

Highlander Environmental Corp.

Midland, Texas

September 18, 2007

Mr. Larry Johnson Environmental Engineer Specialist Oil Conservation Division, District 1 1625 North French Drive Hobbs, New Mexico 88240



Re: Assessment and Closure Report for the Pogo Producing Company, Eva E. Blinebry Federal #19 Injection Line Release Located in Unit H, Section 34, Township 23 South, Range 37 East, Lea County, New Mexico. KP 1315

Dear Mr. Johnson:

Highlander Environmental Corp. (Highlander) was contacted by Pogo Producing Company (Pogo) to assess a spill from the Eva E Blinebry Federal #19 Injection Line, located in Unit H, Section 34, Township 23 South, Range 37 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.26435°, W 103.14241°. According to the State of New Mexico C-141 Initial Report, approximately 50 barrels (bbls) of produced water were released from an injection line leak discovered on May 5, 2007. A total of 40 bbls of water were recovered. A copy of the State of New Mexico C-141 (Initial) and the C-141 (Final) are included in Appendix C. The Site is shown on Figures 1.

Groundwater and Regulatory

The New Mexico State Engineer's Office database showed no water wells located within Section 34, Township 23 South, Range 37 East. There was one well listed in Section 32 with a reported depth to water of 106'. Additionally, there were wells shown in Sections 28, 32 and 33 in the USGS groundwater database with reported depths to water of 117', 97' and 87' below ground surface (bgs). The New Mexico State Engineer water well reports and USGS groundwater database reports are included 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 and Results

On May 14, 2007, Highlander personnel inspected and sampled the spill area. The spill area measured approximately 41' x 60'. A total of three (3) auger holes (AH-1, AH-2, and AH-3) were installed using a stainless steel hand auger to assess the impacted soils. Samples were analyzed for TPH analysis by EPA method 8015 modified and chloride by EPA method 300.0. Select samples were analyzed for BTEX by EPA Method 8021B. Of the samples collected, all of the TPH and BTEX concentrations were below the RRAL, with the exception of AH-3 (0-1'). The chloride concentrations ranged from 7.82 mg/kg (AH-2 at 2.0'-2.5') to 1,180 mg/kg (AH-3 at 2.0'-2.5'). Chloride impact was delineated to 255 mg/kg or below. 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 results of the sampling are summarized in Table 1.

Based upon the results, on June 8, 2007, Highlander supervised the removal of approximately 1.0' of soil in a 10' x 20' area in the vicinity of AH-3. The removed soil was taken to Sundance Services in Eunice, New Mexico for disposal. A confirmation sample, designated AH-3A, was collected for TPH analysis. The TPH concentration was below the RRAL. The results of sampling are summarized in Table 1. The confirmation sample location is shown on Figure 3.

Conclusions

All TPH impact exceeding the RRAL has been removed and taken to disposal. The remaining chloride concentrations decline with depth. Based on the depth to groundwater, the limited aerial extent and chloride concentration decline, the residual chloride concentrations do not appear to be an imminent threat to groundwater.

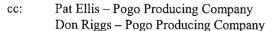
Based upon the results of the work performed at this site, Pogo requests closure of this Site. If you require any additional information or have any questions or comments concerning the assessment/closure report, please call at (432) 682-4559.

Respectfully submitted,

Highlander Environmental Corp.

Timothy M. Reed, P.G.

Vice President





Midland, Texas

		<u> </u>	E INFORMATION RP #/1315				
			ype: CLOSURE REPOR				
General Site Info	۱۳۳۳ ازن ۱۳۳۳ کرزیستان کرزیستان کرزیستان کرزیستان کرزیستان کرد	is a					
Site:	_	Eva Blinebry Pogo Produc					
Company: Line Location	_	Section 34, T					
Spill Location:		Section 34, T					
Unit Letter:		Unit H	100 KO/ L				
Lease Number:		-	-				
County:		Lea					
Spill GPS:		N 32.26435°	W103.14241°				
Surface Owner:				3 (1)			
Mineral Owner:							
Directions:		From Eunice New Mexico, intersection of 176 and 18, go south 10.3 miles on Hwy 18,					
		turn fetft into lea	ase road and go 3.5' to "T", take le	eft and go 0.8 miles to spill on			
	_		e road, spill 100' south of tank batt				
				A			
Release Data:		<u> </u>	. · · · · ,	4			
Date Released:		5/5/2007					
Type Release:		Produced Water					
Source of Contar	nination:	Leak on Injection Line					
Fluid Released:		50 bbls					
Fluids Recovered	<u>1:</u>	40 bbls					
				Q. (V. (Fig.)			
Official Commu		·,	· · · · · · · · · · · · · · · · · · ·	y a grant of the state of the			
Name:	Pat Ellis		Don Riggs	Ike Tavarez			
Company:	Pogo Producir		Pogo Producing Company	Highlander Environmental Corp.			
Address:	300 N. Marien	feld St.	5 Greenway Plaza, Suite 2700	1910 N. Big Spring			
P.O. Box	Box 10340						
City:	Midland Texas	s, 79701-7340	Houston, Texas 77046	Midland, Texas			
Phone number:	(432) 685-810	0	(713) 297-5045	(432) 682- 4559			
Email: EllisP@pogoproducing.com			riggsd@pogoproducing.com	itavarez@hec-enviro.com			

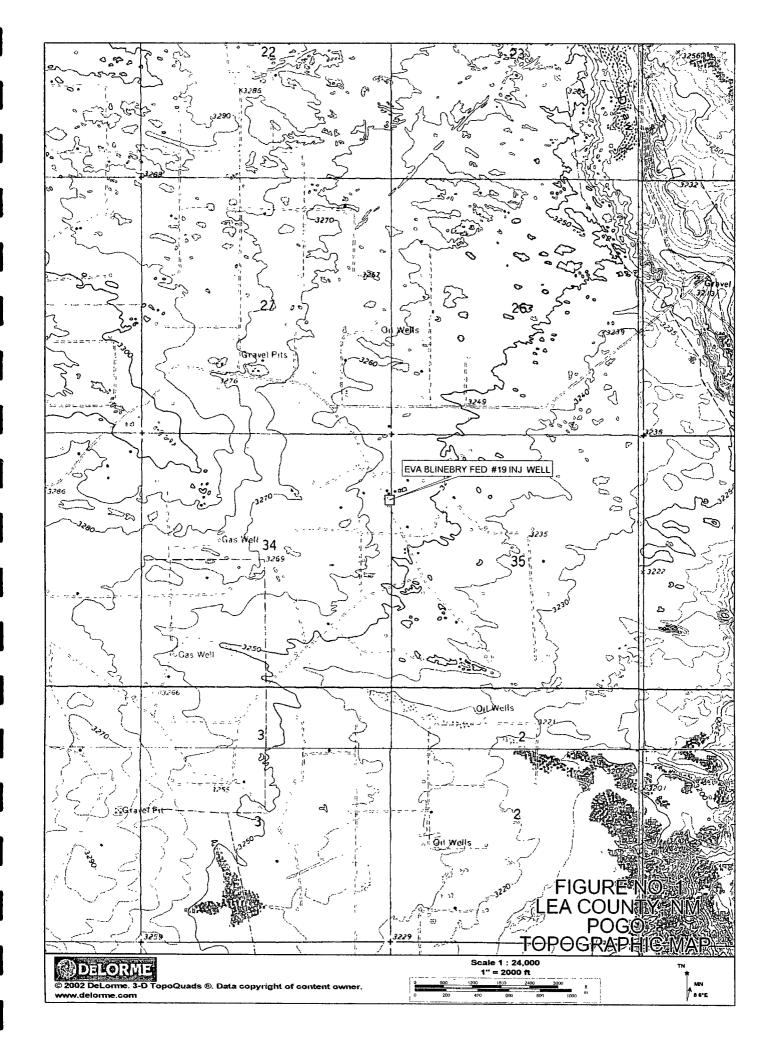
Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	Average Depth >50'<100' BS
>100 ft.	0	
WellHead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	None
Water Source >1,000 ft., Private >200 ft.	0	
Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	None
200 ft - 1,000 ft.	10	None
>1,000 ft.	0	4121
Total Ranking Score:	10	
· · · Acc	eptable Soil RRAL (mg/kg) / (G) (D)

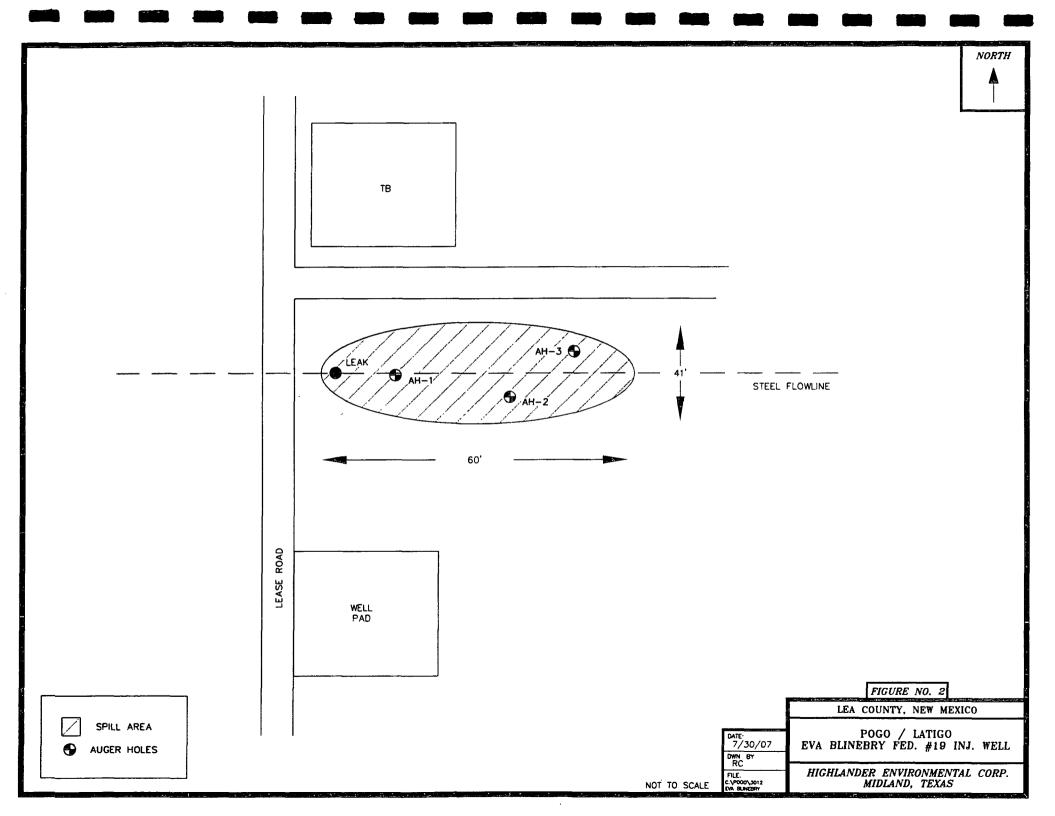
Total BTEX 50

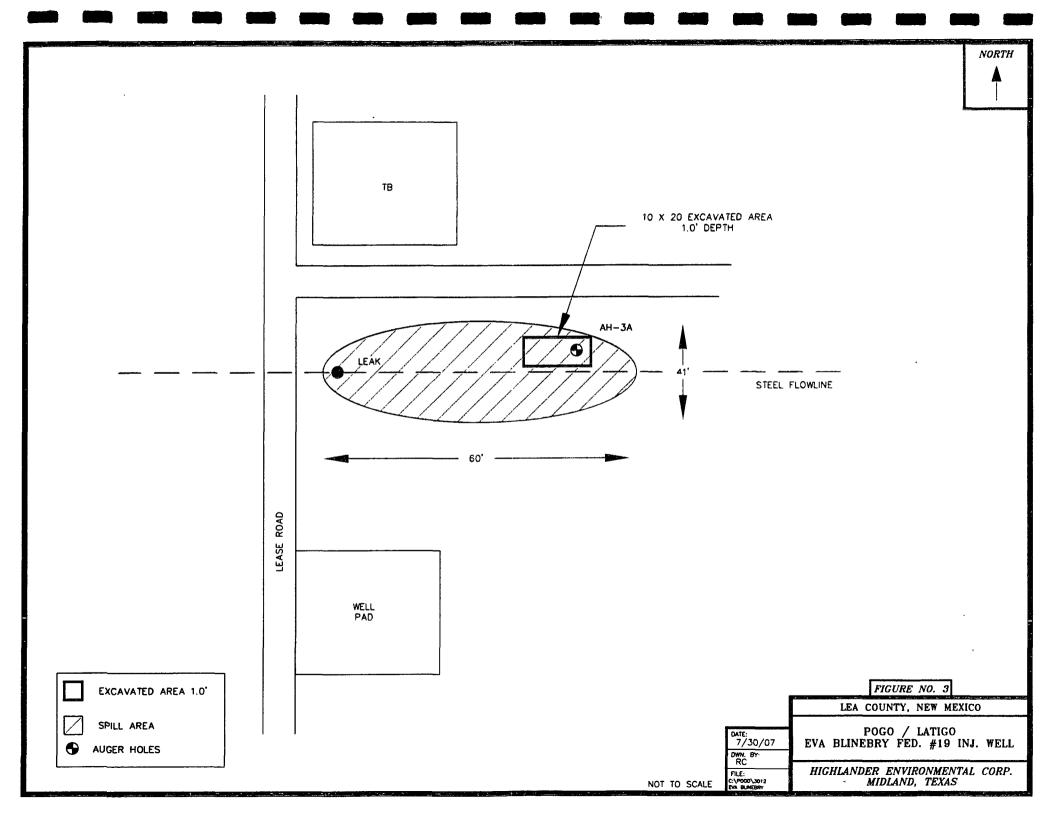
TPH 1,000

Benzene 10 TEORES RELITIONS TO

FIGURES







Pogo Producing Eva Blinebry Federal #19 Injection Well Lea County,New Mexico

ple Soi	l Status	Date	Sample	,	ГРН (тд	/kg)	Benzene	Toluene	Ethlybenzene	Xylene	Chloride
Insitu	Removed	Sampled	Depth (ft)	DRO	GRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
X		5/14/2007	0-1.0'	376	3.16	379.16	< 0.01	< 0.01	< 0.01	0.743	12.0
X		5/14/2007	1'-1.5'	<50.0	1.25	1.25	< 0.01	< 0.01	< 0.01	0.254	20.2
X		5/14/2007	2'-2.5'	-	-	-	-	-	_	-	696
X		5/14/2007	3'-3.5'	_	-	-	-	_	-	_	169
. X		5/14/2007	0-1.0'	<50.0	<1.00	<50.0	-	-	-	0.254	8.98
X		5/14/2007	1'-1.5'	-	-	-	-	-	-	-	15.8
X		5/14/2007	2'-2.5'	-	-	-	-		-	-	7.82
	X	5/14/2007	0-1.0'	2060	1.11	2061.11	<0.01	< 0.01	<0.01	0.126	418
X		5/14/2007	1'-1.5'	680	<1.00	680	< 0.01	< 0.01	< 0.01	0.055	429
X		5/14/2007	2'-2.5'	-	-	-	-	-	-	-	1180
X		5/14/2007	4'-4.5'	-	-	-	-	-	-	-	964
X		5/14/2007	5'-5.5'	-	-	-	-		-	-	255
A X		6/8/2007	0-1.0' BEB (1.0')	<50.0	<1.00	<50.0	-	-	-	-	-
X			5/14/2007	5/14/2007 5'-5.5'	5/14/2007 5'-5.5' -	5/14/2007 5'-5.5'	5/14/2007 5'-5.5'	5/14/2007 5'-5.5'	5/14/2007 5'-5.5'	5/14/2007 5'-5.5'	5/14/2007 5'-5.5'

(-) Not Analyzed (BEB) Below Excavation Bottom

APPENDIX A

Water Well Data Average Depth to Groundwater (ft) Pogo Producing Company - Eva Blindebry Federal #19

	22	South	36	East			22 5	South	37 E	ast			22 Sou	ıth 38	East
6	5	4	3	2	1	6	5 85	4	3	2	1		6	5	4
195	212		1		137		1								
7	8	9	10	11	12	7	8	9 90	10	11	12		7	8	9
18	17	16	15	14	13	18	17	16	15	14	13		18	17	16
		170				190			125	65					
19	20	21	22	23	24	19	20	21	22	23	24		19	20	21
			22				<u> </u>	65			60				ļ
30	29	28	27	26	25	30	29	28	27	26	25		30	29	28
			160		118				53	65					
31	32	33	34	35 181	36	31	32	33	34	35	36		31	32	33
			L	187		<u> </u>		l							<u> </u>
	22.6	South	2	6 East	-		23 6	outh	37	East			23 Soı	ıth 39	East
6	5	4	3	2	1	6 102		4	3 70		1	•		5	4
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7	8	9	10	11	12	7	8	9 100	10	11	12		7	8	9
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18	17	16	15	14	13	18	17	16 115	66 15	68 14	13		18	17	16
10	''	1	1	14	13	10	1''		13	14	113		10	17	10
19	20	220	149 22	23	24	19	20	100	22	23	24		19	20	21
19	20	21	1		24	19	1	2	22	23	24		19	20	2
30		28	400	143	25	100	108	28	27	26	25		00	29	28
30	29	28	27	26	25	30	29		ł	26	25		30	29	28
		33	 			-	00.400	117	88	0.5			2.		<u> </u>
31	32	33	34	35	36 127	31	32 106	33	34. Site	35	36		31	32	33
189			J			<u> </u>	97	87	· 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	L	<u> </u>	i			
	24 9	South	3	6 East			24 S	outh	37	East			24 Soi	uth 38	East
6	5	4	3	2	1	6	5	4	3	2	1		6	5	4
		165				ĺ	1111								1
7	8	9	10	11	12	7	8	9	10	11 64	12 18		7	8	9
						119	90		120						ľ
18	17	16	15	14	13	18	17	16	15	14	13		18	17	16
, °		"	312	1		124	1	67	"	` '				ļ''	
19	20	21	22	23	24	19	20	21	22	23 94	24		19	20	21
"	20	-	1	160	-"	'"	۲	69		23 34	100		1	20	- 1
30	29	28	27	26	25	30	29	28	27 41	26	25 89		56 30 68	29	28
30	23	20	12'	20	120	30	23		21 41	20	90		l .	29	20
31	32	33 54	34	35	36	31	32	70	34	35	36		30 31	32	33
	32		"	33	30	31	132		1		30		l .	J2	اددا
	_1	53	1	_1				1	55	L			97	1	1

- 88 New Mexico State Engineers Well Reports
- 105 USGS Well Reports
- 90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6) Geology and Groundwater Resources of Eddy County, NM (Report 3)
- 34 NMOCD Groundwater Data

New Mexico Office of the State Engineer POD Reports and Downloads

	Township: 23S	Range: 37E	Sections:			
N	NAD27 X:	Y:	Zone:	Search Radiu	s:	
County:	Bas	in:		Number:	Suffix:	
Owner Nam	e: (First)	(Last)		O Non-Domestic	Domestic A	11
POD	/ Surface Data Repo	rt][Avg	g Depth to Wate	er Report Wa	ter Column Report	
	-	Clear Form (iWATERS M	lenu Help		

AVERAGE DEPTH OF WATER REPORT 08/27/2007

							(nebru	water in	reet)
Bsn	Tws	Rng Sec	Zone	X	Y	Wells	Min	Max	Avg
CP	23S	37E 09				1	100	100	100
CP	23S	37E 16				1	115	115	115
CP	23S	37E 32				1	106	106	106

Record Count: 3

Water Resources National Water Information System: Web Interface

Data Category: Ground Water Geographic Area: New Mexico

GO

News: Available Now in NWISWeb

Ground-water levels for New Mexico

Search Results -- 1 sites found

Search Criteria

site_no list =

• 321617103102901

Minimum number of levels = 1

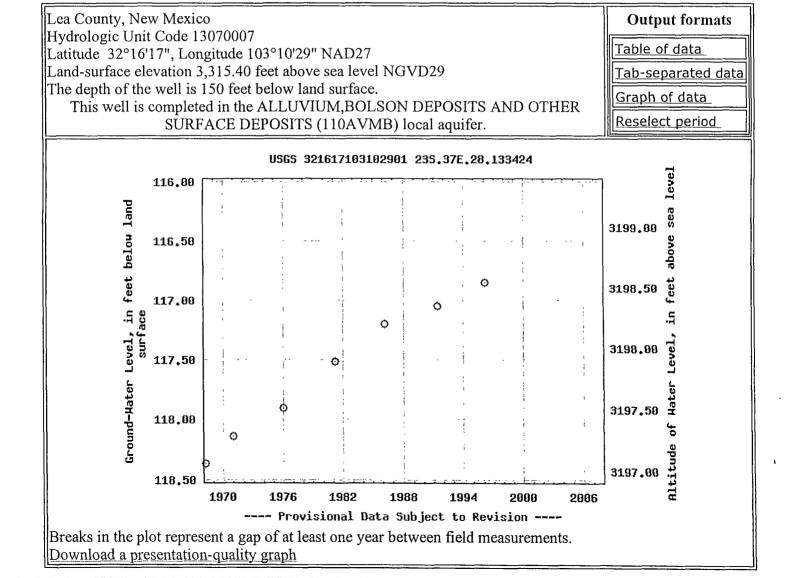
Save file of selected sites to local disk for future upload

USGS 321617103102901 23S.37E.28.133424

Available data for this site

Ground-water: Field measurements

GO



Water Resources National Water Information System: Web Interface

Data Category: Ground Water Geographic Area: New Mexico

GO

News: Available Now in NWISWeb

Ground-water levels for New Mexico

Search Results -- 1 sites found

Search Criteria

site_no list = • 32154

• 321543103110802

Minimum number of levels = 1

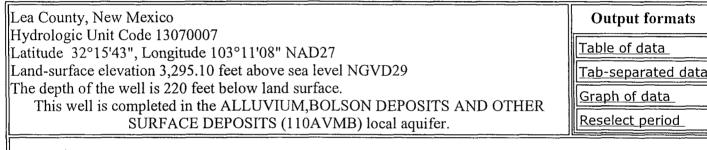
Save file of selected sites to local disk for future upload

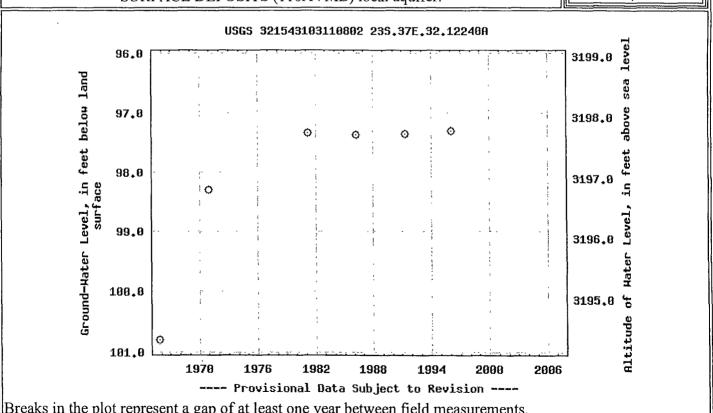
USGS 321543103110802 23S.37E.32.12240A

Available data for this site

Ground-water: Field measurements . . .:

GO





Breaks in the plot represent a gap of at least one year between field measurements. Download a presentation-quality graph

Water Resources National Water Information System: Web Interface

Data Category: **Ground Water** Geographic Area: New Mexico

GO

News: Available Now in NWISWeb

Ground-water levels for New Mexico

Search Results -- 1 sites found

Search Criteria

site_no list = • 321513103101501 Minimum number of levels = 1

Save file of selected sites to local disk for future upload

USGS 321513103101501 23S.37E.33.323241

Available data for this site Ground-water: Field measurements

GO

Lea County, New Mexico

Hydrologic Unit Code 13070007

Latitude 32°15'13", Longitude 103°10'15" NAD27

Land-surface elevation 3,275.20 feet above sea level NGVD29

The depth of the well is 140 feet below land surface.

This well is completed in the ALLUVIUM, BOLSON DEPOSITS AND OTHER SURFACE DEPOSITS (110AVMB) local aquifer.

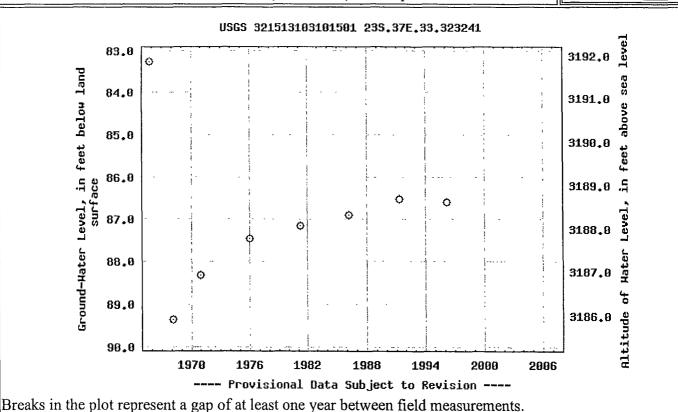
Output formats

Table of data

Tab-separated data

Graph of data

Reselect period



Questions about sites/data?

Download a presentation-quality graph

Top

APPENDIX B

Summary Report

Ike Tavarez

Highlander Environmental Services

1910 N Big Spring Street Midland, TX, 79705

Report Date: May 24, 2007

Work Order: 7051626

Project Location Lea County, NM

Pogo-Eva Blinebry Fed #19 injection well Project Name:

3012 Project Number:

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
124252	AH-1 0-1'	soil	2007-05-14	00:00	2007-05-16
124253	AH-1 1'-1.5'	soil	2007-05-14	00:00	2007-05-16
124254	AH-1 2'-2.5'	soil	2007-05-14	00:00	2007-05-16
124255	AH-1 3'-3.5'	soil	2007-05-14	00:00	2007-05-16
124256	AH-2 0-1'	soil	2007-05-14	00:00	2007-05-16
124257	AH-2 1'-1.5'	soil	2007-05-14	00:00	2007-05-16
124258	AH-2 2'-2.5'	soil	2007-05-14	00:00	2007-05-16
124259	AH-3 0-1'	soil	2007-05-14	00:00	2007-05-16
124260	AH-3 1'-1.5'	soil	2007-05-14	00:00	2007-05-16
124261	AH-3 2'-2.5'	soil	2007-05-14	00:00	2007-05-16
124262	AH-3 4'-4.5'	soil	2007-05-14	00:00	2007-05-16
124263	AH-3 5-5.5'	soil	2007-05-14	00:00	2007-05-16

		BTEX				TPH DRO	TPH GRO
	Benzene	Toluene	Ethylbenzene	Xylene	MTBE	DRO	GRO
Sample - Field Code	(mg/kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
124252 - AH-1 0-1'	< 0 0100	< 0.0100	< 0.0100	0.743		376	3.16
124253 - AH-1 1'-1.5'	< 0.0100	< 0.0100	< 0.0100	0.254		< 50.0	1.25
124256 - AH-2 0-1'	< 0.0100	< 0.0100	< 0.0100	0.165		< 50.0	< 1.00
124259 - AH-3 0-1'	< 0.0100	< 0.0100	< 0.0100	0.126		2060	1.11
124260 - AH-3 1'-1.5'	< 0.0100	< 0.0100	< 0 0100	0.0547		680	<1.00

Sample: 124252 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		12.0	mg/Kg	1.00

Sample: 124253 - AH-1 1'-1.5'

Param	Flag	Result	Units	RL
Chloride		20.2	mg/Kg	1.00

Report Date May 24, 2007 3012	Work Order: Pogo-Eva Blinebry Fed		Page Number: 2 of 3 Lea County, NM
Sample: 124254 - AH-1 2'-2.5'			
Param Flag	Result	Units	RL
Chloride	696	mg/Kg	1.00
Sample: 124255 - AH-1 3'-3.5'			
Param Flag	Result	Units	RL
Chloride	169	mg/Kg	1.00
Sample: 124256 - AH-2 0-1'			
Param Flag	Result	Units	RL
Chloride	8.98	mg/Kg	1.00
Sample: 124257 - AH-2 1'-1.5'			
Param Flag	Result	Units	RL
Chloride	15.8	mg/Kg	1.00
Param Flag Chloride Flag	Result 7.82	Units mg/Kg	RL 1 00
Chloride	7.82	mg/Kg	1 00
Sample: 124259 - AH-3 0-1'			
Param Flag	Result	Units	RL
Chloride	418	mg/Kg	1.00
Sample: 124260 - AH-3 1'-1.5'			
Param Flag	Result	Units	RL
Chloride	429	mg/Kg	1.00
Sample: 124261 - AH-3 2'-2.5'			
Param Flag	Result	Units	RL
Chloride	1180	mg/Kg	1.00
Sample: 124262 - AH-3 4'-4.5'			
Param Flag	Result	Units	RL
Chloride	964	mg/Kg	1.00

Report Date May 24, 2007 3012

Work Order: 7051626 Pogo-Eva Blinebry Fed #19 injection well Page Number 3 of 3 Lea County, NM

Sample: 124263 - AH-3 5-5.5'

Param	Flag	Result	Units	RL
Chloride		255	mg/Kg	1.00



6701 Aberdeen Avenue, Suite 9 200 East Sunset Road, Suite E 5002 Basin Street, Suite A1 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

817 • 201 • 5260

FAX 806 • 794 • 1298 FAX 915 • 585 • 4944 FAX 432 • 689 • 6313

6015 Harris Parkway, Suite 110 Ft Worth, Texas 76132

E-Mail lab@traceanalysis.com

Analytical and Quality Control Report

Ike Tavarez Highlander Environmental Services 1910 N Big Spring Street

1910 N Big Spring Sti Midland, TX, 79705 Report Date: May 24, 2007

Work Order 7051626

Project Location

Lea County, NM

Project Name Pogo-Eva Blinebry Fed #19 injection well

Project Number: 3012

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
124252	AH-1 0-1	soil	2007-05-14	00:00	2007-05-16
124253	AH-1 1′-1.5	soil	2007-05-14	00:00	2007-05-16
124254	AH-1 2`-2.5`	soil	2007-05-14	00:00	2007-05-16
124255	AH-1 3'-3 5'	soil	2007-05-14	00:00	2007-05-16
124256	AH-2 0-1'	soil	2007-05-14	00:00	2007-05-16
124257	AH-2 1 -1.5	soil	2007-05-14	00:00	2007-05-16
124258	AH-2 2'-2.5	soil	2007-05-14	00:00	2007-05-16
124259	AH-3 0-1	soil	2007-05-14	00:00	2007-05-16
124260	AH-3 1'-1.5'	soil	2007-05-14	00:00	2007-05-16
124261	AH-3 2'-2.5'	soil	2007-05-14	00:00	2007-05-16
124262	AH-3 4`-4.5`	soil	2007-05-14	00:00	2007-05-16
124263	AH-3 5-5.5	soil	2007-05-14	00:00	2007-05-16

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 18 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-Eva Blinebry Fed. #19 injection well were received by TraceAnalysis, Inc. on 2007-05-16 and assigned to work order 7051626 Samples for work order 7051626 were received intact at a temperature of 4 deg C.

Samples were analyzed for the following tests using their respective methods

Test.	Method
BTEX	S 8021B
Chloride (IC)	E 300.0
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 7051626 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 performed with each preparation batch to ensure data integrity.

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

Work Order 7051626 Pogo-Eva Blinebry Fed #19 mjection well Page Number. 3 of 18 Lea County, NM

Analytical Report

Sample: 124252 - AH-1 0-1'

Analysis BTEX QC Batch: 37359 Prep Batch: 32392 Analytical Method S 8021B
Date Analyzed 2007-05-17
Sample Preparation 2007-05-17

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

RLResult Dilution Parameter Flag Units RLBenzene < 0.0100 mg/Kg 0.0100Toluene < 0.0100 mg/Kg1 0.0100Ethylbenzene < 0.0100 1 0.0100 mg/Kg 0.743Xylene mg/Kg 1 0 0100

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.781	${ m mg/Kg}$	1	1.00	78	26 - 117.8
4-Bromofluorobenzene (4-BFB)		0.766	${ m mg/Kg}$	1	1.00	77	51.1 - 119.1

Sample: 124252 - AH-1 0-1'

Analysis: Chloride (IC) QC Batch: 37429 Prep Batch: 32456 Analytical Method: E 300.0
Date Analyzed: 2007-05-22
Sample Preparation: 2007-05-22

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

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		12.0	mg/Kg	5	1.00

Sample: 124252 - AH-1 0-1'

Analysis TPH DRO QC Batch 37279 Prep Batch 32303 Analytical Method Mod 8015B
Date Analyzed 2007-05-16
Sample Preparation 2007-05-16

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

 RL

 Parameter
 Flag
 Result
 Units
 Dilution
 RL

 DRO
 376
 mg/Kg
 1
 50.0

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane		177	mg/Kg	1	150	118	61.7 - 143.2

Sample: 124252 - AH-1 0-1'

Analysis TPH GRO QC Batch 37360 Prep Batch 32392 $\begin{array}{lll} \mbox{Analytical Method} & \mbox{S 8015B} \\ \mbox{Date Analyzed:} & 2007\text{-}05\text{-}17 \\ \mbox{Sample Preparation:} & 2007\text{-}05\text{-}17 \end{array}$

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

D	771	_	RL		FT *-		Dilution		D.T.
Parameter GRO	Flag	<u> </u>	Result 3.16		Units mg/Kg	-	Dilution		1.00
GRO			3.10		mg/rxg		1		1.0
						Spike	Percent	Rec	covery
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery		mits
Trifluorotolue	ene (TFT)		0.794	mg/Kg	1	1.00	79	52.4	- 123.
4-Bromofluor	robenzene (4-BFB)	1.10	mg/Kg	1	1.00	110	67.5	- 140.
Sample: 12	4253 - AH-1 1'-	1.5'							
Analysis	BTEX		Analytical N	vlethod:	S 8021B		Prep Me	ethod	S 503
QC Batch:	37359		Date Analys		2007-05-17		Analyze		AG
Prep Batch:	32392		Sample Pre		2007-05-17		Prepare		AG
			RI						
Parameter	Fl	ag	Result		Units		Dilution		R
Benzene			< 0.0100		mg/Kg		1		0.010
Toluene			< 0.0100		mg/Kg		1		0.010
Ethylbenzene	Ţ.		< 0.0100		mg/Kg		1		0.010
Xylene			0.254	<u> </u>	mg/Kg		1		0.010
						Spike	Percent	Rec	covery
Surrogate		Flag	Result	Units	Dilution	Amount	Recovery		mits
								_ ^	3 4 19 6
			0 774	mg/Kg	1	1.00	77		
	ene (TFT) robenzene (4-BFB)	0 774 0.736	mg/Kg mg/Kg	1 1	1.00	77 74		
4-Bromofluor Sample: 12- Analysis: QC Batch Prep Batch	4253 - AH-I 1'- Chloride (IC) 37430 32457	1.5'	0.736 Analytr Date A Sample RL	mg/Kg	d· E 300.0 2007-05-22 on· 2007-05-22		74 Prep l Analy Prepa		- 119. : N/A ER ER
4-Bromofluor Sample: 12- Analysis: QC Batch: Prep Batch:	4253 - AH-1 1'- Chloride (IC) 37430	1.5'	0.736 Analytr Date A Sample RL Result	mg/Kg cal Methonalyzed	1 d· E 300.0 2007-05-22 on· 2007-05-22 Units		74 Prep l Analy Prepa Dilution	51 1 Method zed By	- 119. : N/A ER ER
	4253 - AH-I 1'- Chloride (IC) 37430 32457	1.5'	0.736 Analytr Date A Sample RL	mg/Kg cal Methonalyzed	d· E 300.0 2007-05-22 on· 2007-05-22		74 Prep l Analy Prepa	51 1 Method zed By	- 119. : N/A ER ER
4-Bromofluor Sample: 12- Analysis: QC Batch: Prep Batch: Parameter Chloride	robenzene (4-BFB 4253 - AH-1 1'- Chloride (IC) 37430 32457 Flag	1.5'	O.736 Analyti Date A Sample RL Result 20.2	mg/Kg cal Metho nalyzed Preparato	1 d· E 300.0 2007-05-22 on· 2007-05-22 Units mg/Kg		74 Prep l Analy Prepa Dilution	51 1 Method zed By red By:	- 119. : N/. ER ER R
4-Bromofluor Sample: 12- Analysis- QC Batch- Prep Batch- Parameter Chloride Sample: 12- Analysis	robenzene (4-BFB 4253 - AH-1 1'- Chloride (IC) 37430 32457 Flag 4253 - AH-1 1'- TPH DRO	1.5'	Analytica Analytica Analytica	mg/Kg cal Metho nalyzed Preparate	1 d· E 300.0 2007-05-22 on· 2007-05-22 Units mg/Kg Mod. 8015B		74 Prep 1 Analy Prepa Dilution 5	51 1 Method zed By: red By:	- 119. : N/. : R ER : R 1.0
4-Bromofluor Sample: 12- Analysis QC Batch Prep Batch Parameter Chloride Sample: 12- Analysis QC Batch.	robenzene (4-BFB 4253 - AH-1 1'- Chloride (IC) 37430 32457 Flag 4253 - AH-1 1'- TPH DRO 37279	1.5'	Analytica Date Analytica Date Ana	mg/Kg cal Metho nalyzed Preparate	1 d· E 300.0 2007-05-22 on· 2007-05-22 Units mg/Kg Mod. 8015B 2007-05-16		Prep 1 Analy Prepa Dilution 5	51 1 Method zed By: Method zed By:	- 119. : N/. ER ER 1.0
4-Bromofluor Sample: 12- Analysis QC Batch Prep Batch Parameter Chloride Sample: 12- Analysis QC Batch.	robenzene (4-BFB 4253 - AH-1 1'- Chloride (IC) 37430 32457 Flag 4253 - AH-1 1'- TPH DRO	1.5'	Analytica Date Analytica Date Ana	mg/Kg cal Metho nalyzed Preparate	1 d· E 300.0 2007-05-22 on· 2007-05-22 Units mg/Kg Mod. 8015B 2007-05-16		Prep 1 Analy Prepa Dilution 5	51 1 Method zed By: red By:	- 119. : N/. ER ER 1.0
4-Bromofiuor Sample: 12- Analysis QC Batch Prep Batch Parameter Chloride Sample: 12- Analysis QC Batch. Prep Batch:	### Chloride (IC) ### AP-1 1'- Chloride (IC) ### 37430 ### 32457 ### Flag ### 4253 - AH-1 1'- TPH DRO ### 37279 ### 32303	1.5'	Analytica Date Analytica Date Analytica Sample P	mg/Kg cal Metho nalyzed Preparate	1 d· E 300.0 2007-05-22 on· 2007-05-22 Units mg/Kg Mod. 8015B 2007-05-16 : 2007-05-16		Prep I Analy Prepa Dilution Prep I Analy Prepa	51 1 Method zed By: Method zed By:	- 119. : N/. ER ER 1.0
4-Bromofluor Sample: 12- Analysis QC Batch Prep Batch Parameter Chloride Sample: 12- Analysis QC Batch. Prep Batch:	robenzene (4-BFB 4253 - AH-1 1'- Chloride (IC) 37430 32457 Flag 4253 - AH-1 1'- TPH DRO 37279	1.5'	Analytica Date A Sample RL Result 20.2 Analytica Date Ana Sample P RL Result	mg/Kg cal Metho nalyzed Preparate	1 d· E 300.0 2007-05-22 on· 2007-05-22 Units mg/Kg Mod. 8015B 2007-05-16 : 2007-05-16		Prep l Analy Prepa Dilution Prep l Analy Prepa Dilution	51 1 Method zed By: Method zed By:	- 119 - N/. ER ER 1.0 N/. AG MS
4-Bromofluor Sample: 12- Analysis QC Batch Prep Batch Parameter Chloride Sample: 12- Analysis QC Batch. Prep Batch:	### Chloride (IC) ### AP-1 1'- Chloride (IC) ### 37430 ### 32457 ### Flag ### 4253 - AH-1 1'- TPH DRO ### 37279 ### 32303	1.5'	Analytica Date Analytica Date Analytica Sample P	mg/Kg cal Metho nalyzed Preparate	1 d· E 300.0 2007-05-22 on· 2007-05-22 Units mg/Kg Mod. 8015B 2007-05-16 : 2007-05-16		Prep I Analy Prepa Dilution Prep I Analy Prepa	51 1 Method zed By: Method zed By:	- 119 N/. ER ER 1.0
4-Bromofluor Sample: 12- Analysis: QC Batch: Prep Batch: Parameter Chloride	### Chloride (IC) ### AP-1 1'- Chloride (IC) ### 37430 ### 32457 ### Flag ### 4253 - AH-1 1'- TPH DRO ### 37279 ### 32303	1.5'	Analytica Date A Sample RL Result 20.2 Analytica Date Ana Sample P RL Result	mg/Kg cal Metho nalyzed Preparation	1 d· E 300.0 2007-05-22 on· 2007-05-22 Units mg/Kg Mod. 8015B 2007-05-16 : 2007-05-16 Units mg/Kg Sp		Prep l Analy Prepa Dilution Prep l Analy Prepa Dilution	Method zed By: Method zed By: Method zed By: red By:	ER ER 1.0

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Sample: 124253 - AH-1 1'-1.5'

TPH GRO Analysis QC Batch: 37360 Prep Batch 32392

Analytical Method: S 8015B Date Analyzed 2007-05-17 Sample Preparation: 2007-05-17

S 5035 Prep Method· Analyzed By: AG Prepared By. AG

		RL	
rameter	Flao	Regult	

Parameter	$\operatorname{Flag}_{___}$	Result	Units	Dilution	RL
GRO		1.25	mg/Kg	1	1.00

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.786	${ m mg/Kg}$	1	1 00	79	52.4 - 123 7
4-Bromofluorobenzene (4-BFB)		1.02	${ m mg/Kg}$	1	1.00	102	67.5 - 140 3

Sample: 124254 - AH-1 2'-2.5'

Analysis:	Chloride (IC)
QC Batch.	37430
Prep Batch.	32457

Analytical Method: $\to 300.0$ Date Analyzed. 2007-05-22 Sample Preparation. 2007-05-22 Prep Method: N/A Analyzed By: ERPrepared By ER

		RL
arameter	Flag	Result

Parameter	Flag	Result	Units	Dilution	RL
Chloride		696	mg/Kg	50	1.00

Sample: 124255 - AH-1 3'-3.5'

Analysis:	Chloride (IC)
QC Batch	37429
Prep Batch	32456

Analytical Method: E 300.0 Date Analyzed: 2007-05-22 Sample Preparation: 2007-05-22

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

		R.L			
Parameter	Flag	Result	Units	$\mathbf{Dilution}$	RL
Chloride		169	m mg/Kg	5	1.00

Sample: 124256 - AH-2 0-1'

Analysis.	BTEX	Analytical Metho
QC Batch:	37359	Date Analyzed
Prep Batch:	32392	Sample Preparat

od. S 8021B Prep Method· S 5035 2007-05-17 Analyzed By-AG tion 2007-05-17 Prepared By AG

		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		0.165	mg/Kg	1	0.0100

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1 00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0.770	mg/Kg	1	1.00	77	26 - 117.8
4-Bromofluorobenzene (4-BFB)		0.775	${ m mg/Kg}$	1	1.00	78	51.1 - 119 1

Sample:	124256 -	AH-2 0-1'
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Analysis.	Chloride (IC)	Analytical Method [.]	E 300.0	Prep Method:	N/A
QC Batch	37430	Date Analyzed [.]	2007-05-22	Analyzed By.	ER
Prep Batch	32457	Sample Preparation [.]	2007-05-22	Prepared By	ER
Parameter	Flag	RL Result	Units	Dilution	RL

mg/Kg

8.98

Sample: 124256 - AH-2 0-1'

Chloride

Analysis QC Batch. Prep Batch:		Analytical Method: Date Analyzed: Sample Preparation	2007-05-16	Prep Method Analyzed By Prepared By:	ÁĞ
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Parameter	Flag	RL Result	Units	Dilution	RL
DRO		< 50.0	mg/Kg	1	50 0
					_

					$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane		135	mg/Kg	1	150	90	61.7 - 143.2

Sample: 124256 - AH-2 0-1'

Analysis [.]	TPH GRO	Analytical Method	S 8015B	Prep Method·	S 5035
QC Batch:	37360	Date Analyzed	2007-05-17	Analyzed By:	AG
Prep Batch:	32392	Sample Preparation	2007-05-17	Prepared By	AG

		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)		0.785	m mg/Kg	1	1.00	78	52.4 - 123.7
4-Bromofluorobenzene (4-BFB)		1.04	${ m mg/Kg}$	1	1.00	104	67.5 - 140.3

Sample: 124257 - AH-2 1'-1.5'

Analysis:	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	N/A
QC Batch	37430	Date Analyzed:	2007-05-22	Analyzed By	$\mathbf{E}\mathbf{R}$
Prep Batch:	32457	Sample Preparation:	2007-05-22	Prepared By:	$\mathbf{E}\mathbf{R}$

Report Date: May 24, 2007 3012

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		RL			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		15.8	mg/Kg	1	1 00

Sample: 124258 - AH-2 2'-2.5'

Analysis:	Chloride (IC)	Analytical Method	E 300.0	Prep Method.	N/A
QC Batch	37430	Date Analyzed	2007-05-22	Analyzed By	ER
Prep Batch	32457	Sample Preparation:	2007-05-22	Prepared By:	ER

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		7.82	mg/Kg	5	1.00

Sample: 124259 - AH-3 0-1'

Analysis QC Batch Prep Batch		Analytical Method: Date Analyzed Sample Preparation	2007-05-17	Prep Method: Analyzed By: Prepared By.	AG
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		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	m mg/Kg	1	0.0100
Xylene		0.126	mg/Kg	1	0.0100

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		0.771	${ m mg/Kg}$	1	1.00	77	26 - 117.8
4-Bromofluorobenzene (4-BFB)		0.772	${ m mg/Kg}$	1	1.00	77	51.1 - 119.1

Sample: 124259 - AH-3 0-1

Analysis. QC Batch Prep Batch	Chloride (IC) 37430 32457	Analytical Method: Date Analyzed: Sample Preparation.	E 300.0 2007-05-22 2007-05-22	Prep Method Analyzed By Prepared By	N/A ER ER
		RL			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		418	mg/Kg	50	1.00

Sample: 124259 - AH-3 0-1'

Analysis:	TPH DRO	Analytical Method	Mod. 8015B	Prep Method·	N/A
QC Batch:	37279	Date Analyzed:	2007-05-16	Analyzed By:	AG
Prep Batch	32303	Sample Preparation:	2007-05-16	Prepared By:	MS

Parameter	Flag	•	$ m RL \ Result$		Units		Dilution	RL
DRO		·	2060	 	mg/Kg		1	50.0
	T71	D 1:	**	75.17		Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilu		mount	Recovery	Limits
n-Triacontane		594	mg/Kg			150	396	61.7 - 143.2
Sample: 12425	59 - AH-3 0-1	ι,						
Analysis T	PH GRO		Analytical	l Method	S 8015B		Prep Me	ethod: S 5035
	7360		Date Anal		2007-05-17		Analyze	
Prep Batch: 32	2392		Sample Pr	reparation.	2007-05-17		Prepare	d By AG
			RL					
Parameter	Flag	ŗ	Result		Units		Dilution	RL
GRO		2	1.11		mg/Kg		1	1.00
	-		· · · · · · · · · · · · · · · · · · ·		<u> </u>	~ ·-		
C		TU	D = - 3/	TT 17	Du e	Spike	Percent	Recovery
Surrogate Trifluorotoluene	(TDDT)	Flag	Result 0.789	Units	Dilution 1	Amount 1.00	Recovery 79	Limits 52.4 - 123.7
4-Bromofluorobe)	1.02	mg/Kg mg/Kg	1	1.00	102	67.5 - 140.3
-		1.5'	Analytical N	√ethod: !	S 8021B		Pren Ma	uthod: S 5035
Analysis: B' QC Batch: 37	TEX 7359	1.5'	Analytical M Date Analyz Sample Pres	zed :	S 8021B 2007-05-17 2007-05-17		Prep Me Analyze Prepare	d By: AG
Analysis: B' QC Batch: 37	TEX	1.5'	Date Analyz Sample Prep	zed paration:				d By: AG
Analysis: B' QC Batch 37 Prep Batch 32	TEX 7359 2392		Date Analyz Sample Prep RL	zed : paration :	2007-05-17 2007-05-17		Analyze Prepare	d By: AG d By: AG
Analysis: B' QC Batch 37 Prep Batch 32 Parameter	TEX 7359		Date Analyz Sample Prep RL Result	zed :	2007-05-17 2007-05-17 Units		Analyze Prepare Dilution	d By: AG d By· AG RI
Analysis: B' QC Batch 37 Prep Batch 32 Parameter Benzene	TEX 7359 2392		Date Analyz Sample Prep RL Result <0.0100	zed : paration :	2007-05-17 2007-05-17 Units mg/Kg		Analyze Prepare Dilution	d By: AG d By: AG RL 0.0100
Analysis: B' QC Batch 37 Prep Batch 32 Parameter Benzene Toluene	TEX 7359 2392		Date Analyz Sample Prep RL Result <0.0100 <0.0100	zed : paration: : ;)	2007-05-17 2007-05-17 Umts mg/Kg mg/Kg	***************************************	Analyze Prepare Dilution 1 1	d By: AG d By: AG RL 0.0100 0.0100
Analysis: B' QC Batch 37 Prep Batch 32 Parameter Benzene Toluene Ethylbenzene	TEX 7359 2392		Date Analyz Sample Prep RL Result <0.0100	zed : paration : ; ;))	2007-05-17 2007-05-17 Units mg/Kg		Analyze Prepare Dilution	d By: AG d By: AG RL 0.0100
Analysis: B' QC Batch 37 Prep Batch 32 Parameter Benzene Toluene Ethylbenzene	TEX 7359 2392	ag	Date Analyz Sample Prep RL Result <0.0100 <0.0100 <0.0100	zed :	2007-05-17 2007-05-17 Units mg/Kg mg/Kg mg/Kg	Spike	Analyze Prepare Dilution 1 1 1	AG By: AG
Analysis: B' QC Batch: 37 Prep Batch: 32 Parameter Benzene Toluene Ethylbenzene Xylene Surrogate	TEX 7359 2392 Fi		Date Analyz Sample Prep RL Result <0.0100 <0.0100 <0.0547 Result	ved : paration : ;))) Units	2007-05-17 2007-05-17 Units mg/Kg mg/Kg mg/Kg	Amount	Analyze Prepare Dilution 1 1 1 1 Percent Recovery	AG By: AG By: AG RI 0.0100 0.0100 0.0100 Recovery Limits
Analysis: B' QC Batch 37 Prep Batch 32 Parameter Benzene Toluene Ethylbenzene Xylene Surrogate Trifluorotoluene	TEX 7359 2392 Fi:	ag Flag	Date Analyz Sample Prep RL Result <0.0100 <0.0100 <0.0547 Result 0.786	Units	2007-05-17 2007-05-17 Umts mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	Amount 1.00	Analyze Prepare Dilution 1 1 1 1 Percent Recovery 79	AG By: AG
Analysis: B' QC Batch 37 Prep Batch 32 Parameter Benzene Toluene Ethylbenzene Xylene Surrogate Trifluorotoluene 4-Bromofluorobe	TEX 7359 2392 Fh (TFT) enzene (4-BFB)	ag Flag	Date Analyz Sample Prep RL Result <0.0100 <0.0100 <0.0547 Result	ved : paration : ;))) Units	2007-05-17 2007-05-17 Umts mg/Kg mg/Kg mg/Kg mg/Kg	Amount	Analyze Prepare Dilution 1 1 1 1 Percent Recovery	AG By: AG By: AG RI 0.0100 0.0100 0.0100 Recovery Limits
Analysis: B' QC Batch 37 Prep Batch 32 Parameter Benzene Toluene Ethylbenzene Xylene Surrogate Trifluorotoluene 4-Bromofluorobe Sample: 12426	TEX 7359 2392 Flance (TFT) enzene (4-BFB)	ag Flag	Date Analyz Sample Prep RL Result <0.0100 <0.0100 0.0547 Result 0.786 0.769	Units mg/Kg mg/Kg	2007-05-17 2007-05-17 Umts mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg	Amount 1.00	Analyze Prepared Dilution 1 1 1 1 Percent Recovery 79 77	RI 0.0100 0.0100 0.0100 0.0100 Elimits 26 - 117.8 51.1 - 119
Analysis: B' QC Batch 37 Prep Batch 32 Parameter Benzene Toluene Ethylbenzene Xylene Surrogate Trifluorotoluene 4-Bromofluorobe Sample: 12426 Analysis: Cl	TEX 7359 2392 Flance (TFT) enzene (4-BFB) 60 - AH-3 1'-	ag Flag	Date Analyzi Sample Prep RL Result <0.0100 <0.0100 0.0547 Result 0.786 0.769	Units mg/Kg mg/Kg	2007-05-17 2007-05-17 Umts mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg 1 Dilution 1 1	Amount 1.00 1.00	Analyze Prepared Dilution 1 1 1 1 Percent Recovery 79 77	AG By: AG By: AG RI 0.0100 0.0100 0.0100 Recovery Limits 26 - 117.8 51.1 - 119
QC Batch: 37 Prep Batch: 32 Parameter Benzene Toluene Ethylbenzene Xylene Surrogate Trifluorotoluene 4-Bromofluorobe Sample: 12426 Analysis: Cl QC Batch: 37	TEX 7359 2392 Flance (TFT) enzene (4-BFB)	ag Flag	Date Analyzi Sample Prep RL Result <0.0100 <0.0100 0.0547 Result 0.786 0.769 Analytic Date An	Units mg/Kg mg/Kg	2007-05-17 2007-05-17 Units mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg 1 Dilution 1 1 E 300.0 2007-05-	Amount 1.00 1.00 22	Analyze Prepared Dilution 1 1 1 1 Percent Recovery 79 77	RECOVERY Limits 26 - 117.8 51.1 - 119.3
Analysis: B' QC Batch: 37 Prep Batch: 32 Parameter Benzene Toluene Ethylbenzene Xylene Surrogate Trifluorotoluene 4-Bromofluorobe Sample: 12426 Analysis: Cl QC Batch: 37	TEX 7359 2392 Flance (TFT) enzene (4-BFB) 60 - AH-3 1'- hloride (IC) 7430	ag Flag	Date Analyzi Sample Prep RL Result <0.0100 <0.0100 0.0547 Result 0.786 0.769 Analytic Date An	Units mg/Kg mg/Kg	2007-05-17 2007-05-17 Units mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg 1 Dilution 1 1 E 300.0 2007-05-	Amount 1.00 1.00 22	Analyze Prepared Dilution 1 1 1 1 Percent Recovery 79 77	d By: AG d By: AG d By: AG RI 0.0100 0.0100 0.0100 Recovery Limits 26 - 117.8 51.1 - 119.1
Analysis: B' QC Batch: 37 Prep Batch: 32 Parameter Benzene Toluene Ethylbenzene Xylene Surrogate Trifluorotoluene 4-Bromofluorobe Sample: 12426 Analysis: Cl QC Batch: 37	TEX 7359 2392 Flance (TFT) enzene (4-BFB) 60 - AH-3 1'- hloride (IC) 7430	Flag	Date Analyzi Sample Prep RL Result <0.0100 <0.0100 0.0547 Result 0.786 0.769 Analytic Date An Sample	Units mg/Kg mg/Kg	2007-05-17 2007-05-17 Units mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg 1 Dilution 1 1 E 300.0 2007-05-	Amount 1.00 1.00 22	Analyze Prepared Dilution 1 1 1 1 Percent Recovery 79 77	d By: AG d By: AG d By: AG RI 0.0100 0.0100 0.0100 Recovery Limits 26 - 117.8 51.1 - 119.1

¹High surrogate recovery due to peak interference.

Work Order. 7051626 Page Number: 9 of 18 Report Date: May 24, 2007 Pogo-Eva Blinebry Fed #19 injection well Lea County, NM 3012 Sample: 124260 - AH-3 1'-1.5' Analysis: TPH DRO Analytical Method: Mod 8015B Prep Method. N/A Analyzed By-QC Batch: 37279 Date Analyzed 2007-05-16 AG Prep Batch: 32303 Sample Preparation: 2007-05-16 Prepared By. MS RLFlag Parameter Result Units Dilution RLDRO 680 50 0 mg/Kg Spike Percent Recovery Flag Surrogate Result Units Dilution Amount Recovery Limits 61.7 - 143.2 n-Triacontane 833 mg/Kg 1 150 555 Sample: 124260 - AH-3 1'-1.5' Analysis. TPH GRO Analytical Method: Prep Method S 5035 S 8015B QC Batch: 37360 Date Analyzed 2007-05-17 Analyzed By: AGPrep Batch: 32392 Sample Preparation 2007-05-17 Prepared By: RLRLParameter Flag Result Units Dilution GRO < 1.00 1.00 mg/Kg Spike Percent Recovery Surrogate Flag Result Units Dilution Amount Recovery Limits Trifluorotoluene (TFT) 0.792 mg/Kg 1 1.00 79 52 4 - 123.7 102 4-Bromofluorobenzene (4-BFB) 1.02 mg/Kg1 1.00 67.5 - 140.3 Sample: 124261 - AH-3 2'-2.5' Analysis: Chloride (IC) Analytical Method $\to 300.0$ Prep Method· N/A QC Batch 37430 Date Analyzed 2007-05-22 Analyzed By. ERPrep Batch: 32457 Sample Preparation Prepared By: ER 2007-05-22 RLFlag Parameter Result Units Dilution RLChloride 1180 mg/Kg 100 1.00

Sample:	124262	-	AH-3	4'-4.5'
---------	--------	---	------	---------

Chloride

Analysis [.]	Chloride (IC)	Analytical Method:	E 300.0	Prep Method:	ÉR
QC Batch:	37432	Date Analyzed [.]	2007-05-23	Analyzed By.	
Prep Batch [.]	32458	Sample Preparation	2007-05-22	Prepared By:	
Parameter	Flac	RL Result	Units	Dilution	RI

mg/Kg

100

1.00

964

²High surrogate recovery due to peak interference

Report Date May 24, 2007 3012

Work Order: 7051626 Pogo-Eva Blinebry Fed #19 injection well Page Number: 10 of 18 Lea County, NM

Sample: 124263 - AH-3 5-5.5'

32458

Analysis Chloride (IC) QC Batch: 37432

Prep Batch.

Analytical Method:
Date Analyzed
Sample Preparation:

E 300.0 2007-05-23 2007-05-22 Prep Method N/A Analyzed By: ER Prepared By: ER

RL Poult

Method Blank (1) QC Batch: 37279

QC Batch 37279 Prep Batch 32303 Date Analyzed 2007-05-16 QC Preparation 2007-05-16 Analyzed By: AG Prepared By: MS

MDL Payelter Payelt

Spike Percent Recovery Flag Units Limits Surrogate Result Dilution Amount Recovery n-Triacontane 126 mg/Kg 150 84 61.7 - 143.2 1

Method Blank (1) QC Batch: 37359

QC Batch: 37359 Prep Batch: 32392 Date Analyzed: 2007-05-17 QC Preparation: 2007-05-17 Analyzed By: AG Prepared By: AG

MDL Flag **Units** Parameter Result RLBenzene < 0.00110 mg/Kg 0.01 Toluene < 0.00150 mg/Kg 0.01 Ethylbenzene < 0.00160 mg/Kg 0.01Xylene < 0.00410 mg/Kg 0.01

Spike Percent Recovery Flag Recovery Surrogate Units Dilution Result Amount Limits Trifiuorotoluene (TFT) 0.764 mg/Kg 1 00 76 62.6 - 117.6 1 4-Bromofluorobenzene (4-BFB) 0.6901.00 69 mg/Kg 1 53.9 - 125.1

Method Blank (1) QC Batch: 37360

QC Batch: 37360 Prep Batch: 32392

GRO

Date Analyzed: 2007-05-17 QC Preparation: 2007-05-17

Analyzed By AG Prepared By AG

Parameter Flag MDL Result

 Result
 Units
 RL

 <0.739</td>
 mg/Kg
 1

Work Order: 7051626 Pogo-Eva Blinebry Fed. #19 mjection well Page Number: 11 of 18 Lea County, NM

C	Dlag	Dogult	Units	ıp:	lution	Spike	Percent	Reco Lim	
Surrogate Trifluorotoluene (TFT)	Flag	Result 0.884	ing/K		1	Amount 1.00	Recovery 88	52.4 -	
4-Bromofluorobenzene (/_RFR)	0.910	$\frac{mg/K_0}{mg/K_0}$		1 1	1.00	91	67.5 -	
4-Diomondorobenzene (0.310	mg/10	5	1	1.00	J1	01.0	140.0
Method Blank (1)	QC Batch: 37429								
QC Batch: 37429		Date Ar	nalyzed	2007-03	5-22		Anal	yzed By	ER
Prep Batch. 32456			paration:	2007-03	5-22			ared By:	ER
_	T)			DL		**			D.T.
Parameter	Flag		Res			Unit			RL
Chloride		nns.#3114527 5. 1 .	<0	140		mg/I	\sq		1
Method Blank (1)	QC Batch: 37430								
QC Batch: 37430		Date Ar	nalyzed:	2007-03	5-22		Anal	yzed By	ER
Prep Batch 32457			paration	2007-0	5-22			ared By:	ER
_				DL		** .			
Parameter Chloride	Flag		Result < 0.140			Unit			$\frac{RL}{1}$
Cinoria			<u> </u>	140		mg/I	18		1
Method Blank (1)	QC Batch 37432								
QC Batch: 37432		Date Ar	nalyzed:	2007-0	5-23		Anal	yzed By	ER
Prep Batch: 32458		QC Pre	paration.	2007-0	5-22			ared By:	ER
_				DL					
Parameter	Flag		Res			Unit			RL
Chloride			<0.	140		mg/l	/vg	, · , <u> , , , , , , , , , , , , , , , , ,</u>	1
Laboratory Control	Spike (LCS-1)								
QC Batch 37279		Date Ar		2007-0	5-16		Anal	yzed By:	AG
Prep Batch: 32303			paration.	2007-08	5-16			ared By:	
	LC	S			Spike	Matri	х	Re	ec.
Param	Res	ult (Jnits,	Dil.	Amoun	t Resul	t Rec.	Lir	mit
DRO	18	G m	ıg/Kg	1	250	<13.4	1 74	00.5	135.4

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

Units

Dil.

1

Spike

Amount

250

Matrix

Result

<13.4

Rec

81

Rec.

Limit

62.5 - 135.4

RPD

Limit

20

RPD

8

LCSD

Result

202

Param

DRO

Work Order 7051626 Pogo-Eva Blinebry Fed #19 injection well Page Number: 12 of 18 Lea County, NM

	LCS	LCSD			Spike	LCS	LCSD	Rec
Surrogate	Result	Result	Units	Dil	Amount	Rec	Rec	Limit
n-Triacontane	132	143	m mg/Kg	1	150	88	95	66.6 - 140.9

Laboratory Control Spike (LCS-1)

QC Batch 37359 Prep Batch 32392 Date Analyzed: 2007-05-17 QC Preparation: 2007-05-17 Analyzed By AG Prepared By AG

	LCS			Spike	Matrix		Rec
Param	Result	Units	Dil.	Amount	Result	Rec	Limit
Benzene	0.900	mg/Kg	1	1.00	< 0.00110	90	68.6 - 123 4
Toluene	0.924	${ m mg/Kg}$	1	1.00	< 0.00150	92	74.6 - 119.3
Ethylbenzene	0.919	${ m mg/Kg}$	1	1 00	< 0 00160	92	72.3 - 126 2
Xylene	2.80	mg/Kg	1	3.00	< 0 00410	93	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.	$_{ m Limit}$	RPD	Limit
Benzene	0.891	mg/Kg	1	1.00	< 0.00110	89	68.6 - 123.4	1	20
Toluene	0.922	mg/Kg	1	1.00	< 0.00150	92	74.6 - 119.3	0	20
Ethylbenzene	0.912	mg/Kg	1	1.00	< 0.00160	91	72.3 - 126.2	1	20
Xylene	2.78	mg/Kg	1	3.00	< 0.00410	93	76.5 - 121.6	1	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)	0.729	0.711	mg/Kg	1	1.00	73	71	64.1 - 118.2
4-Bromofluorobenzene (4-BFB)	0.750	0.740	${ m mg/Kg}$	1	1.00	75	74	68.7 - 125.8

Laboratory Control Spike (LCS-1)

QC Batch: 37360 Prep Batch: 32392 Date Analyzed: 2007-05-17 QC Preparation: 2007-05-17 Analyzed By: AG Prepared By: AG

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	7.87	mg/Kg	1	10.0	< 0.739	79	57.7 - 102.5

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
GRO	7.26	mg/Kg	1	10.0	< 0.739	73	57.7 - 102.5	8	20

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

Surrogate	LCS Result	$\begin{array}{c} { m LCSD} \\ { m Result} \end{array}$	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.13	0.798	mg/Kg	1	1.00	113	80	36.8 - 152.5
4-Bromofluorobenzene (4-BFB)	0.992	0.996	mg/Kg	1	1.00	99	100	70 - 130

Report Date: May 24, 2007

Work Order 7051626 Pogo-Eva Blinebry Fed #19 injection well Page Number: 13 of 18 Lea County, NM

Laboratory Control Spike (LCS-1)

QC Batch

3012

37429 32456 Date Analyzed

2007-05-22

Analyzed By

Prep Batch:

QC Preparation

2007-05-22

Prepared By

ER

ER

	LCS			Spike	Matrix		Rec
Param	Result	Units	Dil	Amount	Result	Rec.	Lunit
Chloride	12.2	mg/Kg	1	12.5	< 0.140	98	90 - 110

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
Chloride	12.9	mg/Kg	1	12 5	< 0 140	103	90 - 110	6	20

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

Laboratory Control Spike (LCS-1)

QC Batch 37430 Prep Batch: 32457

Date Analyzed:

2007-05-22 QC Preparation: 2007-05-22 Analyzed By-ER

Prepared By ER

	LCS			Spike	Matrix		Rec
Param	Result	$_{ m Units}$	Dil.	Amount	Result	Rec	Limit
Chloride	12.2	mg/Kg	1	12.5	< 0.140	98	90 - 110

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
Chloride	12.8	${ m mg/Kg}$	1	12.5	< 0.140	102	90 - 110	5	20

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

Laboratory Control Spike (LCS-1)

QC Batch Prep Batch: 32458

37432

Date Analyzed: QC Preparation:

2007-05-23 2007-05-22

Analyzed By. ER Prepared By: ER

LCS Spike Matrix Rec Param Result Dil. Units Amount Result Rec Limit Chloride 12.3 mg/Kg 1 12.5< 0.140 98 90 - 110

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.	Lımit	RPD	Limit
Chloride	12.0	mg/Kg	1	12.5	< 0.140	96	90 - 110	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: 124253

QC Batch 37279 Prep Batch: 32303 Date Analyzed: QC Preparation: 2007-05-16

2007-05-16

Analyzed By. AG Prepared By: MS

QC Batch:

Prep Batch: 32392

37360

Worl: Order: 7051626 Pogo-Eva Blinebry Fed #19 injection well Page Number. 14 of 18 Lea County NM

Analyzed By: AG

Prepared By AG

3012	12 Pogo-Eva Blinebry Fed #19 injection well									ıty, NM
	N	ıs .			Spik	e Ma	atrix		I	Rec
Param	Re	sult	Units	Dil.	Amou	nt Re	esult	Rec		ımit
DRO	3	61	mg/Kg	1	250	<	13.4	144	29.7	- 168 6
Percent recovery is based on t	the spike resul	t. RPD i	s based	on the spike	e and spi	ke duplica	te resul	t		
	MSD			Spike	Matr	ix		lec.		RPD
Param	Result	Units	Dil	Amount				init	RPD	Limit
DRO	400	$ m mg/K_l$	g 1	250	<13.	4 160	29 7	- 168.6	10	20
Percent recovery is based on t	the spike resul	t RPD i	s based	on the spike	e and spi	ke duplica	te resul	t		
N	IS MS	D			Spik	e M	IS	MSD	I	Rec.
	sult Res		Units	Dil.	Amou		ec.	Rec		imit
n-Triacontane 1	32 14	4 r	ng/Kg	1	150	8	38	96	43 4	- 193.9
QC Batch: 37359 Prep Batch. 32392	M	QC Pi	Analyzec reparatio			Ν 4	tris		yzed By ared By	· AG
Param	Res		Units	Dil.	Spike Amoun		trix sult	Rec.		Rec imit
Benzene	0.9		ng/Kg	1	1 00		0110	90		- 115.7
Toluene	0.9		ng/Kg	1	1.00		0150	95		- 124 4
Ethylbenzene	0.0		ng/Kg	1	1.00	< 0.0	0160	97		- 125.8
Xylene	3	07 r	ng/Kg	1	3.00	0.3	165	97	65.2	- 121.8
Percent recovery is based on t	the spike resul	t. RPD i	s based	on the spike	e and spi	ke duplica	te resul	t.		
	MSD			Spike	Matri		I	Rec		RPD
Param	Result	Units	Dil.	Amount	Resul			imit	RPD	Limit
Benzene	0.905	mg/Kg		1.00	< 0.001			- 115.7	0	20
Toluene	0.954	mg/Kg		1.00	< 0.001			- 124.4	0	20
Ethylbenzene	0.978	mg/Kg		1.00	< 0.001			- 125.8	0	20
Xylene	3.05	mg/Kg	······	3.00	0.16			- 121.8	1	20
Percent recovery is based on t	-		s based (on the spike	e and spi	ke duplica	te resul	t		
Cumo mata			MSD	Tluiro	D :1	Spike	MS	MSD		Rec
Surrogate Trifluorotoluene (TFT)			esult 700	Units mg/Kg	Dil 1	Amount 1	Rec.	Rec 70		imit - 121.7
4-Bromofluorobenzene (4-BFF			1.778	mg/Kg mg/Kg	1	1	78	70 78		- 131.9
				***********						101

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	7.54	${ m mg/Kg}$	1	10.0	1.94	56	10 - 141.5

QC Preparation. 2007-05-17

2007-05-17

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

Date Analyzed:

Report Date: May 24, 2007

3012

Work Order: 7051626 Pogo-Eva Blinebry Fed. #19 injection well

MSD RPDSpike Matrix Rec. Di! Limit RPD Param Result Units Amount Result Rec Limit GR.O 6.80 10.0 1.94 49 10 - 141.5 10 20 mg/Kg

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)	0.659	0.692	mg/Kg	1	1	66	69	40 - 125.3
4-Bromofluorobenzene (4-BFB)	1.05	1.12	mg/Kg	1	1	105	112	86.7 - 144.5

Matrix Spike (MS-1) Spiked Sample: 124255

QC Batch 37429 Prep Batch: 32456 Date Analyzed 2007-05-22 QC Preparation: 2007-05-22 Analyzed By: ER Prepared By: ER

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Lea County, NM

MS Spike Matrix Rec. Param Result Units Dil Amount Result Rec. Limit 62.5Chloride 388 mg/Kg 169.283 350 75.6 - 117

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

MSD Spike Matrix Rec. RPD Result Units Dil Amount Result Limit RPD Param Rec. Limit 275 62.5 169.283 Chloride mg/Kg 169 75.6 - 117 34 20 5

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

Matrix Spike (MS-1) Spiked Sample: 124326

QC Batch: 37430 Prep Batch: 32457 Date Analyzed: 2007-05-22 QC Preparation: 2007-05-22

Analyzed By: ER Prepared By: ER

MS Spike Matrix Rec Param Result Units Dil. Amount Result Rec. Limit Chloride 234 mg/Kg 5 62.5 100.375214 75 6 - 117

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	6	195	${ m mg/Kg}$	ŏ	62.5	100.375	151	75.6 - 117	18	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: 124333

QC Batch: 37432 Prep Batch: 32458 Date Analyzed: 2007-05-23 QC Preparation: 2007-05-22 Analyzed By: ER Prepared By: ER

³Matrix spike recovery out of control limits due to peak interference Use LCS/LCSD to demonstrate analysis is under control.

⁴Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

⁶Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

Report Date: May 24, 2007

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Work Order: 7051626 Pogo-Eva Blinebry Fed. #19 injection well Page Number: 16 of 18 Lea County, NM

	MS			Spike	Matrix		Rec
Param	Result	Units	Dil	Amount	Result	Rec	$_{ m Limit}$
Chloride	⁷ 549	mg/Kg	50	625	224.831	52	75.6 - 117

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	8	540	mg/Kg	50	625	224.831	50	75.6 - 117	2	20

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

Standard (CCV-2)

QC Batch: 37279

Date Analyzed: 2007-05-16

Analyzed By: AG

			$rac{ ext{CCVs}}{ ext{True}}$	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	$\mathbf{U}\mathbf{m}\mathbf{t}\mathbf{s}$	Conc	Conc	Recovery	Limits	Analyzed
DRO	<u> </u>	mg/Kg	250	253	101	85 - 115	2007-05-16

Standard (CCV-3)

QC Batch: 37279

Date Analyzed: 2007-05-16

Analyzed By: AG

			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	286	114	85 - 115	2007-05-16

Standard (ICV-1)

QC Batch: 37359

Date Analyzed: 2007-05-17

Analyzed By: AG

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene	<u> </u>	mg/Kg	0.100	0.0891	89	85 - 115	2007-05-17
Toluene		${ m mg/Kg}$	0.100	0.0920	92	85 - 115	2007-05-17
Ethylbenzene		${ m mg/Kg}$	0.100	0.0933	93	85 - 115	2007-05-17
Xylene		mg/Kg	0.300	0.284	95	85 - 115	2007-05-17

Standard (CCV-1)

QC Batch: 37359

Date Analyzed: 2007-05-17

Analyzed By: AG

_	_		CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	$\operatorname{Recovery}$	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0898	90	85 - 115	2007-05-17
Toluene		mg/Kg	0.100	0.0924	92	85 - 115	2007-05-17

continued ...

⁷Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.
⁸Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

Report Date May 24, 2007 3012			Work Order 7051626 Pogo-Eva Blinebry Fed #19 mjection well			Page Number 17 of 18 Lea County. NM		
standard co	ontinued .							
			CCVs	$_{ m CCVs}$	CCVs	Percent	ъ.	
D	171	TI: 4.0	True	Found Conc	Percent	Recovery Limits	Date	
Paranı Ethylbenze	Flag	Units mg/Kg	Conc. 0.100	0.0900	Recovery 90	85 - 115	Analyzed 2007-05-17	
zanymenze Xylene	ne	$\frac{mg}{Kg}$	0.100	0.0900 0.273	90 91	85 - 115	2007-05-17	
Standard	(ICV-1)							
QC Batch 37360			Date Analyzed: 2007-05-17			Analyzed By: AG		
			ICVs	ICVs	ICVs	Percent		
			True	Found	Percent	Recovery	$_{ m Date}$	
Param	Flag	Units	Conc	Conc	Recovery	Limits	Analyzed	
GRO		mg/Kg	1.00	1.04	104	85 - 115	2007-05-17	
Standard	(CCV-1)							
QC Batch:	37360		Date Anal	yzed 2007-05	-17	Anal	yzed By: AG	
			CCVs	CCVs	CCVs	Percent		
			True	Found	Percent	Recovery	Date	
Param	Flag	Units	Conc	Conc.	Recovery	Limits	Analyzed	
GRO		ıng/Kg	1.00	1.03	103	85 - 115	2007-05-17	
0	(1037.1)							
Standard	,							
QC Batch	37429		Date Anal	yzed 2007-05	-22	Anal	yzed By. ER	
			ICVs	ICVs	ICVs	Percent		
-			True	Found	Percent	Recovery	Date	
Param	Flac	Linits	Conc	Conc	Recovery	Limits	Analyzed	

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc	Recovery	Limits	Analyzed
Chloride		$_{ m mg/Kg}$	12.5	11.8	94	90 - 110	2007-05-22
							

Standard (CCV-1)				
QC Batch 37429	Date Analyz	ed 2007-05-22		Analyzed By. ER
	CCVs	CCVs	CCVs	Percent

			$rac{ ext{CCVs}}{ ext{True}}$	${ m CCVs}$ Found	${ m CCVs} \ { m Percent}$	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc	Recovery	Limits	Analyzed
Chloride		mg/Kg	12.5	11.9	95	90 - 110	2007-05-22

Standard (IC	CV-1)		
QC Batch: 37	7430	Date Analyzed	2007-05-22

QC Batch	37430		Date Ana	lyzed 2007-05	5-22	Anal	yzed By ER	
			ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date	
Param	Flag	Units	Conc.	Conc	Recovery	Limits	Analyzed	
Chloride		mg/Kg	12.5	11.9	95	90 - 110	2007-05-22	

Report Date: May 24, 2007 3012			rk Order: 7051 lebry Fed #19		Page Number: 18 of Lea County, N		
Standard	(CCV-1)						
QC Batch	37430		Date Anal	lyzed 2007-05	5-22	Anal	yzed By· ER
Param	Flag	Units	CCVs True Conc	CCVs Found Conc	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		${ m mg/Kg}$	12.5	11.8	94	90 - 110	2007-05-22
Standard (ICV-1) QC Batch: 37432		Date Analyzed: 2007-05-23			Analyzed By: ER		
Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	12.5	11.8	94	90 - 110	2007-05-23
Standard	(CCV-1)						
Standard QC Batch	,		Date Anal	lyzed· 2007-03	5-23	Anal	yzed By: ER
	,	Units	Date Anal CCVs True	lyzed 2007-03 CCVs Found Conc	5-23 CCVs Percent	Anal Percent Recovery Limits	yzed By: ER Date

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CONTACT:

SAMPLE CONDITION WHEN RECEIVED:

124252-65 work order: 7051626 Analysis Request and Chain of Custody Record PAGE: ANALYSIS REQUEST (Circle or Specify Method No.) HIGHLANDER ENVIRONMENTAL CORP. Se 1910 N. Big Spring St. TXI 005 Hg Hg Midland, Texas 79705 Pd Pd Fax (432) 682-3946 8 8 (432) 682-4559 हु हु SITE MANAGER: The Tavarez CLIENT NAME: PRESERVATIVE P090 **METHOD** PROJECT NO .: PROJECT NAME: GC.MS Seml. Vol. Gemma Spec. Alpha Beta (Air) Pago- Eva Blinebry Fed. 419 Injuell 3012 73S, pH, MATRIX COMP. GRAB LAB I.D. SAMPLE IDENTIFICATION DATE TIME HINOS NONE NUMBER ICE 124257 5-14-07 253 255 256 260 SAMPLED BY: (Print & Sign) JEREMY + KDH RELINQUISHED BY: (Signature) RECEIVED BY: (Signature) RELINGUISHED BY: (Signature) SAMPLE SHIPPED BY: (Circle) Date: RECEIVED BY: (Signature) AIRBILL # HAND DELIVERED OTHER: RELINQUISHED BY: (Signature) RECEIVED BY: (Signature) Results by: THE COLUMN HIGHLANDER CONTACT PERSON: RECEIVED BY: (Signature)/ RECEIVING LABORATORY: TRACE RUSH Charges ADDRESS: _ Authorized: CITY:

Chloride - Lubbock 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

SD-Solid

5.16.07

A-Air

SL-Sludge

MATRIX:

W-Water

WOA 7051626

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Please Fill out all copies - Laborator

Work Order: 7061331 Pogo-Eva Blinebry Fed #19 mjection well Page Number: 1 of 1 Lea County, NM

Summary Report

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

Report Date: June 19, 2007

Work Order 7061331

Project Location: Lea County, NM

Project Name: Pogo-Eva Blinebry Fed #19 injection well

Project Number: 3012

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
$\overline{127255}$	AH-3A (0-0.1) BEB (1.0')	soil	2007-06-08	00:00	2007-06-13

	TPH DRO	TPH GRO
	DRO	GRO
Sample - Field Code	(mg/Kg)	(mg/Kg)
127255 - AH-3A (0-0.1) BEB (1.0')	< 50.0	<1 00

6701 Aberdeen Avenue, Suite 9 200 East Sunset Road, Suite E 5002 Basın 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

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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 June 19, 2007

7061331

Work Order

Project Location. Lea County, NM

Project Name Pogo-Eva Blinebry Fed. #19 injection well

Project Number: 3012

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

Date TimeDate Sample Description Matrix Taken Taken Received 2007-06-08 127255AH-3A (0-0.1) BEB (1.0') soil 00:00 2007-06-13

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 6 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis. Inc.

Standard Flags

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

Case Narrative

Samples for project Pogo-Eva Blinebry Fed #19 injection well were received by TraceAnalysis, Inc. on 2007-06-13 and assigned to work order 7061331. Samples for work order 7061331 were received intact at a temperature of 4 deg C.

Samples were analyzed for the following tests using their respective methods

Test	Method
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 7061331 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 performed with each preparation batch to ensure data integrity.

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

Report Date. June 19, 2007 3012

Work Order 7061331 Pogo-Eva Blinebry Fed #19 injection well Page Number. 3 of 6 Lea County, NM

Analytical Report

Sample: 127255 - AH-3A (0-0.1) BEB (1.0')

Analysis TPH DRO QC Batch 38181 Prep Batch 33054 Analytical Method. Mod. 8015B Date Analyzed 2007-06-14 Sample Preparation 2007-06-14

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

Spike Percent Recovery Surrogate Result Units Dilution Amount Recovery Limits Flag 162 150 108 61.7 - 143.2 n-Triacontane mg/Kg 1

Sample: 127255 - AH-3A (0-0.1) BEB (1.0')

Analysis: TPH GRO QC Batch: 38280 Prep Batch: 33143 Analytical Method S 8015B
Date Analyzed 2007-06-18
Sample Preparation 2007-06-18

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

Percent Spike Recovery Flag Dilution Recovery Limits Surrogate Result Units Amount Trifluorotoluene (TFT) 1.00 33.2 - 160 0.960mg/Kg 1 96 1.00 4-Bromofiuorobenzene (4-BFB) 0.980mg/Kg 1 98 10 - 227

Method Blank (1) QC Batch: 38181

QC Batch 38181 Prep Batch 33054 Date Analyzed: 2007-06-14 QC Preparation: 2007-06-14

Analyzed By AG Prepared By

Recovery Spike Percent Surrogate Dilution Flag Result Units Amount Recovery Limits n-Triacontane 136 mg/Kg 150 91 61.7 - 143.2

Method Blank (1) QC Batch: 38280

QC Batch: 38280 Prep Batch 33143 Date Analyzed: 2007-06-18 QC Preparation: 2007-06-18

Analyzed By. KB Prepared By KB

Work Order. 7061331 Pogo-Eva Blinebry Fed #19 injection well

Page Number: 4 of 6 Lea County, NM

n.	T21				MDL		T 7.				, דע
Parameter GRO	Flag				tesult 0.459			nits /Kg			$\frac{RL}{1}$
	17	`lag	Result	* · · · · · · · · · · · · · · · · · · ·		Dilution	Spike Amount	F	ecovery		ecovery imits
Surrogate Trifluorotoluene (TFT)	1.	iag	1.12		/Kg	1	1.00	10	112		2 - 125
4-Bromofluorobenzene (4-B	FB)		0.860		/Kg	1	1.00		86		9 - 110
Laboratory Control Spil	ke (LCS-1	l)									
QC Batch 38181				nalyzed					-	zed By	AG
Prep Batch 33054			QC Pr	eparation	ı: 2007-0	6-14			Prepa	red By	
		LCS				Spike					lec
Param		Resul		Units	Dil.	Amoui			Rec.		imit
DRO		213		mg/Kg	1	250	<13	3.4	85	62.5	- 135.4
Percent recovery is based or	n the spike	result.	RPD is	based or	n the spike	and spil	ke duplicate	result			
	L	CSD			Spike	Matri	Х	Re	(RPD
Param		esult	Units	Dil.	Amount			Lin		RPD	Limit
DRO		212	mg/Kg	g 1	250	<13.4	4 85	62.5 -	135.4	()	20
Percent recovery is based or	n the spike	result.	RPD 18	based or	n the spike	and spil	ke duplicate	result			
	LCS	LCSD				Spike	LCS	I.	CSD	F	lec.
	lesult	Result		Jnits	Dil	Amour			Rec.		ımıt
n-Triacontane	129	124	m	g/Kg	1	150	86		83	66.6	- 14().9
Laboratory Control Spil	ke (LCS-1	L)									
QC Batch 38280			Date A	nalyzed.	2007-0	6-18			Analy	zed By	KB
Prep Batch 33143				eparation						ared By	KB
		LCS	3			Spil	M.	atrix			Rec
Param		Resu		Units	Dil.	Amoi		esult	Rec.		Limit
GRO		9.09		mg/Kg	1	10.0		459	91		.6 - 113
Percent recovery is based or	n the spike										
	I	CSD			Spike	Mati	rix	Re	ec		RPD
Param		kesult .	Units		Amoun	t Resi		Lin	mit	RPD	Limit
GRO		9 87	mg/K	g 1	10.0	< 0.4	.59 9 9	79.6	- 113	8	20
Percent recovery is based or	n the spike	result.	RPD is	based o	n the spike	e and spil	ke duplicate	result			
		LCS		CSD			Spike	LCS	LCSI		Rec.
Surrogate		Resul		esult	Units	Dil.	Amount	Rec	Rec.		Limit
Trifluorotoluene (TFT)	TD)	0.938			mg/Kg	1	1.00	94	102		.1 - 117
4-Bromofluorobenzene (4-B	F.B)	0.944	1 0	.948	m mg/Kg	1	1.00	94	95	78	.1 - 118

Report Date June 19, 2007 3012

Work Order: 7061331 Pogo-Eva Blinebry Fed. #19 injection well Page Number 5 of 6 Lea County. NM

Matrix	Spike	(MS-1)
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Spiked Sample 127255

QC Batch Prep Batch

38181 33054 Date Analyzed: QC Preparation 2007-06-14 2007-06-14

AG Analyzed By

Prepared By

	MS			Spike	Matrix		Rec
Param	Result	Units	Dil.	Amount	Result	Rec	Limit
DRO	291	mg/Kg	1	250	<13 4	116	29.7 - 168.6

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
DRO	308	mg/Kg	1	250	<13 4	123	29.7 - 168 6	G	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.	$_{ m Limit}$
n-Triacontane	142	141	mg/Kg	1	150	95	94	43 4 - 193.9

Matrix Spike (MS-1)

Spiked Sample: 127255

QC Batch 38280 Prep Batch: 33143 Date Analyzed:

2007-06-18 QC Preparation: 2007-06-18

Analyzed By KB Prepared By: KB

	MS			Spike	Matrix		Rec
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	8.20	mg/Kg	1	10.0	< 0.459	82	40.7 - 157

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

	MSD			$_{ m Spike}$	Matrix		Rec		RPD
Param	Result	Units	Dil.	Amount	Result	Rec	Limit	RPD	Limit
GRO	8.58	${ m mg/Kg}$	1	10.0	< 0.459	86	40.7 - 157	4	19.6

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	Lunit
Trifluorotoluene (TFT)	0.867	0.900	mg/Kg	1	1	87	90	34.9 - 155
4-Bromofluorobenzene (4-BFB)	1.00	1 03	${ m mg/Kg}$	1	1	100	103	58.5 - 153

Standard (ICV-1)

QC Batch: 38181

Date Analyzed: 2007-06-14

Analyzed By: AG

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	\mathbf{Date}
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		mg/Kg	250	221	88	85 - 115	2007-06-14

Standard (CCV-1)

QC Batch: 38181

Date Analyzed: 2007-06-14

Analyzed By. AG

Report Date: June 19, 2007 3012

Flag

 Param

GRO

Units

mg/Kg

Work Order 7061331 Pogo-Eva Blinebry Fed #19 injection well Page Number: 6 of 6 Lea County. NM

Date

Analyzed

2007-06-18

D	T31	T	CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc	Recovery	Limits	Analyzed
DRO		mg/Kg	250	274	110	85 - 115	2007-06-14
Standard	(ICV-1)						
QC Batch:	38280		Date Ana	alyzed: 2007-0	6-18	Anal	yzed By· KB
			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc	Conc	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	0.943	94	85 - 115	2007-06-18
Standard	(CCV-1)						
QC Batch	38280		Date Ana	alyzed: 2007-0	6-18	Anal	yzed By KB
			CCVs	CCVs	CCVs	Percent	

Found

Conc.

1.08

Percent

Recovery

108

Recovery

Limits

85 - 115

True

 Conc

1.00

work order: 706 1331

Analysis Request and Chain of Custody Record											-7	A			A 2		PAG	C: RE	OUE	יניפיז		OF.	:	T	H14444							
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PROJECT 3012	NO.:	_)	PR	OJE	CT NAME:					1/16	CONTAINERS	(H					8	100	8015	/ : :	1 3		Volatiles	,	u j	1 1		1708,	(AFE)	(a)		
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PROJECT 3012	NO.:		PR P⊕C	OJE	CT NAME: Eva Bli						Wall	CONTA	(N/X)					808	308	1		Ag As	6.8	Volatile	8240/8	Vol.	908/	H, 1708.		(<u>k</u> f.)	(80		
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APPENDIX C

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 Form C-141 Revised October 10, 2003

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

Release Notification and Corrective Action														
OPERATOR Initial Report Final Report														
Name of Company Latigo Petroleum, INC.	Contact PATRICK Ellis													
Address P.O. Box 10340 Midland, Texas 79702 Facility Name Eya E Blinebry Federal # 19	Telephone No. 432 685-8148													
Facility Name EVA E Blive bry Federal # 19	Facility Type injection line													
Surface Owner Mineral Owner	Lease No.NML CO 64 /18													
LOCATIO	N OF RELEASE													
	/South Line Feet from the East/West Line County													
H 34 235 37E 1420 North 20 East Lea														
LatitudeLongitude														
Type of Release Priduced Water Volume of Release 50 BBLS Volume Recovered 40 BBLS														
Source of Release injection line Date and Hour of Occurrence Date and Hour of Discovery														
Was Immediate Notice Given?														
☐ Yes ☑ No ☐ Not Required	Pare and Hour													
By Whom?	Date and Hour													
Was a Watercourse Reached? Yes V No	If YES, Volume Impacting the Watercourse.													
If a Watercourse was Impacted, Describe Fully.*	100 Par 2002 5													
NA	If YES, Volume Impacting the Watercourse. Recoiver 15 15 15 15 15 15 15 15 15 15 15 15 15													
Describe Cause of Problem and Remedial Action Taken.* Injection line WAS found to be All free fluid was picked up by	leaking. Well was shut intermediated													
	NCAR ROAD. High lander Environmental And Submit report for remediation													
regulations all operators are required to report and/or file certain release public health or the environment. The acceptance of a C-141 report by the should their operations have failed to adequately investigate and remediate their operations.	the best of my knowledge and understand that pursuant to NMOCD rules and notifications and perform corrective actions for releases which may endanger are NMOCD marked as "Final Report" does not relieve the operator of liability the contamination that pose a threat to ground water, surface water, human health does not relieve the operator of responsibility for compliance with any other													
	OIL CONSERVATION DIVISION													
Signature: Vatrik L. Ellis														
Printed Name: PATRICK L. Ellis	Approved by District Supervisor:													
Title: EH+S Supervisor	Approval Date: 5.11.07 Expiration Date: 7-11.07													
E-mail Address: ellis p @ pogo producing. Com Date: 5-8-07 Phone: 685-8148	Conditions of Approval:													
Date: 5-8-07 Phone: 685-8148	SUBJUT PLAY Of SAWFLE													
*Attach Additional Sheets If Necessary Mident - 1 PACO 713146662 Application - PPACO713146788														

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

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State of New Mexico Energy Minerals and Natural Resources

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

Revised June 10, 2003 Submit 2 Copies to appropriate District Office in accordance

Form C-141

with Rule 116 on back side of form

			Rele	ease Notific	catio	n and Co	rrective A	ction	1								
						OPERA	ror _		Initia	al Report		Final Report					
Name of Co						Contact: Pa											
Address: P.				79702		·	No. (432) 685-8										
Facility Nar	ne: Eva B	llinebry Fede	eral #19			Facility Typ	e: Injection Lin	.e	 								
Surface Ow	ner			Mineral C)wner		18										
				LOCA	ATIC	N OF RE											
Unit Letter H	Section\ 34	Township 23S	Range 37E	Feet from the 1420'	Nort	h/South Line h Line	Feet from the 20'	East/V East	Vest Line	County Lea							
		<u> </u>	La	titude	TIRI	_ Longitu E OF REL											
Type of Rele	ase Produc	ed Water		11284	CITI	. ,	Release 50 BBLs	S .	Volume I	Recovered	40 bbls						
		tion Line Lea	k			-	Iour of Occurrence			Hour of Di							
Was Immedi	ate Notice (If YES, To				 -							
			Yes 🛚	No 🗌 Not Re	equired	Faxed Rep	ort 5/8/07 10:35	am									
By Whom?						Date and I											
Patrick Ellis Was a Water	course Rea	chad?				Cell phone message Tricia Badbear 5/7/07 If YES, Volume Impacting the Watercourse.											
was a water	course rea		Yes 🛛	No		it 125, volume impacing the watercourse.											
If a Watercou	ırse was Im	pacted, Descr	ibe Fully.	*													
		em and Reme to be leaking		n Taken.* s shut in and all f	ree flui	d was picked ι	ip by vacuum truc	ck.			· · · · · · · · · · · · · · · · · · ·						
Leak gathere transported o	d in small a ffsite for di	sposal. Closu	Highland are report	der sampled on 5/ prepared and subr	nitted t	o NMOCD.											
regulations a public health should their of or the environ	Il operators or the envi operations h nment. In a	are required to ronment. The nave failed to	to report a acceptana adequately DCD accep	e is true and comp nd/or file certain i ce of a C-141 rep y investigate and i otance of a C-141	release ort by t remedi	notifications a he NMOCD mate contaminat	nd perform correct arked as "Final Rion that pose a thr	ctive act leport" of reat to g	ions for rel loes not rel round wate	eases which ieve the op r, surface w	n may e erator o vater, hu	ndanger f liability ıman health					
							OIL CON	SERV	ATION	DIVISI	<u>ON</u>						
Signature: (fatr	if I. E	lle	J		Column											
Printed Name	e: Patrick	L. Ellis				Approved by	District Supervie	NME	NTAL E	NGINEE	3	,					
Title: Enviro	nmental He	ealth and Safet	ty Supervi	sor		Approval Da			Expiration								
E-mail Addre		<u>Opogoproduci</u>				Conditions o	f Approval:			Attache	۳ ـ	16					
Date:		Phone: (432)		···						KY	ıs	12					
* Attach Addi	tional She	ets If Necess	sary														