## **AP-76**

## Pride Energy South Four Lakes #13

# Annual Report 2012



January 30, 2013

Mr. Glenn von Gonten New Mexico Energy, Minerals, & Natural Resources Oil Conservation Division, Environmental Bureau 1220 South St. Francis Drive Santa Fe, New Mexico 87505

#### RE: 2012 Annual Groundwater Monitoring Report South Four Lakes #13 Site (AP-76) T12S-R34E-Section 1, Unit Letter L, Lea County, New Mexico

Dear Mr. von Gonten:

As agent for Pride Energy Company, Trident Environmental submits this 2012 Annual Groundwater Monitoring Report for the above-referenced site.

#### Groundwater Sampling Procedures

During each quarterly sampling event the two monitoring wells (MW-1 and MW-2) were gauged for depth to groundwater using an electronic water level indicator immediately prior to purging operations. A minimum of three well volumes of groundwater was purged from each monitoring well using a 3-stage submersible pump which was decontaminated using an Alconox solution and a distilled water rinse between sampling points. Groundwater parameters (pH, temperature, and conductivity) were measured using a Hanna Model 98130 multimeter and recorded on a well sample data form. At the end of purging, water samples for each monitoring well were transferred into 500 milliliter (ml) plastic containers for laboratory analysis of chloride using EPA Method 160.1. For each set of samples, chain of custody forms documenting sample identification numbers, collection times, and delivery times to the laboratory were completed. All water samples were placed in an ice-filled cooler immediately after collection and transported to Permian Basin Environmental Lab (Midland, Texas) for analysis.

#### Groundwater Monitoring Results

Groundwater monitoring activities have been performed at the site on a quarterly basis since January 2008 as summarized in Table 1. A site map showing the most recent groundwater elevation and the chloride/TDS concentrations in monitoring wells MW-1 and MW-2 is presented as Figure 1.

#### Groundwater Depth, Elevations, Hydraulic Gradient and Flow Direction

Depth to groundwater at the site is approximately 27 feet (ft) below ground surface with a groundwater gradient direction trending towards the southeast and a hydraulic gradient of approximately 0.004 ft/ft (Figure 1). As displayed in Figure 2, which graphs the change in groundwater elevation since 2008 at monitoring wells MW-1 and MW-2, the water table elevation has been steadily declining about 0.4 ft/year. Groundwater depths and gradient patterns are consistent with the prevailing water table conditions in the area.

#### Groundwater Quality Conditions

The constituents of concern in groundwater are chloride and TDS as they are above the New Mexico's Water Quality Control Commission (WQCC) standards, of 250 mg/L and 1,000 mg/L, respectively. Benzene, toluene, ethylbenzene, and xylenes (BTEX) are not a constituent of concern as concentrations remained below laboratory detection limits and WQCC standards for two years; therefore, analysis for these constituents has been discontinued. The site groundwater monitoring map (Figure 1) includes the most recent chloride and TDS concentrations. Graphs depicting chloride and TDS concentrations at monitoring wells MW-1 and MW-2 since 2008 are presented in Figures 3 and 4, respectively.

Pride Energy Company plans to continue quarterly ground water monitoring activities and submit an annual groundwater monitoring report next year.

We look forward to working with you on this project. If you have any questions or comments you may contact me at 432.638.8740 (gil@trident-environmental.com) or Matt Pride at 918.524.9200 (mattp@pride-energy.com).

Respectfully,

Gilbert Van Deventer, REM, PG Trident Environmental

cc: Matt Pride (Pride Energy Co., Tulsa, OK) Geoffry Leking (NMOCD -District 1, Hobbs, NM)

Attachments: Table, Figures, well sampling data form, and laboratory analytical reports

## **ATTACHMENTS**

## TABLE 1 Summary of Groundwater Monitoring Results

FIGURE 1 Site Map with Groundwater Monitoring Results

FIGURE 2 Groundwater Elevations versus Time Graph

FIGURE 3 Chloride Concentrations Versus Time Graph

FIGURE 4 TDS Concentrations Versus Time Graph

WELL SAMPLING DATA FORM

Monitoring Well	Sample Date	Depth to Groundwater	Groundwater Elevation	Chloride (mg/L)	TDS (mg/L)	BTEX (mg/L)
	01/02/09	(feet BTOC)	(feet AMSL)	1 220	NA	<0.002
	01/23/08	27.5 27.63	4116.22	1,330 665		<0.003 <0.003
	03/13/08 06/19/08	27.88	4116.09	005 736	1,461 1,560	
			4115.84	736 760	,	<0.003
	09/09/08 12/08/08	28.05 28.11	4115.67	700 710	1,790 1,720	<0.003
	03/18/09	28.11	4115.61 4115.44	710 750	1,720 1,770	<0.003 <0.003
	05/18/09 06/17/09	28.28	4115.26	750 760	1,770 1830	<0.003 <0.003
	00/17/09	28.40	4115.20	1040	2220	<0.003 <0.003
	12/11/09	28.49	4115.23	820	1930	<0.003 <0.003
	03/24/10	28.55		820 780	1930 1820	<0.005
MW-1			4115.07			
IVI VV - I	06/15/10	28.75	4114.97	940 1080	2150 2280	
	09/13/10	28.82	4114.90	1080	2280 2170	
	12/13/10	28.88	4114.84	813	2170	
	03/17/11	28.97	4114.75	1110	3220	
	06/29/11	29.12	4114.60	994 1170	2260 2620	
	09/28/11	29.19	4114.53	1170	2630	
	12/13/11	29.25	4114.47	1170	2290	
	03/29/12	29.32	4114.40	1040	2560	
	06/19/12	29.38	4114.34	1280	1820	
	09/26/12	29.53	4114.19	935	1930	
	12/27/12	29.59	4114.13	636	1630	
	06/19/08	27.54	4115.71	320	976	< 0.003
	09/09/08	27.71	4115.54	172	848	< 0.003
	12/08/08	27.80	4115.45	164	732	< 0.003
	03/18/09	27.95	4115.30	168	720	< 0.003
	06/17/09	28.19	4115.06	188	769	< 0.003
	09/21/09	28.15	4115.10	240	747	< 0.003
	12/11/09	28.21	4115.04	220	866	< 0.003
	03/24/10	28.30	4114.95	232	842	
	06/15/10	28.41	4114.84	220	870	
MW-2	09/13/10	28.50	4114.75	260	935	
	12/13/10	28.54	4114.71	173	876	
	03/17/11	28.62	4114.63	217	980	
	06/29/11	28.76	4114.49	234	860	
	09/28/11	28.85	4114.40	280	922	
	12/13/11	28.90	4114.35	313	1,230	
	03/29/12	28.98	4114.27	320	1,350	
	06/19/12	29.04	4114.21	373	970	
	09/26/12	29.19	4114.06	365	1,310	
	12/27/12	29.24	4114.01	358	1,240	

 Table 1

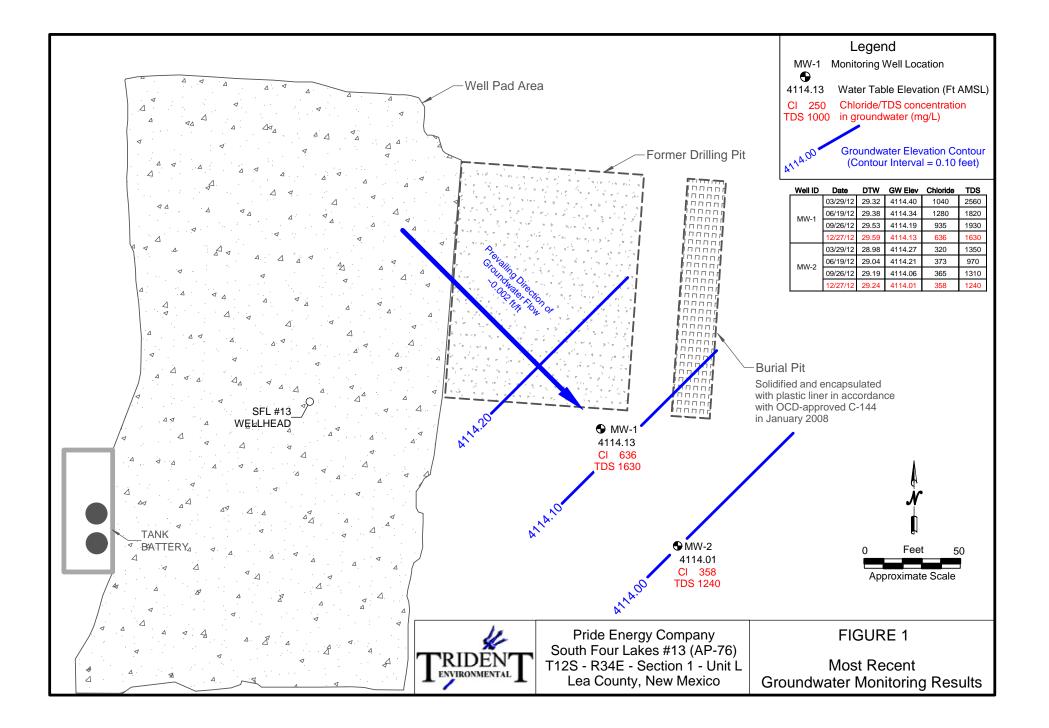
 Summary of Groundwater Monitoring Results

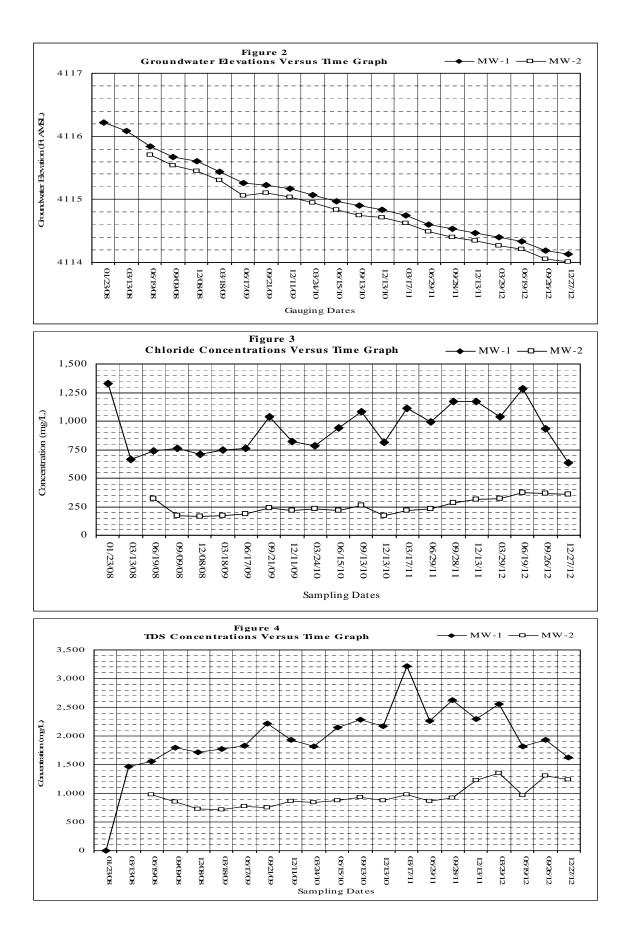
 Image: 12/27/12
 Image: 29.24
 Image: 4114.01
 Image: 358
 Image: 1,240

 Total Dissolved Solids (TDS), chloride, and BTEX concentrations listed in milligrams per liter (mg/L).
 Values in boldface type indicate concentrations exceed WQCC standards.

BTOC - Below Top of Casing; AMSL – Above Mean Sea Level

NA Indicates parameter was not analyzed for this constituent.





#### WELL SAMPLING DATA FORM

CLIENT: Pride Energy Company

SITE NAME: South Four Lakes #13

SITE LOCATION: T12S-R34E-Sec1 Unit Letter L ~ Lea County, NM

SAMPLER: Gil Van Deventer

DISPOSAL METHOD OF PURGE WATER:

PURGING METHOD:  $\square$  Hand Bailed Pump, Type: Whaler Model WP-9012 Mega Purger (12-volt submersible pump) Direct from Discharge Hose

SAMPLING METHOD:

Drums On-site Drum

Disposable Bailer

SWD Disposal Facility

Other:

Quarter	Date	Time	Monitoring Well No.	Depth to Water (ft btoc)	Total Depth (ft)	Water Column Height (ft)	Well Factor 2"=.16 4"=.65	Calc. Well Vol. (gal)	Volume Purged (gal)	No. of Well Volumes Purged	Temp. ° <b>F</b>	Cond. mS/cm	рН	PHYSICAL APPEARANCE AND REMARKS
First	03/29/12	14:00	MW-1	29.32	43.26	13.94	0.16	2.2	15	6.7	66.8	3.26	7.23	Whitish then cleared during purge
Ē	03/29/12	13:00	MW-2	28.98	42.10	13.12	0.16	2.1	15	7.1	69.8	1.74	7.39	Whitish then cleared during purge
Second	06/19/12	11:00	MW-1	29.38	43.26	13.88	0.16	2.2	15	6.8	68.5	3.60	7.22	Whitish then cleared during purge
Sec	06/19/12	10:00	MW-2	29.04	42.10	13.06	0.16	2.1	15	7.2	68.8	1.69	6.87	Whitish then cleared during purge
Third	09/26/12	11:00	MW-1	29.53	43.26	13.73	0.16	2.2	15	6.9	68.7	3.15	7.23	Whitish then cleared during purge
Ę	09/26/12	10:00	MW-2	29.19	42.10	12.91	0.16	2.1	15	7.3	68.8	1.75	7.03	Whitish then cleared during purge
Fourth	12/27/12	11:00	MW-1	29.59	43.26	13.67	0.16	2.2	15	6.9	63.7	1.89	7.28	Whitish then cleared during purge
For	12/27/12	10:00	MW-2	29.24	42.10	12.86	0.16	2.1	15	7.3	62.7	1.17	6.80	Whitish then cleared during purge

COMMENTS: Equipment decontamination consists of gloves, Alconox, and Distilled Water Rinse.

Hanna Model 98130 instrument used to obtain pH, conductivity, and temperature measurements.

Delivered samples to the analytical laboratory for chloride and TDS analysis.



## LABORATORY ANALYTICAL REPORTS

## AND

## CHAINS OF CUSTODY

## Analytical Report 439825

## for Trident Environmental

**Project Manager: Gil Van Deventer** 

Pride Energy Company

South Four Lakes # 13 (AP-76)

#### 06-APR-12

Collected By: Client



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#### 12600 West I-20 East Odessa, Texas 79765

Xenco-Houston (EPA Lab code: TX00122): Texas (T104704215-10-6-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002) Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054) New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610) Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046): Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85) Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)
Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)
Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco Tucson (EPA Lab code: AZ00989): Arizona (AZ0758)



06-APR-12



Project Manager: **Gil Van Deventer Trident Environmental** P.O. Box 12177 Odessa, TX 79768

Reference: XENCO Report No: **439825 Pride Energy Company** Project Address: T12S-R34E- Sec 1 Unit Letter L- Lea County, Nm

#### Gil Van Deventer:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 439825. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 439825 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Brent Barron II Odessa Laboratory Manager

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## Sample Cross Reference 439825



### Trident Environmental, Odessa, TX

Pride Energy Company

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-1	W	03-29-12 14:00		439825-001
MW-2	W	03-29-12 13:00		439825-002



Client Name: Trident Environmental Project Name: Pride Energy Company



Project ID:South Four Lakes # 13 (AlWork Order Number:439825

Report Date: 06-APR-12 Date Received: 03/30/2012

Sample receipt non conformances and comments: None

Sample receipt non conformances and comments per sample:

None
Analytical non nonformances and comments:

Batch: LBA-885227 Inorganic Anions by EPA 300 E300

Batch 885227, Chloride recovered below QC limits in the Matrix Spike. Samples affected are: 439825-001, -002. The Laboratory Control Sample for Chloride is within laboratory Control Limits



#### Certificate of Analysis Summary 439825

Trident Environmental, Odessa, TX

Project Name: Pride Energy Company



Project Id: South Four Lakes # 13 (AP-76)Contact: Gil Van DeventerProject Location: T12S-R34E- Sec 1 Unit Letter L- Lea Cou

Date Received in Lab: Fri Mar-30-12 10:20 am Report Date: 06-APR-12

Project Manager: Brent Barron II

Lab Id:	439825-001	439825-002				
Field Id:	<b>MW-1</b>	MW-2				
Depth:						
Matrix:	WATER	WATER				
Sampled:	Mar-29-12 14:00	Mar-29-12 13:00				
Extracted:	Apr-05-12 14:14	Apr-05-12 14:30				
Analyzed:	Apr-05-12 14:14	Apr-05-12 14:30				
Units/RL:	mg/L RL	mg/L RL				
	1040 10.0	320 2.50				
Extracted:						
Analyzed:	Apr-03-12 13:00	Apr-03-12 13:00				
Units/RL:	mg/L RL	mg/L RL				
	2560 5.00	1350 5.00				
	Field Id: Depth: Matrix: Sampled: Extracted: Analyzed: Units/RL: Extracted: Analyzed:	Field Id:       MW-1         Depth:       WATER         Matrix:       WATER         Sampled:       Mar-29-12 14:00         Extracted:       Apr-05-12 14:14         Analyzed:       Apr-05-12 14:14         Units/RL:       mg/L       RL         Extracted:       Apr-05-12 13:00         Extracted:       Apr-03-12 13:00         Units/RL:       mg/L       RL	Field Id:       MW-1       MW-2         Depth:       WATER       WATER         Matrix:       WATER       WATER         Sampled:       Mar-29-12 14:00       Mar-29-12 13:00         Extracted:       Apr-05-12 14:14       Apr-05-12 14:30         Units/RL:       mg/L       RL       mg/L       RL         Extracted:       Apr-05-12 14:14       Apr-05-12 14:30       RL         Units/RL:       mg/L       RL       mg/L       RL         Lanalyzed:       Apr-03-12 13:00       Apr-03-12 13:00       Apr-03-12 13:00         Units/RL:       mg/L       RL       mg/L       RL	Field Id:       MW-1       MW-2         Depth:       MATEX       WATER         Matrix:       WATER       WATER         Sampled:       Mar-29-12 14:00       Mar-29-12 13:00         Extracted:       Apr-05-12 14:14       Apr-05-12 14:30         Analyzed:       Apr-05-12 14:14       Apr-05-12 14:30         Units/RL:       mg/L       RL       mg/L       RL         Extracted:       Apr-03-12 13:00       Apr-03-12 13:00       Apr-03-12 13:00         Units/RL:       Mg/L       RL       Mg/L       RL	Field Id:       MW-1       MW-2         Depth:       MMY-2       MW-2         Matrix:       WATER       WATER         Sampled:       Mar-29-12 14:00       Mar-29-12 13:00         Extracted:       Apr-05-12 14:14       Apr-05-12 14:30         Analyzed:       Apr-05-12 14:14       Apr-05-12 14:30         Units/RL:       mg/L       RL       mg/L       RL         Extracted:       Apr-03-12 13:00       Apr-03-12 13:00       Apr-03-12 13:00         Linits/RL:       mg/L       RL       mg/L       RL         Units/RL:       Mg/L       RL       Mg/L       RL	Field Id:       MW-1       MW-2         Depth:       MATEX       WATER       WATER         Matrix:       WATER       WATER       Mar-29-12 13:00         Extracted:       Apr-05-12 14:14       Apr-05-12 14:30       Apr-05-12 14:30         Malyzed:       Apr-05-12 14:14       Apr-05-12 14:30       Apr-05-12 14:30         Units/RL:       mg/L       RL       mg/L       RL         Extracted:       Apr-03-12 13:00       Apr-03-12 13:00       Apr-03-12 13:00         Extracted:       Apr-03-12 13:00       Apr-03-12 13:00       Apr-03-12 13:00         Inits/RL:       mg/L       RL       mg/L       RL         Units/RL:       Mg/L       RL       mg/L       RL

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Brent Barron II Odessa Laboratory Manager

Page 5 of 11



## **Flagging Criteria**

- X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- **B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- **D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F RPD exceeded lab control limits.
- J The target analyte was positively identified below the quantitation limit and above the detection limit.
- U Analyte was not detected.
- L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K Sample analyzed outside of recommended hold time.
- JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.
- \* Surrogate recovered outside laboratory control limit.
- **BRL** Below Reporting Limit.
- **RL** Reporting Limit
- MDL Method Detection Limit **SDL** Sample Detection Limit LOD Limit of Detection
- PQL Practical Quantitation Limit MQL Method Quantitation Limit
- **DL** Method Detection Limit
- NC Non-Calculable
- NELAC certification not offered for this compound.
- (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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(432) 563-1800	(432) 563-1713
(770) 449-8800	(770) 449-5477
(602) 437-0330	

Final 1.000





#### **Project Name: Pride Energy Company**

<b>Work Order #:</b> 439825								Pro	ject ID: S	South Four 1	Lakes # 13	3 (AP-76	
Analyst: TTE		Da	ate Prepar	red: 04/05/201	2			Date A	nalyzed: (	04/05/2012			
Lab Batch ID: 885227	Sample: 620198-1-B	KS	Batc	<b>h #:</b> 1					Matrix: V	Water			
Units: mg/L	[		BLAN	K /BLANK S	SPIKE / I	BLANK S	SPIKE DUPI	JCATE ]	RECOVI	ERY STUD	Y		
Anions Cl by EP.	A 300/300.1	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag	
Analytes			[B]	[C]	[D]	[E]	Result [F]	[G]				1	
Chloride		< 0.500	50.0	50.3	101	50.0	49.7	99	1	90-110	20		
Analyst: LBA		Da	ate Prepar	ed: 04/03/201	2	<b>Date Analyzed:</b> 04/03/2012							
Lab Batch ID: 885058	Sample: 885058-1-B	KS	Bate	<b>h #:</b> 1	Matrix: Water								
Units: mg/L	[		BLAN	K /BLANK S	SPIKE / I	BLANK S	SPIKE DUPI	JCATE 1	RECOVI	ERY STUD	Y		
TDS by SM Analytes	2540C	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag	
Total dissolved solids		<5.00	500	513	103	500	512	102	0	80-120	30		

Relative Percent Difference RPD =  $200^{*}|(C-F)/(C+F)|$ Blank Spike Recovery [D] =  $100^{*}(C)/[B]$ Blank Spike Duplicate Recovery [G] =  $100^{*}(F)/[E]$ All results are based on MDL and Validated for QC Purposes



### Form 3 - MS Recoveries



#### **Project Name: Pride Energy Company**

Work Order #: 439825 Lab Batch #: 885227			Pr	oject ID:	South Four	Lakes # 1
<b>Date Analyzed:</b> 04/05/2012	Date Prepared: 04/0	05/2012		nalyst: T		
QC- Sample ID: 439871-001 S	Batch #:	l	]	Matrix: W	Vater	
Reporting Units: mg/L	MAT	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	239	50.0	242	6	80-120	X
Lab Batch #: 885227	·					
<b>Date Analyzed:</b> 04/05/2012	Date Prepared: 04/0	05/2012	A	analyst: T	TE	
QC- Sample ID: 439974-001 S	Batch #:	l	]	Matrix: W	Vater	
Reporting Units: mg/L	MAT	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	15.9	50.0	63.4	95	80-120	

Matrix Spike Percent Recovery [D] = 100\*(C-A)/BRelative Percent Difference [E] = 200\*(C-A)/(C+B)All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit





#### **Project Name: Pride Energy Company**

Work Order #: 439825

Lab Batch #: 885058				Project I	D: South Fo	our Lakes # 1
Date Analyzed: 04/03/2012 13:00	Date Prepare	ed: 04/03/2012	Ana	lyst:LBA		
QC- Sample ID: 439744-001 D	Batch	# <b>:</b> 1	Ma	trix: Water		
Reporting Units: mg/L		SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
TDS by SM2540C		Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte		[A]	[B]		/0112	
Total dissolved solids		356	356	0	30	
Lab Batch #: 885058						
Date Analyzed: 04/03/2012 13:00	Date Prepare	ed: 04/03/2012	Ana	lyst:LBA		
QC- Sample ID: 439797-001 D	Batch	# <b>:</b> 1	Ma	trix: Water		
<b>Reporting Units:</b> mg/L		SAMPLE /	SAMPLE	DUPLIC	ATE REC	OVERY
TDS by SM2540C		Parent Sample Result [A]	Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte			[ <b>B</b> ]			
Total dissolved solids		342	340	1	30	

Spike Relative Difference RPD 200 \* | (B-A)/(B+A) | All Results are based on MDL and validated for QC purposes. BRL - Below Reporting Limit

	CO Laboratories	BILL TO Company: PO# ANALYSIS REQUEST Pride Energy Company / Matt Pride	Address: (Street, City, Zip)	PO Box 710950, Tulsa, OK 74170-1950	Fax#: (010) 501 0000	010	бн 9 бр	end Se	gy Company	Sampler Signature:		EX only EX only Cantent Cantent Content Content Content Content Content	MATER       SOIL       SOIL       AIR       SOIL       AIR       Cations (       PLCL (BT       TCLP %       TCLP %<	3/2 3/2	x 3/29/12 1300 1 1 1 1 1 1 X				Date: Time: Phone Results Yes X No	Fax Results Yes X No Additional Fax Number:	aboratory Staff) Date: Time: REMARKS: $WM / MM 3.30 V J 10.20$ Email Results to:	IXN
	Xenco	BILL TO Pride I				1(310	-ax #. (413) 403-9968	Project Name:	Pride	County NM	5		# CONL (G)rab or		- ი				Received by:		Received By: (Lu	Sample Condition
Vest I-20 East - Odessa	797658 Tel (432) 563-1800 Fax (432) 563-1713	Company Name: Trident Environmental	Project Manager:	Gil Van Deventer / Trident Environmental	Address: (Street, City, Zip)	30X 121//, Udessa IX / 9/68	Phone #: (432) 638-8740		South Four Lakes #13 (AP-76)	Project Location: T132 D34E-Sec4   Init   atter   ~   aa		LAB # FIELD CODE		MW-1	MW-2				Relinquished by: Date: Time: I	V I	3/70/ 10.20	Delivered By: (Circle One)

PERMIAN BASIN ENIRONMENTAL LAB, LP 10014 SCR 1213 Midland, TX 79706



## Analytical Report

#### Prepared for:

Gilbert Vandeventer Trident Environmental P.O. Box 12177 Odessa, TX 79768

Project: Pride Energy Company Project Number: South Four Lakes #13 (AP-76) Location: T12S-R34E-Sec1 Unit Letter L~Lea County, NM

Lab Order Number: 2F21003

Report Date: 06/28/12

#### Project: Pride Energy Company Project Number: South Four Lakes #13 (AP-76) Project Manager: Gilbert Vandeventer

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	2F21003-01	Water	06/19/12 11:00	06-21-2012 09:50
MW-2	2F21003-02	Water	06/19/12 10:00	06-21-2012 09:50

Project: Pride Energy Company Project Number: South Four Lakes #13 (AP-76) Project Manager: Gilbert Vandeventer

#### General Chemistry Parameters by EPA / Standard Methods

#### Permian Basin Environmental Lab

Analyte MW-1 (2F21003-01) Water	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride Total Dissolved Solids	1280 1820	25.0 10.0	mg/L "	50 1	EF22503 EF22601	06/22/12 06/22/12	06/25/12 06/25/12	EPA 300.0 EPA 160.1	
MW-2 (2F21003-02) Water									
Chloride	373	10.0	mg/L	20	EF22503	06/22/12	06/25/12	EPA 300.0	
<b>Total Dissolved Solids</b>	970	10.0	"	1	EF22601	06/22/12	06/25/12	EPA 160.1	

#### General Chemistry Parameters by EPA / Standard Methods - Quality Control

#### Permian Basin Environmental Lab

	D k	Reporting	TT '4	Spike	Source	MARC.	%REC	DDD	RPD	N. (
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch EF22503 - General Preparation (V	VetChem)									
Blank (EF22503-BLK1)				Prepared: (	06/22/12 A	nalyzed: 06	6/25/12			
Chloride	ND	0.500	mg/L							
LCS (EF22503-BS1)				Prepared: (	)6/22/12 A	nalyzed: 06	5/25/12			
Chloride	8.82		mg/L	10.0		88.2	80-120			
LCS Dup (EF22503-BSD1)				Prepared: (	)6/22/12 A	nalyzed: 06	5/25/12			
Chloride	9.04		mg/L	10.0		90.4	80-120	2.46	20	
Duplicate (EF22503-DUP1)	Sourc	e: 2F21003-	01	Prepared: (	)6/22/12 A	nalyzed: 06	5/25/12			
Chloride	1260	25.0	mg/L		1280			1.57	20	
Matrix Spike (EF22503-MS1)	Sourc	e: 2F21003-	01	Prepared: (	)6/22/12 A	nalyzed: 06	5/25/12			
Chloride	1610	25.0	mg/L	250	1280	132	80-120			М
Batch EF22601 - General Preparation (V	VetChem)									
Blank (EF22601-BLK1)				Prepared: (	)6/22/12 A	nalyzed: 06	6/25/12			
Total Dissolved Solids	ND	10.0	mg/L							
Duplicate (EF22601-DUP1)	Sourc	e: 2F21001-	01	Prepared: (	)6/22/12 A	nalyzed: 06	5/25/12			
Total Dissolved Solids	510	10.0	mg/L		570			11.1	20	
Duplicate (EF22601-DUP2)	Source: 2F21001-11 Prepar					nalyzed: 06	5/25/12			
Total Dissolved Solids	850	10.0	mg/L		710			17.9	20	

#### **Notes and Definitions**

M1	The MS and/or MSD we	re above the accentance	e limite due to sam	nle matrix interference	See Blank Spike (LCS).
1111	The MS and/or MSD we	te above the acceptance	e minus que to sam	pie matrix interference.	See Dialik Spike (LCS).

- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- LCS Laboratory Control Spike
- MS Matrix Spike

Report Approved By:

Dup Duplicate

Bur Barron

Date: 6/28/2012

Brent Barron, Laboratory Director/Technical Director

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Permian Basin Environmental Lab

The results in this report apply to the samples analyzed in accordance with the samples received in the laboratory. This analytical report must be reproduced in its entirety, with written approval of Permain Basin Environmental Lab.

Sampler - UPS - Bu			Relinguished by:	Ella LA	Relinquished by: // //							-02/	-01		LAB #		Project Location: T12S-R34E-Sec1 Unit Letter L	South Four Lakes #13 (AP-76)	(432) 638-8740	Address: (Street, City, Zip) PO Box 12177, Odessa TX 79768	/an D	Company Name: Trident Environmental Project Manager:		Wu Bial
s - Other:			Date: Time: F	0290 2/12	/ Date: Time: F				-	:		MW-2	MW-1		FIELD CODE		~ Lea	#13 (AP-76)			Trident Environme	ntal		
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PERMIAN BASIN ENVIRONMENTAL LAB, LP 10014 SCR 1213 Midland, TX 79706



## Analytical Report

#### **Prepared for:**

Gilbert Vandeventer Trident Environmental P.O. Box 12177 Odessa, TX 79768

Project: South Four Lakes #13 (AP-76) Project Number: [none] Location: T12S-R34 E-Sec1 Unit Letter L Lea Co, NM

Lab Order Number: 2I27005



NELAP/TCEQ # T104704156-12-1

Report Date: 10/04/12

#### Project: South Four Lakes #13 (AP-76) Project Number: [none] Project Manager: Gilbert Vandeventer

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	2I27005-01	Water	09/26/12 11:00	09-27-2012 13:00
MW-2	2I27005-02	Water	09/26/12 10:00	09-27-2012 13:00

#### General Chemistry Parameters by EPA / Standard Methods

#### Permian Basin Environmental Lab

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (2127005-01) Water									
Chloride	935	12.5	mg/L	25	EJ20202	10/02/12	10/02/12	EPA 300.0	
Total Dissolved Solids	1930	10.0	"	1	EJ20305	10/02/12	10/03/12	EPA 160.1	
MW-2 (2127005-02) Water									
Chloride	365	5.00	mg/L	10	EJ20202	10/02/12	10/02/12	EPA 300.0	
Total Dissolved Solids	1310	10.0	"	1	EJ20305	10/02/12	10/03/12	EPA 160.1	

#### General Chemistry Parameters by EPA / Standard Methods - Quality Control

#### Permian Basin Environmental Lab

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch EJ20202 - *** DEFAULT PREP ***										
Blank (EJ20202-BLK1)				Prepared &	Analyzed:	: 10/02/12				
Sulfate	ND	1.00	mg/L							
Chloride	ND	0.500	"							
LCS (EJ20202-BS1)				Prepared &	Analyzed:	: 10/02/12				
Sulfate	9.80		mg/L	10.0		98.0	80-120			
Chloride	9.45		"	10.0		94.5	80-120			
LCS Dup (EJ20202-BSD1)				Prepared &	Analyzed:	: 10/02/12				
Sulfate	9.79		mg/L	10.0		97.9	80-120	0.163	20	
Chloride	9.32		"	10.0		93.2	80-120	1.37	20	
Duplicate (EJ20202-DUP1)	Sou	rce: 2127004-(	)1	Prepared &	Analyzed:	: 10/02/12				
Sulfate	9.79     mg/L       9.32     "       Source: 2127004-01       Prep       987     200       4390     100			1010			2.80	20		
Chloride	4390	100	"		4590			4.44	20	
Matrix Spike (EJ20202-MS1)	Result  P ***  ND ND 9.80 9.45  9.79 9.32  Source: 21 987 4390  Source: 21 3030 6530  P *** ND	rce: 2127004-(	)1	Prepared &	Analyzed:	: 10/02/12				
Sulfate	3030	200	mg/L	1750	1010	115	80-120			
Chloride	6530	100	"	1750	4590	111	80-120			
Batch EJ20305 - *** DEFAULT PREP ***										
Blank (EJ20305-BLK1)				Prepared: 1	10/02/12 A	nalyzed: 10	0/03/12			
Total Dissolved Solids	ND	10.0	mg/L							
Duplicate (EJ20305-DUP1)	ND 10.0 mg/L Source: 2128001-01 Pr			Prepared: 1	10/02/12 A	nalyzed: 10	0/03/12			
Total Dissolved Solids	79400	10.0	mg/L		78900			0.632	20	

#### **Notes and Definitions**

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By:

Bun Barron

Date: <u>10/4/2012</u>

Brent Barron, Laboratory Director/Technical Director

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Permian Basin Environmental Lab

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Sampler -	Delivered By:	:	Relinquished by:	Je Va	Relinquished by	5							02.	10	LAB #		Project Location: T12S-R34I	South Four	(432) 638-8740	PO Box 12		Project Manager:	Company Name: Trident Env			
UPS - Bus - Other:	(Circle One)		Date: Time:	At Ver/2 1:00kg	/ M Date: Time:							•	MW-2	MW-1	FIELD CODE		gect Location: T12S-R34E-Sec1 Unit Letter L ~ Lea	South Four Lakes #13 (AP-76)	3740	PO Box 12177, Odessa TX 79768	Gil Van Deventer / Trident Environmental	contor / Tridont Environme	mpany Name: Trident Environmental			
Yes No	Sample Condition		Received By:		Received by:								ഹ	ഹ	(G)rab or (C)om		County, NM	ם :	(413) 403-9968					Phone: 432-661-4184	Midland, Texas 79706	Permian Basin Environmental Lab, LP 10014 S. County Road 1213
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PERMIAN BASIN ENVIRONMENTAL LAB, LP 10014 SCR 1213 Midland, TX 79706



## Analytical Report

#### **Prepared for:**

Gilbert Vandeventer Trident Environmental P.O. Box 12177 Odessa, TX 79768

Project: Pride Energy Company Project Number: South Four Lakes #13 Location: T12S-R34-Sec1 Unit Letter L ~Lea County, NM

Lab Order Number: 3A02001



NELAP/TCEQ # T104704156-12-1

Report Date: 01/10/13

#### Project: Pride Energy Company Project Number: South Four Lakes #13 Project Manager: Gilbert Vandeventer

#### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	3A02001-01	Water	12/27/12 11:00	12-28-2012 15:15
MW-2	3A02001-02	Water	12/27/12 10:00	12-28-2012 15:15

#### General Chemistry Parameters by EPA / Standard Methods Permian Basin Environmental Lab

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (3A02001-01) Water									
Chloride Total Dissolved Solids	636 1630	12.5 50.0	mg/L "	25 1	EA30302 EA30804	01/03/13 01/02/13	01/03/13 01/08/13	EPA 300.0 EPA 160.1	
MW-2 (3A02001-02) Water									
Chloride Total Dissolved Solids	358 1240	12.5 50.0	mg/L "	25 1	EA30302 EA30804	01/03/13 01/02/13	01/03/13 01/08/13	EPA 300.0 EPA 160.1	

#### General Chemistry Parameters by EPA / Standard Methods - Quality Control

#### Permian Basin Environmental Lab

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch EA30302 - *** DEFAULT PREP ***										
Blank (EA30302-BLK1)				Prepared &	& Analyzed	01/03/13				
Chloride	ND	0.500	mg/L							
LCS (EA30302-BS1)				Prepared &	& Analyzed	01/03/13				
Chloride	9.99		mg/L	10.0		99.9	80-120			
LCS Dup (EA30302-BSD1)				Prepared &	& Analyzed	01/03/13				
Chloride	9.99		mg/L	10.0		99.9	80-120	0.0100	20	
Duplicate (EA30302-DUP1)	Sou	rce: 3A02002-	-01	Prepared &	& Analyzed	01/03/13				
Chloride	4140	100	mg/L		4140			0.00	20	
Matrix Spike (EA30302-MS1)	Sou	rce: 3A02002-	-01	Prepared &	& Analyzed	01/03/13				
Chloride	5960	100	mg/L	1750	4140	104	80-120			
Matrix Spike (EA30302-MS2)	Sou	rce: 2L28001-	-04	Prepared 8	k Analyzed	01/03/13				
Chloride	45600	500	mg/L	1250	35800	781	80-120			QM-05
Batch EA30804 - *** DEFAULT PREP ***										
Blank (EA30804-BLK1)				Prepared &	& Analyzed	01/08/13				
Total Dissolved Solids	40.0	10.0	mg/L	-	-					
Duplicate (EA30804-DUP1)	Source: <b>3A02003-04</b> Pr				k Analyzed	01/08/13				
Total Dissolved Solids	1690	10.0	mg/L				0.00	20		

#### **Notes and Definitions**

- QM-05 The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- LCS Laboratory Control Spike
- MS Matrix Spike
- Dup Duplicate

Sun Barron

Report Approved By:

Date: 1/10/2013

Brent Barron, Laboratory Director/Technical Director

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Permian Basin Environmental Lab

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*	3A02001		MATRIX		T	PRES N	SERV		/E	SAMPL	ING	]		£ 1		Ba		ŝ			3/624	827(	2	ר 2 3 מ	- '2) E	200			
LAB #	FIELD CODE	(G)rab or (C)omp	# CONTAINERS WATER SOIL SOIL AIR SLUDGE SLUDGE AIR HCL (BTEX only) HNO <sub>3</sub> NaHSO <sub>4</sub> NAHSO <sub>4</sub> ICE NONE DATE DATE TIME											MTBE 8021B/602	BTEX 8021 B	TPH 418.1/TX1005 / TX1005 Extended (C35)	PAH 8270C	Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 TCl P Metals An As Ba Cd Cr Ph Se Hn	TCLP Volatiles	TCLP Semi Volatiles	TCLP Pesticides		GC/MS Vol. 8260B/624	GC/MS Semi. Vol. 8270C/625	Moisture Content	Cations (Ca, Mg, Na, K) Anione (CL SOA CO3 HCO3)	Autoris (ci, SO4, CO3, TCO3) Total Dissolved Solids (160.1 or SM2540C)	Chloride / Cl (SM4500 B or 300.1)	
		(G)											BTE	E	PAH		칠ট	ដ្ឋ	ц	л С	Ğ	Š	Nois	vair vair	Tota	흉			
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Delivered By:	elivered By: (Circle One) Sam			Type Condition 3.2 NCF CHECKED BY.								gil@trident-environmental.com mattp@pride-energy.com																	