#3 1-1.5	soil	2007-04-02	00:00	2007-04-05
120916	#4 0-1	soil	2007-04-02	00:00	2007-04-05
120917	#4 1-1.5	soil	2007-04-02	00:00	2007-04-05
120918	#5 0-1	soil	2007-04-02	00:00	2007-04-05
120919	#5 1-1.5	soil	2007-04-02	00:00	2007-04-05

	TPH DRO	TPH GRO
	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)
120909 - #1 0-1	< 50.0	<1.00
120911 - #2 0-1	< 50.0	<1.00
120914 - #3 0-1	< 50.0	<1.00
120916 - #4 0-1	< 50.0	<1.00
120918 - #5 0-1	< 50.0	< 1.00

Sample: 120909 - #1 0-1

Param	Flag	Result	Units	RL
Chloride		221	mg/Kg	2.00

Sample: 120910 - #1 1-1.5

Param	Flag	Result	Units	RL
Chloride		184	mg/Kg	2.00

Report Date: April 10, 2007 2962		Work Order: 7040533 POGO-Marine 19 Fed. #1		Page Number: 2 of 2 Eddy County, NM	
Sample: 120911 -	#2 0-1				
Param	Flag	Result	Units	RL	
Chloride		283	mg/Kg	2.00	
Sample: 120912 -	#2 1-1.5				
Param	Flag	Result	Units	RL	
Chloride		1050	mg/Kg	2.00	
Sample: 120913 -	#2 2-2.5				
Param	Flag	Result	Units	RL	
Chloride		236	mg/Kg	2.00	
Sample: 120914 -	#3 0-1				
Param	Flag	Result	Units	RL	
Chloride		188	mg/Kg	2.00	
Sample: 120915 -					
Param	Flag	Result	Units	RL	
Chloride		214	mg/Kg	2.00	
Sample: 120916 -	#4 0-1				
Param	Flag	Result	Units	RL	
Chloride		236	mg/Kg	2.00	
Sample: 120917 -	#4 1-1.5				
Param	Flag	Result	Units	RL	
Chloride		< 50.0	mg/Kg	2.00	
Sample: 120918 -	#5 0-1				
Param	Flag	Result	Units	RL	
Chloride		77.8	mg/Kg	2.00	
Sample: 120919 -	. #5 1 ₋ 1 5				
_		.		_	
Param Chloride	Flag	Result < 50.0	Units mg/Kg	RL	
Omoride		< 00.0	mg/Kg	2.00	

TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296

This is only a summary Please, refer to the complete report package for quality control data.



6701 Aberdeen Avenue, Suite 9 200 East Sunset Road, Suite E 5002 Basin Street, Suite A1 6015 Harris Parkway, Suite 110 Lubbock, Texas 79424 El Paso, Texas 79922 Midland, Texas 79703 800 • 378 • 1296 888 • 588 • 3443

806 • 794 • 1296 915 • 585 • 3443 432 • 689 • 6301 FAX 806 • 794 • 1298 FAX 915 • 585 • 4944 FAX 432 • 689 • 6313

817 • 201 • 5260

Ft Worth, Texas 76132

E-Mail lab@traceanalysis.com

Analytical and Quality Control Report

Ike Tavarez Highlander Environmental Services 1910 N. Big Spring Street Midland, TX, 79705

Report Date: April 10, 2007

Work Order: 7040533

Project Location: Eddy County, NM

Project Name: POGO-Marine 19 Fed. #1 Project Number: 2962

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
120909	#1 0-1	soil	2007-04-02	00:00	2007-04-05
120910	#1 1-1.5	soil	2007-04-02	00:00	2007-04-05
120911	#2 0-1	soil	2007-04-02	00:00	2007-04-05
120912	#2 1-1.5	soil	2007-04-02	00:00	2007-04-05
120913	#2 2-2.5	soil	2007-04-02	00:00	2007-04-05
120914	#3 0-1	soil	2007-04-02	00:00	2007-04-05
120915	#3 1-1.5	soil	2007-04-02	00:00	2007-04-05
120916	#4 0-1	soil	2007-04-02	00:00	2007-04-05
120917	#4 1-1.5	soil	2007-04-02	00:00	2007-04-05
120918	#5 0-1	soil	2007-04-02	00:00	2007-04-05
120919	#5 1-1.5	soil	2007-04-02	00:00	2007-04-05

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 13 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Dr. Blair Leftwich, Director

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank

Case Narrative

Samples for project 'POGO-Marine 19 Fed. #1' were received by TraceAnalysis, Inc. on 2007-04-05 and assigned to work order 7040533 Samples for work order 7040533 were received intact without headspace and at a temperature of 4 deg C.

Samples were analyzed for the following tests using their respective methods.

Test	Method
Chloride (Titration)	SM 4500-Cl B
TPH DRO	Mod. 8015B
TPH GRO	S 8015B

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 7040533 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are preformed with each preparation batch to ensure data integrity

All other exceptions associated with this report have been footnoted on the appropreate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Work Order: 7040533 POGO-Marine 19 Fed. #1 Page Number 3 of 13 Eddy County, NM

Analytical Report

Sample: 120909 - #1 0-1

Analysis:

Chloride (Titration)

QC Batch: 36264 Prep Batch: 31466 Analytical Method: Date Analyzed:

SM 4500-Cl B

2007-04-06

Prep Method: N/A Analyzed By: ARPrepared By:

Sample Preparation:

RL

Parameter	Flag	Result	Units	Dilution	RL
Chloride		221	mg/Kg	1	2.00

Sample: 120909 - #1 0-1

Analysis QC Batch:

TPH DRO 36327

Prep Batch: 31488 Analytical Method: Date Analyzed:

RL

Mod. 8015B 2007-04-09 2007-04-09 Sample Preparation

Prep Method: N/A Analyzed By: AG Prepared By AG

Parameter Flag Result $\overline{\mathrm{D}\mathrm{RO}}$ < 50.0

Units Dilution RL50.0 mg/Kg

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane		160	mg/Kg	1	150	107	32.9 - 167

Sample: 120909 - #1 0-1

Analysis: QC Batch: Prep Batch: TPH GRO 36282 31480

Analytical Method: Date Analyzed: Sample Preparation:

S 8015B 2007-04-09 2007-04-07 Prep Method S 5035 Analyzed By: Prepared By:

RL

Parameter Flag Result Units Dilution RLGRO <1.00 mg/Kg 1.00

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.824	mg/Kg	1	1.00	82	52.4 - 123.7
4-Bromofluorobenzene (4-BFB)		1.04	$_{ m mg/Kg}$	1	1.00	104	67.5 - 140.3

Sample: 120910 - #1 1-1.5

36264

31466

Analysis: QC Batch:

Prep Batch:

Chloride (Titration)

Analytical Method: Date Analyzed: Sample Preparation. SM 4500-Cl B 2007-04-06

Prep Method: N/A Analyzed By: ARPrepared By: AR

RLParameter Flag Result Units Dilution RL2.00 Chloride 184 mg/Kg

Work Order: 7040533 POGO-Marine 19 Fed. #1 Page Number: 4 of 13 Eddy County. NM

Sample: 120911 - #2 0-1

Analysis: QC Batch: Chloride (Titration)

36264 Prep Batch: 31466 Analytical Method: Date Analyzed:

SM 4500-Cl B 2007-04-06

Prep Method: N/A Analyzed By: AR

Sample Preparation:

Prepared By: AR

RL

Parameter Flag Chloride

Result 283

Units mg/Kg Dilution

RL2 00

50.0

Sample: 120911 - #2 0-1

Analysis: QC Batch: Prep Batch:

TPH DRO 36327 31488

Analytical Method: Date Analyzed:

Sample Preparation.

Mod. 8015B 2007-04-09 2007-04-09

Prep Method: N/A Analyzed By. AGPrepared By: AG

RL

Parameter Flag $\overline{\mathrm{D}\mathrm{RO}}$

Result < 50.0

Units mg/Kg Dilution RL

Spike Percent Recovery Units Dilution Limits Surrogate Flag Result Amount Recovery mg/Kg n-Triacontane 185 150 123 32.9 - 167

Sample: 120911 - #2 0-1

Analysis: QC Batch:

Prep Batch:

TPH GRO 36282 31480

Analytical Method: Date Analyzed:

Sample Preparation:

S 8015B 2007-04-09 2007-04-07

Prep Method: S 5035 Analyzed By: SS

SS

Prepared By:

RL

Dilution Parameter Flag Result Units RLGRO <1.00 mg/Kg 1.00

Spike Percent Recovery Surrogate Flag Units Dilution Amount Recovery Limits Result Trifluorotoluene (TFT) 0.814 1.00 81 52.4 - 123.7 mg/Kg 1 4-Bromofluorobenzene (4-BFB) 1.02 mg/Kg 1 1.00 102 67.5 - 140.3

Sample: 120912 - #2 1-1.5

Analysis QC Batch: Prep Batch: Chloride (Titration)

36264 31466 Sample Preparation:

Analytical Method: Date Analyzed

SM 4500-Cl B 2007-04-06

Prep Method: N/A Analyzed By. ARPrepared By:

RL

Parameter Result Units RLFlag Dilution Chloride 1050 mg/Kg $\overline{25}$ 2.00

Work Order: 7040533 POGO-Marine 19 Fed. #1 Page Number: 5 of 13 Eddy County, NM

Sample: 120913 - #2 2-2.5

Analysis: QC Batch: Chloride (Titration)

36264 31466 Prep Batch:

Analytical Method: Date Analyzed:

Sample Preparation:

SM 4500-Cl B 2007-04-06

Prep Method: N/A Analyzed By: ARPrepared By: AR

RL

Parameter Flag Chloride

Result 236

Units mg/Kg Dilution 25

Dilution

 $\overline{25}$

RL2.00

RL

2 00

Sample: 120914 - #3 0-1

Analysis: QC Batch:

Prep Batch:

Chloride (Titration)

Flag

Analytical Method: 36264 Date Analyzed. 31466 Sample Preparation: SM 4500-Cl B 2007-04-06

Prep Method: N/A Analyzed By: AR

RL

Parameter Chloride

Result 188

Units mg/Kg

Prepared By: AR

Sample: 120914 - #3 0-1

Analysis: QC Batch: TPH DRO 36327

Prep Batch: 31488

Analytical Method: Date Analyzed:

Mod. 8015B 2007-04-09 Sample Preparation: 2007-04-09

Prep Method: N/A Analyzed By: AG Prepared By: AG

RL

Flag Parameter Result Units Dilution RL $\overline{\mathrm{DRO}}$ < 50.0 50.0 mg/Kg 1

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane		208	${ m mg/Kg}$	1	150	139	32.9 - 167

Sample: 120914 - #3 0-1

Analysis: QC Batch:

Prep Batch:

TPH GRO 36282 31480

Analytical Method: Date Analyzed:

Sample Preparation:

S 8015B 2007-04-09 2007-04-07 Prep Method: S 5035 Analyzed By:

Prepared By:

RL

Parameter Flag Result Units Dilution RLGRO <1.00 mg/Kg 1.00

					Spike	Percent	Recovery
Surrogate	Flag	Result	\mathbf{Units}	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.821	mg/Kg	1	1.00	82	52.4 - 123.7
4-Bromofluorobenzene (4-BFB)		1.02	mg/Kg	1	1.00	102	67.5 - 140.3

Work Order 7040533 POGO-Marine 19 Fed. #1 Page Number: 6 of 13 Eddy County, NM

Sample	120915 -	#2 1_1	1 5
Samble:	140910 -	#-0 1-J	0

Analysis: QC Batch: Prep Batch:

Chloride (Titration)

36264 31466

Analytical Method: Date Analyzed:

Sample Preparation

SM 4500-Cl B

2007-04-06

Prep Method: N/A Analyzed By: AR Prepared By: AR

RL

Parameter Flag Result Units Chloride 214 mg/Kg Dilution RL252.00

Sample: 120916 - #4 0-1

Analysis: QC Batch:

Chloride (Titration)

36264 Prep Batch: 31466

Analytical Method: Date Analyzed:

SM 4500-Cl B

2007-04-06

Prep Method: N/A Analyzed By: ARPrepared By: AR

Sample Preparation:

RLParameter Flag Result Chloride 236

Units Dilution RL25 2.00 mg/Kg

Sample: 120916 - #4 0-1

Analysis. QC Batch:

TPH DRO 36327 Prep Batch: 31488

Analytical Method: Date Analyzed:

Mod. 8015B 2007-04-09 Sample Preparation: 2007-04-09

Prep Method: N/A Analyzed By: AG

Prepared By: AG

RL

Parameter Flag Result Units Dilution RLDRO < 50.0 mg/Kg 1 50.0

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane		189	${ m mg/Kg}$	1	150	126	32.9 - 167

Sample: 120916 - #4 0-1

Analysis. QC Batch:

Prep Batch:

TPH GRO 36282 31480

Analytical Method: Date Analyzed Sample Preparation:

S 8015B 2007-04-09 2007-04-07

Prep Method. S 5035 Analyzed By: ss

Prepared By:

RL

Parameter Flag Result Units Dilution RL $\overline{\text{GRO}}$ <1.00 mg/Kg 1.00

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.818	mg/Kg	1	1.00	82	52.4 - 123.7
4-Bromofluorobenzene (4-BFB)		1.02	m mg/Kg	1	1.00	102	67.5 - 140.3

Report Date: April 10, 2007 Work Order: 7040533 Page Number: 7 of 13 2962 POGO-Marine 19 Fed. #1 Eddy County, NM Sample: 120917 - #4 1-1.5 Analytical Method: Chloride (Titration) SM 4500-Cl B Prep Method: N/A Analysis: QC Batch: 36264 Date Analyzed: 2007-04-06 Analyzed By: AR Prepared By: Prep Batch: 31466 Sample Preparation: AR. RLDilution Parameter Flag Result Units RL< 50.0 $\overline{25}$ 2.00 Chloride mg/Kg Sample: 120918 - #5 0-1 SM 4500-Cl B Prep Method: N/A Analysis: Chloride (Titration) Analytical Method: QC Batch: 2007-04-06 Analyzed By: 36264 Date Analyzed: AR Prep Batch: 31466 Sample Preparation: Prepared By: AR. RLRLParameter Flag Result Units Dilution Chloride 77.8 mg/Kg $\frac{1}{25}$ 2.00 Sample: 120918 - #5 0-1 TPH DRO Analytical Method: Mod. 8015B Prep Method: N/A Analysis: QC Batch: 36327 Date Analyzed: 2007-04-09 Analyzed By: AG 31488 Sample Preparation: Prepared By Prep Batch: 2007-04-09 AG RLParameter Flag Result Units Dilution RLDRO < 50.0 mg/Kg 50.0 Spike Percent Recovery Surrogate Flag Result Units Dilution Amount Recovery Limits n-Triacontane 200 mg/Kg 1 150 133 32.9 - 167 Sample: 120918 - #5 0-1 Analysis: TPH GRO Analytical Method: S 8015B Prep Method: S 5035 Analyzed By: ss QC Batch: 36282 Date Analyzed: 2007-04-09 2007-04-07 Prep Batch: 31480 Sample Preparation: Prepared By-

		m RL			
Parameter	Flag	Result	Units	Dilution	RL
GRO		<1.00	mg/Kg	1	1.00

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.826	mg/Kg	1	1.00	83	52.4 - 123.7
4-Bromofluorobenzene (4-BFB)		1.02	m mg/Kg	1	1.00	102	67 5 - 140.3

2962

Work Order: 7040533 POGO-Marine 19 Fed. #1 Page Number: 8 of 13 Eddy County, NM

Sample: 120919 - #5 1-1.5

Analysis: QC Batch: Chloride (Titration)

36268 Prep Batch: 31470 Analytical Method: Date Analyzed

SM 4500-Cl B 2007-04-06

Prep Method: N/A Analyzed By-AR.

Sample Preparation:

Prepared By: AR

RL

Chloride

Parameter Flag Result < 50.0

Units mg/Kg Dilution 25

RL2.00

RL

2

RL

2

RL

Method Blank (1) QC Batch: 36264

QC Batch: 36264 Prep Batch. 31466 Date Analyzed: 2007-04-06 QC Preparation: 2007-04-06

Analyzed By AR

MDL

Result Flag Parameter < 0.500 Chloride

Units mg/Kg

Prepared By:

Method Blank (1)

QC Batch: 36268

36268 QC Batch: Prep Batch: 31470 Date Analyzed: 2007-04-06 QC Preparation: 2007-04-06

Analyzed By: AR Prepared By AR

MDL

Flag Result Units Parameter Chloride < 0.500 mg/Kg

Method Blank (1)

QC Batch: 36282

QC Batch: 36282 Prep Batch: 31480

GRO

Date Analyzed: 2007-04-09 2007-04-09 QC Preparation:

Analyzed By: ss Prepared By: ss

Flag Parameter

4-Bromofluorobenzene (4-BFB)

MDL

1

Result

 $< 0.73\bar{9}$

Units

83

mg/Kg

1.00

67 5 - 140.3

Spike Percent Recovery Dilution Recovery Surrogate Flag Result Units Amount Limits Trifluorotoluene (TFT) 89 52.4 - 123.7 0.889 mg/Kg 1 1.00

mg/Kg

Method Blank (1)

QC Batch: 36327

QC Batch: 36327 Prep Batch: 31488 Date Analyzed: 2007-04-09 QC Preparation: 2007-04-09

0.828

Analyzed By: AG Prepared By: AG Work Order 7040533 POGO-Marine 19 Fed. #1 Page Number. 9 of 13 Eddy County, NM

Dan		Ela m			DL		Unit	RL		
Parameter DRO		Flag		Res	5.5		mg/K			50
DIO					0.0		111g/13	8		
						Spike		Percent	R	ecovery
Surrogate	Flag	Result	Units		ilution	Amount	I	Recovery		Limits
n-Triacontane		138	mg/Kg	5	1	150	-,	92	44.	7 - 133.
Laboratory Cor	itrol Spike	(LCS-1)								
QC Batch: 362	64		Date An	alvzed:	2007-04-06			A	Analyzed B	v: AR
Prep Batch 314	66			paration:	2007-04-06				Prepared B	
		L	CS			Spike	Mat	trix		Rec.
Param			esult	Units	Dil.	Amount	Res		Rec.	Limit
Chloride		9	8.9	mg/Kg	1	100	<0	500	99	85 - 11
Percent recovery i	s based on	the spike result	. RPD is l	based on	the spike and	d spike dup	licate re	esult.		
		LCSD			Spike	Matrix		Rec.		RPI
		Result	Units	Dil	Amount	Result	Rec.	Lımit		
Param Chloride -		97.9	mg/Kg	1	100	< 0.500	98	Limit 85 - 11		Limi 20
Chloride Percent recovery i		97.9 the spike result	mg/Kg	l based on	100	< 0.500	98	Limit 85 - 11		
Chloride Percent recovery i Laboratory Cor QC Batch: 362	ntrol Spike	97.9 the spike result	mg/Kg	alyzed:	100 the spike and 2007-04-06	<0.500 l spike dup	98	Limit 85 - 11 esult.	5 I Analyzed E	20 3y: AF
Chloride Percent recovery i Laboratory Cor QC Batch: 362	ntrol Spike 68	97.9 the spike result	mg/Kg	l based on	100 the spike and	<0.500 l spike dup	98	Limit 85 - 11 esult.	5 1	20 3y: AR
Chloride Percent recovery i Laboratory Cor QC Batch: 362	ntrol Spike 68	97.9 the spike result (LCS-1)	mg/Kg	based on halyzed:	100 the spike and 2007-04-06	<0.500 l spike dup	98	Limit 85 - 11 esult.	5 I Analyzed E	By: AR
Chloride Percent recovery i Laboratory Cor QC Batch: 362 Prep Batch: 314	ntrol Spike 68	97.9 the spike result (LCS-1)	mg/Kg Date Ar QC Preposes	l based on allyzed: paration:	100 the spike and 2007-04-06 2007-04-06 Dil	<0.500 l spike dup Spike Amount	98 licate re Mar Res	Limit 85 - 11 esult. trix sult	5 I Analyzed E Prepared B Rec.	20 By: AR By: AR Rec. Limit
Chloride Percent recovery i Laboratory Cor QC Batch: 362 Prep Batch: 314	ntrol Spike 68	97.9 the spike result (LCS-1)	mg/Kg Date Ar QC Preposes	based on halyzed:	100 the spike and 2007-04-06 2007-04-06	<0.500 d spike dup Spike	98 dicate re	Limit 85 - 11 esult. trix sult	5 1 Analyzed E Prepared B	20 By: AR By: AR Rec. Limit
Chloride Percent recovery i Laboratory Cor QC Batch: 362 Prep Batch: 314 Param Chloride	ntrol Spike 68 70	97.9 the spike result (LCS-1) I	mg/Kg RPD is l Date Ar QC Preposesult 7.8	based on halyzed: paration: Units mg/Kg	100 the spike and 2007-04-06 2007-04-06 Dil	<0.500 d spike dup Spike Amount 100	98 licate re Mar Res <0.	Limit 85 - 11 esult. trix sult 500	5 I Analyzed E Prepared B Rec.	20 By: AR By: AR Rec. Limit
Chloride Percent recovery i Laboratory Cor QC Batch: 362	ntrol Spike 68 70	97.9 the spike result (LCS-1) I	mg/Kg RPD is l Date Ar QC Preposesult 7.8	based on halyzed: paration: Units mg/Kg	100 the spike and 2007-04-06 2007-04-06 Dil	<0.500 d spike dup Spike Amount 100	98 licate re Mar Res <0.	Limit 85 - 11 esult. trix sult 500	5 I Analyzed E Prepared B Rec.	20 By: AR By: AR Rec.
Chloride Percent recovery i Laboratory Cor QC Batch: 362 Prep Batch: 314 Param Chloride	ntrol Spike 68 70	97.9 the spike result (LCS-1) I Re 9 the spike result	mg/Kg Date Ar QC Pres CS esult 7.8 t. RPD is	based on halyzed: paration: Units mg/Kg	100 the spike and 2007-04-06 2007-04-06 Dil 1 the spike and	<pre><0.500 d spike dup Spike Amount 100 d spike dup</pre>	98 licate re Mar Res <0.	Limit 85 - 11 esult. trix sult 500 esult.	5 1 Analyzed E Prepared E Rec. 98	20 By: AF By: AF Rec. Limit 85 - 11

Laboratory	Control	Snika	(T.CS-1)	١
Laboratory	Control	SDIKE	TTCD-T	J

QC Batch:	36282
Prep Batch:	31480

Date Analyzed 2007-04-09 QC Preparation 2007-04-09 Analyzed By: ss Prepared By: ss

	LCS			Spike	Matrix		Rec
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	7.37	${ m mg/Kg}$	1	10.0	< 0.739	74	57.7 - 102.5

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

2962

Work Order: 7040533 POGO-Marine 19 Fed #1 Page Number: 10 of 13 Eddy County, NM

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec	Limit	RPD	Limit
GRO	7.48	mg/Kg	1	10.0	< 0.739	75	57.7 - 102.5	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec	Limit
Trifluorotoluene (TFT)	1.14	1.14	mg/Kg	1	1.00	114	114	36.8 - 152.5
4-Bromofluorobenzene (4-BFB)	0.948	0.952	mg/Kg	1	1.00	95	95	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 36327 Prep Batch: 31488 Date Analyzed: 2007-04-09 QC Preparation: 2007-04-09 Analyzed By: AG Prepared By. AG

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO	248	mg/Kg	1	250	<14.6	99	47.5 - 144.1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil	Amount	Result	Rec.	Limit	RPD	Limit
DRO	239	mg/Kg	1	250	<14.6	96	47.5 - 144.1	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Triacontane	152	153	mg/Kg	1	150	101	102	57.3 - 131.6

Matrix Spike (MS-1) Spiked Sample: 120918

QC Batch: 36264 Prep Batch: 31466

Date Analyzed: 2007-04-06 QC Preparation: 2007-04-06

Analyzed By: AR Prepared By: AR

	MS			Spike	Matrix		Rec
Param	Result	$\mathbf{U}\mathbf{nits}$	Dil.	Amount	Result	Rec.	Limit
Chloride	2460	mg/Kg	25	2500	77.757	95	85 - 115

Percent recovery is based on the spike result RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	2500	mg/Kg	25	2500	77.757	97	85 - 115	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 120928

QC Batch: 36268 Prep Batch: 31470 $\begin{array}{ll} \text{Date Analyzed:} & 2007\text{-}04\text{-}06 \\ \text{QC Preparation:} & 2007\text{-}04\text{-}06 \end{array}$

Analyzed By: AR Prepared By AR Work Order: 7040533 POGO-Marine 19 Fed. #1 Page Number 11 of 13 Eddy County, NM

Damara	M		Units	Dil.	Spike	Mat Res		Rec.	Rec. Limit
Param Chloride	Res 36		onits ng/Kg	25	Amount 2500	1320		95	85 - 11
Percent recovery is has	ed on the enilse recult	RPD ie h	no base	the enike or	nd enika du	olicate re	oenlt		
Percent recovery is bas	•	RPD is b	ased on	-		olicate re			RPD
Percent recovery is bas Param	sed on the spike result. MSD Result	RPD is b	ased on Dil.	the spike ar Spike Amount	nd spike duj Matrix Result	olicate re	esult. Rec. Limit	RPD	RPI Limi

Matrix Spike (MS-1) Spiked Sample:

QC Batch. 36282 Prep Batch: 31480 Date Analyzed: 2007-04-09 QC Preparation: 2007-04-09 Analyzed By: ss Prepared By: ss

	MS			Spike	Matrix		Rec
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	6.37	mg/Kg	1	10.0	< 0.739	64	10 - 141.5

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	6.56	mg/Kg	1	10.0	< 0.739	66	10 - 141.5	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result

	MS	MSD			Spike	MS	MSD	Rec
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	0.746	0.750	mg/Kg	1	1	75	75	40 - 125.3
4-Bromofluorobenzene (4-BFB)	1.06	1.08	${ m mg/Kg}$	1	1	106	108	86.7 - 144.5

Matrix Spike (MS-1) Spiked Sample: 120909

QC Batch: 36327 Prep Batch: 31488 Date Analyzed: 2007-04-09 QC Preparation: 2007-04-09 Analyzed By: AG Prepared By: AG

	MS			Spike	Matrix		Rec
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO	297	mg/Kg	1	250	<14.6	119	11.7 - 152.3

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	\mathbf{Limit}	RPD	Limit
DRO	269	mg/Kg	1	250	<14.6	108	11.7 - 152.3	10	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil	Amount	Rec.	Rec.	Limit
n-Triacontane	181	160	mg/Kg	1	150	121	107	17 - 163.1

Report Date: April 10, 2007 2962

Work Order: 7040533 POGO-Marine 19 Fed #1 Page Number: 12 of 13 Eddy County, NM

Standard (ICV-1)

QC Batch: 36264

Date Analyzed: 2007-04-06

Analyzed By: AR

			ICVs.	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	$_{ m Units}$	Conc.	Conc	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2007-04-06

Standard (CCV-1)

QC Batch: 36264

Date Analyzed: 2007-04-06

Analyzed By: AR

			$rac{ ext{CCVs}}{ ext{True}}$	CCVs Found	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	99.9	100	85 - 115	2007-04-06

Standard (ICV-1)

QC Batch: 36268

Date Analyzed: 2007-04-06

Analyzed By: AR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2007-04-06

Standard (CCV-1)

QC Batch: 36268

Date Analyzed: 2007-04-06

Analyzed By: AR

D	Dl	TI	CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2007-04-06

Standard (ICV-1)

QC Batch: 36282

Date Analyzed: 2007-04-09

Analyzed By: ss

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	0.946	95	85 - 115	2007-04-09

Standard (CCV-1)

QC Batch: 36282

Date Analyzed: 2007-04-09

Analyzed By: ss

Report Date.	April	10,	2007
2962			

Work Order: 7040533 POGO-Marine 19 Fed. #1 Page Number: 13 of 13 Eddy County, NM

2902				O-Marme 19 F	ea. #1	120	idy County, INM
Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.847	85	85 - 115	2007-04-09
Standard	(ICV-1)		,				
QC Batch:	36327		Date Ana	alyzed: 2007-0	4-09	Ana	lyzed By: AG
Param	Flag	Units	ICVs True Conc	ICVs Found Conc	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	269	108	85 - 115	2007-04-09
Standard QC Batch:	,		Date Ana	alyzed· 2007-0	4-09	Ana	lyzed By: AG
Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	263	105	85 - 115	2007-04-09

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

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Analysis Request and Chain of Custody Record HIGHLANDER ENVIRONMENTAL CORP. 1910 N. Big Spring St. Midland, Texas 79705 Fax (432) 682-3946 (432) 682-4559 Fax (432) 682-3946 (432) 682-3946 Fax (432)															<u> </u>	42											_			$\overline{}$	
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RECEIVED BY: (Signature) Date: RECEIVED BY: (Signature) RESULT: Time: HIGHLANDER CONTACT PERSON: RUSH Charges Authorised: Yes No SAMPLE CONDITION WHEN RECEIVED: MATRIX: W-Water A-Air SD-Solid REMARKS: All TO All Wallander RESULTED BY: (Signature)						Date:	RECEIVED BY:	(Signature)						-					ш	KD (1 /2: (
RECEIVING LABORATORY: RECEIVED BY: (Signature) RECEIVED BY: (Signature) RECEIVED BY: (Signature) RESULTY: RECEIVED BY: (Signature) RESULTS by: RUSH Charges Authorized: Yes No	RELINOUISHED	BY: (Sta	nature)					RECEIVED BY:	(Signature)											JVEF	ED	>									_
ADDRESS: CITY: Widdle STATE: ZIP: CONTACT: PHONE: DATE: TIME: No No RUSH Charges Authorized: Yes No			-	Te	_		Time:										- F	UGHI	AND	ER C	ONT	1et	PER	SON	 :	_			is by:		
SAMPLE CONDITION WHEN RECEIVED: MATRIX: W-Water A-Air SD-Solid REMARKS: Q1 to Ald - William	KECEIVING LAB ADDRESS: No.	URATORY						RECEIVED BY: (S	agnature)									/)		\sum_{i}			1							
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	SAMPLE CONDI	TION WHI	EN RECEN	VED:	7	6	W_ W&					RE	EMAR	KS:	al	رځ	تعا	J	<i>\</i> -	- γ	N	ts	av	a				-			

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 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy Minerals and Natural Resources

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

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

Form C-141

Revised October 10, 2003

side of form

			· · · · · · · · · · · · · · · · · · ·		-					
			Rele	ease Notifi	catio	n and Co	orrective A	ction		
						OPERA	TOR	V Initi	al Report	Final Repor
Name of Co	mpany L	Atigo Pet	ro leum	INC		Contact	PATRICK E	llis		
Address P.C	1. Box 10	340 Mi	HAND	TexAS 797	102		No. 432 68			
Facility Nar	ne Mari	Ne 19 F	ed #	/		Facility Typ	DE TANK E	Battery		
Surface Ow	ner			Mineral (Owner			Lease 1	No. NM-	109756
				LOCA	ATIO	N OF RE	LEASE			
Unit Letter	Section	Township	Range			South Line	Feet from the	East/West Line	County	
	19	255	27E	1480	N	orth	1130	West	Edd	' Y
			La	titude 32°0	7'06	// Longitud	le <i>104° 14</i>	4'01"		Produced Wat
				NAT	URE	OF RELI	EASE			RAIN WATER
Type of Rele						Volume of	Release 200	BBLS Volume I		
Source of Re			later 1	TANK		Date and H	Iour of Occurrence	e Date and	Hour of Dis	covery -
Was Immedia	ite Notice (jiven?	Yes [No Not R	equired	Left v	wnom? 3-2: Poice Messag	1-07 10:00 BE Mike BRI	pm atcheR	OCD
By Whom?	PATRIC	K Elli	<u> </u>			Date and H	lour 5:00 01	MIKE BRA TAMMY 1 3-22-0	7	м
Was a Water		ched?		/s;		If YES, Vo	lume Impacting t	he Watercourse.		
		· L	Yes 🔽] No 						
If a Watercou	rse was Im	pacted, Descr	ibe Fully.*	•						
N/A										
Describe Cau	se of Probl	em and Reme	dial Action	n Taken.*	Lan	k TI	Lank	expladed	to lo de	:440
Lightn	ing si	TORM SI	TUCK	FIDERGIASS	, ,,,	1	. ////	exploded heavy to	· Col	,,,,,,
200 1	3815	of pro	aveca	WATER	whic	MIXE	ea with	MEAVY PA	7 IN TMI	•
Describe Area	Affected a	and Cleanup A	Action Tak	én.*)				<u> </u>		
Release	OCCU	rred in	VA	lined fac	ilit	Y. A P	portion or	f the bear	M WAS	hed out
Allowing picked	g WAte	er Mixi Highlan	ture t der E	o reach	the tal u	Well UAS CONT	pad. All	f the bear free flu evaluate sp	vid Wi oill Are	4 <i>5</i>
I hereby certif	y that the i	nformation gi	ven above	is true and comp	ete to t	ne best of my	knowledge and ur	nderstand that purs	uant to NMC	CD rules and
regulations al	operators	are required to	report an	d/or file certain re	eleaše n	otifications an	d perform correct	ive actions for rele	ases which r	nay endanger
public health	or the envir	onment. The	acceptanc	e of a C-141 repo	rt by the	e NMOCD ma	arked as "Final Re	eport" does not relie	eve the opera	itor of liability
or the environ	perations na ment. In a	ave ramed to a difference and a differen	CD accen	investigate and re tance of a C-141	median	e contaminationes not relieve	on that pose a thre	at to ground water, esponsibility for co	, surface wat	er, human health
federal, state,				100					mpmanee wi	LIT WILLY CENTER
Signature:	2+	.1 4 6	P.				OIL CONS	SERVATION	DIVISIO	N
				1,		Approxied her	Diatriot Comamica			
Printed Name				,-		Approved by I	District Superviso	1.		
Title: EH	rs 5	perviso	R			Approval Date);	Expiration I	Date:	
Title: <i>E H</i>	ss: ellis	, pepogo	o Roduc.	ing. com		Conditions of	Approval:		Attached	

1 225

Date: 4-5-07

Phone (432) 685-8148

^{*} Attach Additional Sheets If Necessary

<u>District I</u> 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 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy Minerals and Natural Resources

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

Release Notification and Corrective Action

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

Revised October 10, 2003

Form C-141

side of form

						OPERA			☐ Initia	al Report	\boxtimes	Final Report			
Name of Co						Contact Pat									
Address P.o				02			No. (432) 685-8								
Facility Nar	ne Marine	e 19 Federal	#1			Facility Typ	e Tank Battery								
Surface Ow	ner			Mineral O	wner				Lease N	lo. NM –	109756)			
J				LOCA	TIO	N OF REI	LEASE								
Unit Letter	Section	Township	Range	Feet from the		/South Line	Feet from the		West Line	County					
E	19	25S	27E	1480	North		1130	West		Eddy					
	I	<u> </u>		Latitude 32° (07' 06'	' Longitud	le <u>104° 14' 01"</u>								
				NAT	URE	OF RELI	EASE								
Type of Rele							Release 200 BB		(Produced	Recovered 7 d Water / Ra	in Wate	er)			
Source of Re			ank				Iour of Occurrenc	e	Date and 10:00 PM	Hour of Dis	covery	3-21-07			
Was Immedi	ate Notice (l Voc.	No Date	لمستحما	If YES, To		matal a	OCD						
	Yes No Not Required Left voice message Mike Bratcher – OCD Tammy – BLM By Whom? Patrick Ellis Date and Hour 3-22-07 5:00 PM														
By Whom?	Patrick Elli	S					Hour 3-22-07 5:0	0 PM							
Was a Water	Was a Watercourse Reached? ☐ Yes ☒ No If a Watercourse was Impacted, Describe Fully.*														
If a Watercon	☐ Yes ☒ No														
N/A			,												
		em and Reme			- 200	DDI C - C 1									
Lightning sto	orm struck i	ibergiass tank	c. The tank	exploded releasing	ig 200 i	BBLS of prod	uced water which	mixed	with neavy	raintait.					
Describe Are	-a Δffected	and Cleanup	Action Ta	ken *											
				f the berm washed	out all	owing water r	nixture to reach th	ne well	pad. All fre	e fluid was	picked 1	up.			
Highlander I	Environmen	tal Corp. eval	uated spil	area for closure.											
_															
	 		-												
I hereby cert	ify that the	information g	iven abov	e is true and comp nd/or file certain r	lete to	the best of my	knowledge and u	indersta	and that pur	suant to NM	OCD r	ules and			
				ce of a C-141 repo											
				y investigate and r											
		addition, NM(ws and/or reg		ptance of a C-141	report of	does not reliev	e the operator of	respons	sibility for c	compliance	with any	y other			
Pasial, state	, or 100m ta	und/or reg	<u></u>				OIL CON	SERV	VATION	DIVISIO	ON				
G: /	() _*	if 2.	c Pl	2	:										
Signature: /	-alri	up L.	in	0		A	District C								
Printed Nam	e: Patrick	L. Elllis				Approved by	District Supervis	sor:							
Title: EH&S	S Superviso	r				Approval Da	te:		Expiration	Date:					
E-mail Addr	ess: ellisp@	@pogoproduc	ing.com			Conditions o	f Approval:			Attached	1 🗌				
Date:			Phone: (4	32) 685-8148	1										
	itional She	ets If Neces		,											