AP - 078

STAGE II WORKPLAN

10/01/2008

STAGE 2 ABATEMENT PLAN (AP-78) SOUTH FOUR LAKES #15 SITE TOWNSHIP 12 SOUTH, RANGE 34 EAST, SECTION 2, UNIT G LEA COUNTY, NEW MEXICO

OCTOBER 1, 2008

Prepared For:

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1.0 EXECUTIVE SUMMARY

On May 29, 2008, Trident Environmental performed a soil boring program at the South Four Lakes #15 well site to delineate the vertical and horizontal extent of groundwater impairment caused by the former drilling pit in accordance with the Stage 1 Abatement Plan (AP-78). Groundwater samples were collected from the hollow-stem drilled borings for chloride analysis and specific conductivity measurements. Groundwater samples were also collected from monitoring well MW-1 on January 23, May 13, and June 20, 2008, for laboratory analysis.

Our findings during the soil boring program and groundwater monitoring activities are discussed below; followed by proposed recommendations.

- Based on the soil boring data obtained by Elke Environmental in January 2008 and Trident Environmental in May 2008 the chloride impact to the vadose zone is limited to within the perimeter of the former drilling pit. The greatest mass of chloride in the vadose zone was observed at the northeast corner and southwest corner of the pit.
- Based on the soil sampling data, brine from the pit migrated through the vadose zone to ground water via saturated flow during operation of the drilling pit or sometime during the drying process. The uniform decline of chloride concentrations observed from about 20 feet below grade to the water table is due to dilution of the migrating brine by less saline ground water residing within the capillary fringe. Low porosity in the indurated sandy caliche at these depths may also contribute to lower chloride measurements because it retains a smaller mass of brine relative to the more unconsolidated soils above which exhibit a higher porosity.
- Chloride and total dissolved solids (TDS) concentrations in groundwater at monitoring well MW-1, and soil borings B-1, B-3, and B-4 exceeded Water Quality Control Commission (WQCC) standards. The highest chloride (6,180 mg/L) and TDS (12,500 mg/L) levels were at MW-1 which is adjacent to the downgradient (southeast) corner of the former drilling pit. Horizontal dispersion of the chloride and TDS in groundwater does not extend beyond approximately 150 feet downgradient (southeast) of the southeast corner of the pit as evidenced by the results of boring B-2 where background chloride and TDS levels were observed in groundwater.
- One 4-inch recovery/monitoring well (RW-1) located near the center of mass of groundwater chloride, but outside of the well anchors and deadman zone, is proposed to define the vertical extent of groundwater impairment at the site.
- The proposed groundwater remedy is a short-term, demand-based pump-and-use strategy that recovers brackish groundwater from the proposed recovery well (RW-1) as water supply for drilling oil and gas wells in the area if TDS concentrations are above 3,000 mg/L in RW-1.
- The proposed drilling pit excavation closure is construction of an infiltration barrier to eliminate the migration of residual brines from the vadose zone to groundwater
- Regulated hydrocarbons are not present in groundwater or the vadose zone



2.0 SITE DESCRIPTION

2.1 LOCATION

The South Four Lakes #15 well site is located on State land in Township 12 South, Range 34 East, Section 2, and Unit Letter G (N 33° 18' 30.5", W 103° 28' 48.2"). To access the site:

- 1. Drive west on Highway 380 ten miles from the intersection of Highway 380 and Highway 206 in Tatum, New Mexico.
- 2. At mile marker 217 turn right, proceed through cattle guard, and continue north about 0.35 miles on the dirt lease road.
- 3. Turn left and proceed 0.1 mile west along south side of tank battery and then north 0.1 miles to the site (see Figure 1).

Figure 2 is a recent (2005) aerial photo showing the general area and access to the site. A photograph showing most of the site facing southeast is included on the front cover of this report.

2.2 DETAILED SITE MAP

As shown in Figure 3, the current environs at the site include:

- an active gas well (API # 30-025-36882)
- an open drilling pit excavation varying from 2-ft to 6-ft deep below ground surface
- a closed deep trench burial pit containing the former contents of the drilling pit
- five soil borings (TP-1 through TP-5) that were sampled and then plugged in January 2008
- four soil borings (B-1 through B-4) that were sampled and then plugged on May 29, 2008
- One monitoring well (MW-1) located near the southeast edge of the former drilling pit.
- Four deadman anchors utilized for well work over operations

2.3 NEARBY WELLS AND WATER SUPPLIES

There are no surface water bodies or water wells within 1,000 feet of the site. The nearest surface water body is a livestock watering pond fed by a windmill well (NMOSE Permit # L-0656) located approximately 0.4 miles west (see Figure 2).

The nearest water well is an out of service water supply well (NMOSE Permit # L-3005) located approximately 0.3 miles north (Figure 2).

The South Four Lakes tank battery is located approximately 400 feet south of the South Four Lakes #15 well site (see Figure 2). There are several monitoring wells and a groundwater remediation system located at the tank battery site (1R-204).



2.4 SITE HISTORY

Pertinent events that occurred at the site are listed chronologically in Table 1 below.

Date	Description
November 8, 2004	Well spudded.
September 8, 2006	C-104 filed to allow for transport of product
August 24, 2007	C-144 pit closure form approved by NMOCD
December 10, 2007	Revised C-144 submitted by Elke Environmental approved by NMOCD
January 8-21, 2008	Initial soil and groundwater sampling activities performed by Elke Environmental.
January 30, 2008	C-141 release notification form submitted by Elke Environmental
February 12, 2008	NMOCD requires submission of Abatement Plan and assigns AP #78
March 27, 2008	Initial site visit conducted by Trident Environmental
April 7, 2008	Investigation and Remediation Plan (IRP) submitted to NMOCD
April 16, 2008	NMOCD verbally acknowledges IRP to satisfy Abatement Plan requirements
May 13, 2008	Groundwater sampling and monitoring event performed at site (MW-1)
May 29, 2008	Soil boring program initiated to define vertical and horizontal extent of any impairment to groundwater
June 19, 2008	Second quarter groundwater sampling and monitoring event performed at site (MW-1)
September 9, 2008	Third quarter groundwater sampling and monitoring event performed at site (MW-1)

Table 1: Site History

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3.0 PROCEDURES – SOIL BORING AND GROUNDWATER INVESTIGATION

On May 29, 2008, Trident Environmental mobilized to the site to perform soil boring activities. The drilling contractor, Atkins Engineering (Roswell NM) utilized a Mobile 58 drilling rig and a 7 ¹/₄- inch O.D. hollow stem augers to advance four soil borings at the locations depicted in Figure 2. Photographs depicting the soil and groundwater investigation are included in Appendix A. The following procedures were performed at each boring location:

- 1. Lithologic descriptions of the soils encountered in each boring were recorded in a field log book.
- 2. Groundwater samples were collected at various depths through the augers using a trip bailer. Specific conductance (SC), pH, and temperature of these samples were measured in the field with a Hanna Combo meter (Model No. HI 98130) to determine the vertical and horizontal extent of any groundwater impairment and to provide guidance in locating additional boreholes. Because of slow recharge of groundwater through the augers, especially at shallower depths as drilling proceeded, there was not enough sample volume collected for laboratory analysis, except at the termination of each boring.
- 3. At the bottom of each boring, groundwater samples were obtained through the augers using the trip bailer and submitted to the laboratory analysis for SC, chloride, and total dissolved solids (TDS) analysis to correlate field measurements with laboratory measurements. Groundwater samples were submitted to XENCO Laboratories (Odessa TX).
- 4. In the first boring, flowing sands under lithostatic and/or hydrostatic pressure were observed below 51 feet bgs where a semi-confining sandstone/quartzite layer was encountered, therefore all subsequent borings were terminated upon reaching the sandstone/quartize layer. Aside from the inability to collect groundwater samples below this depth, the termination of each boring at approximately 51 feet bgs was also due to concerns that we could not create enough pressure to hold down the flowing sands and drilling deeper could compromise our ability to create a proper borehole seal.
- 5. On June 20, 2008 and September 9, 2008, Rozanne Johnson (Arc Environmental) performed the groundwater sampling event at monitoring well MW-1.

Since regulated hydrocarbons were not detected in any groundwater samples from MW-1 or from the deep soil samples from within the former drilling pit, samples from the auger borings were not submitted for analysis of regulated hydrocarbons. In addition, there were no observations (visual or odor) of hydrocarbons during the soil boring activities.



4.0 RESULTS

4.1 Soil Boring Delineation Program

The first boring (B-1) was completed approximately 100 feet downgradient of existing monitoring well MW-1, which is located near the southeast corner of the former drilling pit. Since depth discrete groundwater specific conductivity (SC) readings from this boring suggested readings above background conditions, a second boring (B-2) was installed another 75 feet downgradient where conductivity readings indicated background levels. A third (B-3) and fourth (B-4) soil boring were installed approximately 25 feet south and 25 feet east, respectively, of the former drilling pit to horizontally delineate conditions closer to the targeted source. The location of each soil boring is shown on Figures 3 and 4.

Generally, the first few feet of subsurface soils consisted of a clayey loam. Below this layer, silty clayey fine sand and fine sands with interbeds of caliche and indurated sands were encountered until a depth of approximately 25 feet where groundwater was reached. Below this depth fine sands continued to a depth of approximately 51 feet where a very hard sandstone/quartzite layer was encountered. Below the approximately 1- to 2-foot thick sandstone/quartzite layer, loose and unconsolidated fine-grained flowing sands were encountered. Groundwater was encountered at approximately 25 feet bgs. A more detailed description of each soil boring is provided on the lithologic logs in Appendix B. Laboratory analysis of chloride concentrations for each soil sample is summarized in Table 2 below, depicted on Figure 2, and shown on the individual lithologic logs in Appendix B. Field and laboratory analysis of groundwater samples from the soil boring program are summarized in Table 3 below and depicted on Figure 3.

Soil S	Sample Chloride A	Analyses from Borings
Boring ID	Depth (ft bgs)	Chloride Concentration (mg/kg)
	5'	<5.0
	10'	2,650
B-1	15'	86.4
	20'	38.2
	25'	30.2
	5'	235
	10'	1,090
B-2	15'	513
	20'	408
	25'	371
	5'	590
	10'	2,230
B-3	15'	230
	20'	1,730
	25'	851
	5'	1,400
	10'	72.7
B-4	15'	59.8
	20'	82.7
	25'	80.6

Table 2



Pride Energy Company – South Four Lakes #15 Stage 2 Abatement Plan (AP-78)

Table 3 Groundwater Analyses from Soil Borings											
	Field Measu	red Values	Lab Analyzed Values								
Boring ID	Depth	Se SC	Chloride	TDS							
1	(ft bgs)	(mS/cm) ~	<>> (mg/L)	<u>(mg/L)</u>							
	38	2.36									
B-1	48	3.44	1,040	2,210							
	58	1.75									
B.2	37	0.84									
D-2	48	0.80	56.0	418							
	43	10.00									
B-3	51	5.72	1,450	3,270							
	52	2.26									
P 4	38	9.74									
D-4	50	13.04	4,550	7,790							

--- Indicates insufficient water sample volume for lab analysis

The laboratory analytical reports and chain of custody documentation for the soil and groundwater sampling are in Appendix C.

4.2 GROUNDWATER MONITORING WELL SAMPLING

The recent and historic groundwater chemistry and groundwater elevation measurements at MW-1 are summarized in Table 4. The most recent chloride and TDS concentrations have decreased since the previous sampling event conducted in June. There are no indications of hydrocarbon impact to the groundwater as concentrations have been below WQCC standards and laboratory method detection limits for each constituent of BTEX. The laboratory analytical reports and chain of custody documentation for the most recent sampling event are in Appendix C. The well sampling data forms are included in Appendix D.

							•	
Sample Date	Depth to Groundwater (feet BTOC)	SC (mS/cm)	Chloride (mg/L)	TDS (mg/L)	Benzene (mg/L)	Toluene. (mg/L)	Ethylbenzene (mg/L)	Xylene (mg/L)
01/23/08	29.1		3,930					
03/13/08	26.25	12.34	4,150	9,820	< 0.001	< 0.002	< 0.001	< 0.003
06/20/08	26.46	14.05	6,180	12,500				
09/09/08	26.55	13.40	4,850	9,700	< 0.001	< 0.001	< 0.001	< 0.003
	WOCC S	Standards	250	1.000	0.01	0.75	0.75	0.62

 Table 4

 Groundwater Analyses from Monitoring Well MW-1

--- Indicates sample not analyzed for this constituent.

Values in **boldface** type indicate concentrations exceed New Mexico Water Quality Commission (WQCC) standards.



5.0 CONCLUSIONS

Based on the soil boring data obtained by Elke Environmental in January 2008 (TP-1 through TP-5) and Trident Environmental in May 2008 (B-1 through B-4) the chloride impact to the vadose zone is limited to within the perimeter of the former drilling pit. The greatest chloride mass was observed at the TP-2 (northeast corner) and TP-3 (southwest corner) of the pit.

Based on the soil sampling data, brine from the pit migrated through the vadose zone to ground water via saturated flow during operation of the drilling pit or sometime during the drying process. The uniform decline of chloride concentrations observed from about 20 feet below grade to the water table is due to dilution of the migrating brine by less saline ground water residing within the capillary fringe. Low porosity in the indurated sandy caliche at these depths may also contribute to lower chloride measurements because it retains a smaller mass of brine relative to the more unconsolidated soils above which exhibit a higher porosity. The soil borings partially penetrated a very hard sandstone/quartzite layer at 51-feet bgs. This well-cemented horizon creates a permeability barrier between the uppermost portion of the Ogallala Aquifer and the lower section of the aquifer which is also reflected by the decreased SC levels below this layer (Table 3).

Chloride and TDS concentrations in groundwater at monitoring well MW-1, and soil borings B-1, B-3, and B-4 exceeded WQCC standards. The highest chloride (6,180 mg/L) and TDS (12,500 mg/L) levels were at MW-1 which is expected due to it's immediately downgradient location with respect to the former drilling pit. Horizontal dispersion of the chloride and TDS in groundwater does not exceed beyond approximately 150 feet downgradient (southeast) of the southeast corner of the pit as evidenced by the results of boring B-2 where background chloride and TDS levels were observed in groundwater.

As cited by Fetter (*Applied Hydrogeology*, 2^{nd} Edition, Table 4.5, p. 80) and Freeze and Cherry (*Groundwater*, 1st Edition, Table 2.3, p. 29) hydraulic conductivity values at the site would likely range from approximately 10^{-3} to 10^{-2} cm/sec (3 to 30 ft/day) based on the lithologic description of the upper portion of the Ogallala Formation (fine to medium sand and caliche) which was penetrated by the soil borings. With a porosity of 0.25 and hydraulic gradient of 0.002 ft/ft that would correspond to an estimated average linear groundwater velocity ranging from approximately 0.024 to 0.24 ft/day (9 to 90 ft/year) according Darcy's Law. Assuming the center of chloride mass has traveled approximately 150 ft downgradient from the former drilling pit since November 2004 (well spudding) that would correspond to a linear velocity of about 40 ft/yr.



6.0 STAGE 2 ABATEMENT PLAN

Data collected to date indicates chloride/TDS-impaired groundwater exists beneath the site and chloride concentrations above 1,000 mg/kg exist in the vadose zone below the former drilling pit. The suspected source of the chloride in the vadose zone and groundwater at the site is the former drilling pit. The following remedies to the groundwater and vadose zone are proposed:

6.1 **GROUNDWATER REMEDY**

Pride Energy proposes to perform the following corrective actions for groundwater remedy:

- 1. Conduct one additional quarterly groundwater sampling event
- 2. Evaluate the groundwater monitoring and sampling data and in April 2009 provide an annual report to NMOCD with additional recommendations.
- 3. After NMOCD approval of the Stage 1 and 2 Abatement Plan:
 - a. Use mud rotary drilling and install RW-1 approximately 20 feet south of MW-1 (outside of the deadman zone) to further define the vertical magnitude of groundwater impairment and to serve as a supply well for the proposed pumpand-use remedy. The depth of this well will not go beyond 100 ft bgs (expected base of Ogallala Fm.) and will terminate when field conditions (specific conductivity readings) indicate declining chloride levels with depth.
 - b. Perform an aquifer test on RW-1 or use pump test data from comparable wells in the vicinity to provide data that will assist in creating a better estimate the rate of natural groundwater restoration and the rate of contaminant migration
 - c. Implement an on-demand, pump-and-use groundwater restoration program in which the proposed recovery well provides water for nearby oil and gas drilling operations if TDS concentrations are above 3,000 mg/L in RW-1. Pride will provide additional details regarding the pump-and-use strategy after completion and testing of RW-1.
- 4. In April of 2010, provide an annual groundwater monitoring report to NMOCD that evaluate the data from the proposed drilling of RW-1, pumping and groundwater sampling program and propose recommendations for:
 - a. a natural restoration/monitoring groundwater remedy or
 - b. continuation of a pump-and-use groundwater restoration strategy



6.2 VADOSE ZONE REMEDY

Pride Energy proposes to perform the following corrective actions for the vadose zone:

- 1. Expand the existing pit excavation as necessary to create a 3-foot wide area where subsurface impact of pit leakage does not exist (Figure 5, Step 1).
- 2. Use the material from the pit expansion or deepen the excavation as necessary to create a sloping surface on the bottom of the excavation as shown in Figure 5 (Step 2).
- 3. Over the sloping surface place sheets of 20-mil reinforced liner material that meet NMOCD specifications for pit liners. These shingles are laid to shed any infiltrated water from the pit area to native soil and to prevent any upward migration of chloride into the root zone.
- 4. Backfill the excavation with clean material, beginning with caliche and/or sand and finishing the top of the backfill with about 6-inches of soil that is capable of supporting native vegetation.
- 5. The new surface grade is a 3-5% slope that drains to a "ponding area". The final grade of the surface over the former pit should blend with the surroundings as much as possible. Figure 5 (Step 3), which shows a 5% slope that resembles a large "pitchers mound", is one example of a final surface that allows for drainage of storm water away from the former drilling pit.
- 6. Seed the reclaimed pit with a mixture approved by the State Land Office and monitor for growth.

6.3 SCHEDULE OF ACTIVITIES

Pride Energy will perform one additional groundwater monitoring and sampling event at MW-1 to complete a full year of quarterly monitoring at the site. Groundwater samples will be submitted to the laboratory for the following analyses:

- Chloride (EPA Method SM4500B formerly 325.1)
- TDS (EPA Method SM2540C formerly Method 160.1)

Upon OCD approval of the proposed abatement activities, Pride will commence the proposed work elements.

FIGURES











STEP 1

0 Feet 50 Approximate Scale

Excavate as required to create 3-foot clean zone around chloride impact

Reserve all topsoil and clean caliche

STEP 2

Create sloping surface at bottom of excavation Center of sloping surface should be 3 to 4 feet below grade Place 20-mil liner "shingles" over prepared surface Shingles drain to un-impacted caliche



ENVIRONMENTAL

STEP 3

Excavate ponding area(s)

Backfill excavation with clean caliche and sand over liner - retain slope

Place about 6-inches of topsoil over clean caliche/sand - retain slope

Grade to allow excess runoff to ponding area

Re-seed with native species or a mix approved by the State Land Office

Pride Energy Company South Four Lakes #15 T12S - R34E - Section 2 - Unit G Lea County, New Mexico

Figure 5

Drilling Pit Ecavation and Closure Diagrams

APPENDIX A

PHOTODOCUMENTATION

Photodocumentation of soil and groundwater investigation at the South Four Lakes #15 Site (AP-78)



View facing northwest showing drilling activities at soil boring B-1. Wellhead and drilling pit shown at left-center.



View facing southeast showing drilling at boring B-2 (background). MW-1 is shown in foreground and S. Four Lakes Tank Battery is in far background.



View facing west showing drilling/sampling at soil boring B-3 located about 25 south of drilling pit. Monitoring well MW-1 is shown in foreground.



View facing north showing drilling rig at soil boring B-4 (~25 ft east of drilling pit. Monitoring well MW-1 is shown in foreground.

Page 1 of 2

Photodocumentation of soil and groundwater investigation at the South Four Lakes #15 Site (AP-78)

Page 2 of 2



Retrieving trip bailer from hollow-stem augers.



Collection of groundwater water samples from trip bailer.



Panoramic view of site facing northwest showing drilling activities at soil boring B-2. Wellhead and drilling pit in background.

APPENDIX B

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SOIL BORING LITHOLOGIC LOGS

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1	ĸ	D	EΓ	N'	,		CONTR	ACTOR: Atkins Engineering	COUNTY:	Lea
	ENVI	RONM	IENT	AL		L	RILLING	ETHOD: Hollow-Stem auger (7.25" dia.)	STATE:	New Mexico
	/			-			STAR	T DATE: May 29, 2008	LOCATION:	T125 - R34E - Section 2 - Unit Letter
						C	OMPLETIO	N DATE: May 29, 2008	FIELD REP .:	Gil Van Deventer
							COM	MENTS: Located ~100-ft southeast of mo	nitoring well M	N-1 and southeast corner of drilling pl
	_			-			1.12.13	Latitude 33° 18' 30.7" North and	Longitude 1039	28' 47.4" West
		Sample	Time	Туре	Chloride	SC	USCS	LITHO	LOGIC DESCR	IPTION:
0	-	Depui	0740		(mg/kg)	(ms/cm)	-	LITHOLOGY, COLOR, GRAIN	SIZE, SORTING	, ROUNDING, CONSOLIDATION
ug			0/40			1.00	CAL	Caliche well pad		
ento e Pl							00	Brown clayey loam		
8 B Hol			1			1.5	SC			
31		5	0745	Cuttings	< 5			Silty fine sand and caliche; grayish orange	(10YR 7/4) and	d very pale orange (10YR 8/2).
			1				1.1	Olighthy down from 7 ft to 40 ft		
								Signuy damp from 7 ft to 16 ft		
			1							
		10	0750	Cuttings	2650		SMICAL	Silty fine sand and caliche; grayish orange	(10YR 7/4) and	d very pale orange (10YR 8/2).
							SWI/CAL			
		-	-				1.1	The second second		
			-				100 12	The William Street		
		45	0755	Cutting	86.4		1.32%	Silly fine cand and caliaba: arouish arouse	(10VP 7/4)	Ven nale orange (10VD 8/2)
		15	10/55	Cuttings	00.4		1.28	Sity line sand and caliche, grayish orange	(10TR //4) and	a very pale orange (101 R 8/2).
							100	Hard caliche laver at 16 ft: drv		
							10.00			
		20	0802	Cuttings	38.2		CAL/SM	Very fine sandy caliche(calcified); very pale	e orange (10YR	8/2); dry; very hard
ä			-				1.8 11 17			
			-					27		
			-							and the second
	T	25	0811	Cuttings	30.2		1.116	Fine to medium-grained sand; grayish oran	nge (10YR 7/4);	subrounded; moderately well sorted;
			1	-						
			-							
			-					Bally and the Market of the		
		30	-					Fine-grained sand: gravish grange (10VP	7/A): subrounde	d moderately sorted wet
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			0840	Water		2.36	SW			
			10040	Trater		2.00				
		40	1					Fine-grained sand; grayish orange (10YR 7	7/4); subrounde	d; moderately sorted; wet
		45						Fine-grained sand: gravish grange (10VR 3	7/4); subrounde	d: moderately sorted: wet
			1					g	,,	
			0900	Water		3.44		Lab Chloride = 1040 mg/L; Lab TDS = 221	0 mg/L	
		50	-					Eine grained aand: graviek erenge (10)/D	7/4): outrour de	di modoratolu porte di unat
		50				- 1		rine-grained sand; grayish orange (10YR 7	(14), subrounde	a, moderately sorted; wet
								Very hard sandstone with guarztite.		
			1					distance.		
			1							
		55					SS/QZ			
			0055	Meter		1 75		Could not collect enough water sample for	lah analusia El	owing cand backfilled to 54 8 in baring
₹7,25"—			0855	vvater		1./5		Bottom of boring at 58 ft below ground su	rface	owing sand backlilled to 51 It in boring
	-		1					posterio o bornig at oo it below ground su	1000.	

T	R	ID) RONM	EN	T	-		TORING WE SITE CONTR RILLING M STAR OMPLETIO COM	ELL NO.: B-2 TOTAL DEPTH: 51 Feet bgs ENAME: South Four Lakes #15 CLIENT: Pride Energy Company ACTOR: Atkins Engineering COUNTY: Lea ETHOD: Hollow-Stem auger (7.25" dia.) STATE: New Mexico T DATE: May 29, 2008 LOCATION: T12S - R34E - Section 2 - Unit Letter O N DATE: May 29, 2008 FIELD REP.: Gil Van Deventer MENTS: Located ~175-ft southeast of monitoring well MW-1 and southeast corner of drilling pit. Latitude 33° 18' 30.3" North and Longitude 103° 28' 46.8" West
÷		e	Time	Туре	Chloride	SC	USCS	LITHOLOGIC DESCRIPTION:
_ te		Denth			(mg/kg)	(mS/cm)	CAL	LITHOLOGY, COLOR, GRAIN SIZE, SORTING, ROUNDING, CONSOLIDATION Caliche well pad
3/8 Benton Hole Plug		5	1050	Cuttings	235		SC	Dark brown clayey loam
		10	1055	Cuttings	1090		SC/CAL	Light brown (5YR 6/4) silty clayey very fine sand and caliche, dry
		15	1100	Cuttings	513			Tan silty clayey very fine sand and caliche, dry
1		20	1110	Cuttings	408		CAL/SM	Fine-grained sand, grayish orange (10YR 7/4), with streaks of caliche/sandstone, dry
	•	25	1115	Cuttings	371		1	Fine-grained sand, grayish orange (10YR 7/4), damp
		30	1120					Fine-grained sand, grayish orange (10YR 7/4), subrounded; moderately well sorted; wet
		35 40		Water		0.84	sw	Fine-grained sand, light yellowish brown (10YR 6/4), subrounded, moderately well sorted; wet Fine-grained sand, light yellowish brown (10YR 6/4), subrounded, moderately well sorted; wet
		45		Water		0.80		Fine-grained sand, light yellowish brown (10YR 6/4), subrounded, moderately well sorted; wet
←7.25"→		50					SS/QZ	Fine-grained sand, light yellowish brown (10YR 6/4), subrounded, moderately well sorted; wet Very hard sandstone with quarztite. Bottom of boring at 51 ft below ground surface.
		55						

			1			MONI	TORING WE	ELL NO.: B-3 TOTAL DEPTH: 52 Feet bgs
			X	-			SITE	E NAME: South Four Lakes #15 CLIENT: Pride Energy Company
	R	D	FN	JT			CONTR	ACTOR: Atkins Engineering COUNTY: Lea
E	NVI	RONA	(ENT			C	RILLING M	ETHOD: Hollow-Stem auger (7.25" dia.) STATE: New Mexico
-	/						STAR	T DATE: May 29, 2008 LOCATION: T12S - R34E - Section 2 - Unit Letter
						C	OMPLETIO	N DATE: May 29, 2008 FIELD REP.: Gil Van Deventer
							COM	MENTS: Located ~73-ft west of wellhead and ~25 ft south of south edge of drilling pit.
								Latitude 33º 18' 31.2" North and Longitude 103º 28' 48.9" West
		Sampi	Time	Type	Chloride	SC	11909	LITHOLOGIC DESCRIPTION:
		Denth	Time	Type	(mg/kg)	(mS/cm)	0000	LITHOLOGY, COLOR, GRAIN SIZE, SORTING, ROUNDING, CONSOLIDATION
nite							CAL	Caliche well pad
ento 9 Plu			-				See Conto	
B Be Hole				- ^ ^		10.12		Dark house closes loan
3/		5	1300	Cuttings	590		30	Dark brown dayey loan
			1				14.24	
							1.1.2	
		10	1308	Cuttings	2230			Light brown silty clayey very fine-grained sand, dry
			-					
							SC/CAL	
		15	1314	Cuttings	230			Tan silty clayey very fine-grained sand, dry
Ē		20	1322	Cuttings	1730		m. C	Light tan fine-grained sand and caliche; hard streaks, dry
Bac						1.1.1.1	SM/CAL	
							1.19	
		1.5						
	V	25	1325	Cuttings	851	1.1.1	1000	The set of the second
						1.5	1.11	Fine-grained sand, grayish orange (10YR 7/4), moderately sorted, subangular grains, damp
		3						Theorem and the second s
		30	1330				1.1.1	Fine-grained sand, grayish orange (10YR 7/4), moderately sorted, subangular grains, wet
		35	1335				in the second	Fine-grained sand, light yellowish brown (10YR 6/4), moderately sorted, subangular grains, wet
						S	SW	
		40						Fine-grained sand, light yellowish brown (10YR 6/4), moderately sorted, subangular grains, wet
			1345	Water		10.00		
		45						Fine-grained sand, light yellowish brown (10YR 6/4), moderately sorted, subangular grains, wet
	ł	50		Water		5 70	. Paget	Hine-grained sand, light yellowish brown (10YR 6/4), moderately sorted, subangular grains, wet
				Water		2.26	SS/QZ	Very hard sandstone with quarztite. Had trouble getting sample due to flowing sand.
-7.25"->	t							Bottom of boring at 52 ft below ground surface.
	ļ							
	ł	55						
	ŀ							
	ŀ							
	l							
	- 1	60						

			1	Ø.		MONI	TORING WE	ELL NO.: B-4 TOTAL DEPTH: 50 Feet bas
			5	-			SITE	E NAME: South Four Lakes #15 CLIENT: Pride Energy Company
	21	DI	FN	IT			CONTR	ACTOR: Atkins Engineering COUNTY: Lea
			LI			C	RILLING M	ETHOD: Hollow-Stem auger (7.25" dia.) STATE: New Mexico
1 "		KUNM	LAI				STAR	T DATE: May 29, 2008 LOCATION: T12S - R34E - Section 2 - Unit Letter
						C	OMPLETIO	N DATE: May 29, 2008 FIELD REP.: Gll Van Deventer
							COM	MENTS: Located ~35-ft north-northeaest of monitoring well MW-1 and ~25 ft east of east edge
								Latitude 33º 18' 31.1" North and Longitude 103º 28' 47.9" West
		Sampi	Time	Type	Chloride	SC	USCS	LITHOLOGIC DESCRIPTION:
-	-	Denth		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	(mg/kg)	(mS/cm)		LITHOLOGY, COLOR, GRAIN SIZE, SORTING, ROUNDING, CONSOLIDATION
ug	ŀ					1.00	CAL	Caliche well pad
e PI	ŀ					1.11		Caliche and very fine sand, very pale orange (10YR 8/2), dry
Hol	E							
ro	H	5	1533	Cuttings	1400		CAL/SM	
	ł							And the second
						1.11	a las	Same Sectors of the sector of
	-	10	1538	Cuttings	72.7		SC/CAL	Silty clayey very fine-grained sand and caliche, grayish orange (10YR 7/4), dry
	-							
	ŀ							
							12.20	A State of the second se
		15	1541	Cuttings	59.8		SM/CAL	Silty fine-grained sand and caliche, grayish orange (10YR 7/4), dry
	-							
	+							Fine-grained sandstone and caliche, very hard
	F						SS/CAL	
-		20	1650	Cuttings	82.7		100	Silty fine-grained sand and caliche, grayish orange (10YR 7/4), dry
8	-						1.00	
	-						1.1	P A PART
						1.0	1	
		25	1700	Cuttings	80.6	1. L		the second se
	-							Fine-grained sand, grayish orange (10YR 7/4), moderately sorted, subangular grains, damp
	-							
		30	1703					Fine-grained sand, light yellowish brown (10YR 6/4), moderately sorted, subangular grains, wet
	-							
	ŀ							
	F							and the second
		35					1.14.18	Fine-grained sand, light yellowish brown (10YR 6/4), moderately sorted, subangular grains, wet
	-						1.1	
	+		1710	Water		9.7	SW	
	F		110	a valei		0.1	OW	
		40	1712					Fine-grained sand, light yellowish brown (10YR 6/4), moderately sorted, subangular grains, wet
	F							
	t							
		45						Fine-grained sand, light yellowish brown (10YR 6/4), moderately sorted, subangular grains, wet
Annual Contractor								
	ŀ							
		50	1722	Water		13.04		Lab Chloride = 4550 mg/L; Lab TDS = 7790 mg/L
7.25"->								Bottom of boring at 50 ft below ground surface.
	-							
	-							
		55						
	-							

APPENDIX C

:

LABORATORY ANALYTICAL REPORTS

And

CHAIN-OF-CUSTODY DOCUMENTATION

Analytical Report 304935

for

Pride Energy Company

Project Manager: Matt Pride

Pride Energy Company South Four Lakes #15

03-JUN-08



12600 West I-20 East Odessa, Texas 79765

Texas certification numbers: Houston, TX T104704215

Florida certification numbers: Houston, TX E871002 - Miami, FL E86678 - Tampa, FL E86675 Norcross(Atlanta), GA E87429

> South Carolina certification numbers: Norcross(Atlanta), GA 98015

> North Carolina certification numbers: Norcross(Atlanta), GA 483

Houston - Dallas - San Antonio - Austin - Tampa - Miami - Latin America Midland - Corpus Christi - Atlanta



03-JUN-08

Project Manager: Matt Pride Pride Energy Company P.O. Box 701950

Tulsa, OK 74170

Reference: XENCO Report No: **304935 Pride Energy Company** Project Address: T12S-R34E, Section 2, Unit Letter G

Matt Pride:

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 304935. 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. 304935 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 304935

Pride Energy Company, Tulsa, OK

Pride Energy Company

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
B-1 (5')	S	May-29-08 07:45		304935-001
B-1 (10')	S	May-29-08 07:50		304935-002
B-1 (15')	S	May-29-08 07:55		304935-003
B-1 (20')	S	May-29-08 08:02		304935-004
B-1 (25')	S	May-29-08 08:11		304935-005
B-2 (5')	S	May-29-08 10:50		304935-006
B-2 (10')	S	May-29-08 10:53		304935-007
B-2 (15')	S	May-29-08 11:00		304935-008
B-2 (20')	S	May-29-08 11:10		304935-009
B-2 (25')	S	May-29-08 11:15		304935-010
B-3 (5')	S	May-29-08 13:00		304935-011
B-3 (10')	S	May-29-08 13:08		304935-012
B-3 (15')	S	May-29-08 13:14		304935-013
B-3 (20')	S	May-29-08 13:22		304935-014
B-3 (25')	S	May-29-08 13:25		304935-015
B-4 (5')	S	May-29-08 15:33		304935-016
B-4 (10')	S	May-29-08 15:38		304935-017
B-4 (15')	S	May-29-08 15:41		304935-018
B-4 (20')	S	May-29-08 16:50		304935-019
B-4 (25')	S	May-29-08 17:00		304935-020

ì

NVIRONMENTA LABO

Pride Energy Company, Tulsa, OK

Project Name: Pride Energy Company

Project Id: South Four Lakes #15 Contract. Matt Daide P

Contact: Matt Pride		Date Received in Lab: Sat May-31-08 01:05 pm											
Project Location: T12S-R34E Section 2 Unit I	etter G							Report	Date:	03-JUN-08			
								Project Ma	nager:	Brent Barron,	п		
	Lab Id:	304935-	001	304935-	002	304935-0	003	304935-0	004	304935-0	05	304935-0)06
Analysis Paguastad	Field Id:	B-1 (5	')	B-1 (10	0)	B-1 (15	5')	B-1 (20))	B-1 (25	າ 🛛	B-2 (5)
Anaiysis Kequesiea	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	May-29-08	07:45	May-29-08	07:50	May-29-08	07:55	May-29-08	08:02	May-29-08	08:11	May-29-08	10:50
Inorganic Anions by EPA 300	Extracted:	·											
morganie minono by Erm boo	Analyzed:	Jun-03-08 12:45		Jun-03-08 12:45		Jun-03-08	12:45	Jun-03-08	12:45	Jun-03-08 12:45		Jun-03-08 12:45	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		ND	5.00	2650	25.0	86.4	25.0	38.2	25.0	30.2	25.0	235	25.0

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

Odessa Laboratory Director



Pride Energy Company, Tulsa, OK

Project Name: Pride Energy Company

Project Id: South Four Lakes #15 Contact: Matt Pride Project Location: T12S-R34E, Section 2, Unit Letter G

Date Received in Lab: Sat May-31-08 01:05 pm

Report Date: 03-JUN-08

								Project Ma	nager:	Brent Barron,	Π		
	Lab Id:	304935-0	007	304935-0	08	304935-0	09	304935-0	010	304935-0	11	304935-0	12
Anabusis Requested	Field Id:	B-2 (10)')	B-2 (15	o	B-2 (20	רי	B-2 (2	5')	B-3 (5)	B-3 (10	ŋ
Analysis Kequesieu	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	May-29-08	10:53	May-29-08	11:00	May-29-08	11:10	May-29-08	11:15	May-29-08	13:00	May-29-08	13:08
Inorganic Anions by EPA 300	Extracted:												
inorganie mitono by Si ii ove	Analyzed:	Jun-03-08	12:45	Jun-03-08 1	2:45	Jun-03-08	12:45	Jun-03-08	12:45	Jun-03-08 I	2:45	Jun-03-08 I	2:45
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL.	mg/kg	RL	mg/kg	RL
Chloride		1090	50.0	513	25.0	408	25.0	371	50.0	590	50.0	2230	50.0

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Brent Barron

Odessa Laboratory Director

ENVIRONMENTA LAGO

Pride Energy Company, Tulsa, OK

Project Name: Pride Energy Company

Project Id: South Four Lakes #15 Pro

Contact: Matt Pride							Da	te Received i	n Lab:	Sat May-31-0	8 01:05	pm	
ect Location: T12S-R34E. Section 2. Unit L	etter G							Report	Date:	03-JUN-08			
								Project Ma	nager:	Brent Barron,	II		
	Lab Id:	304935-0	013	304935-0	14	304935-0	15	304935-	016	304935-0	17	304935-0)18
Analysis Degracted	Field Id:	B-3 (15	i)	B-3 (20	י ר	B-3 (25	")	B-4 (5	")	B-4 (10	り	B-4 (15	5 7)
Analysis Kequesiea	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	May-29-08	13:14	May-29-08 1	3:22	May-29-08	13:25	May-29-08	15:33	May-29-08	15:38	May-29-08	15:41
Inorganic Anions by EPA 300	Extracted:									1			
	Analyzed:	Jun-03-08	12:45	Jun-03-08 1	2:45	Jun-03-08 1	2:45	Jun-03-08	12:45	Jun-03-08 1	2:45	Jun-03-08 1	12:45
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		230	25.0	1730	50.0	851	25.0	1400	25.0	72.7	25.0	59.8	25.0

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Brent Barron

Odessa Laboratory Director



Pride Energy Company, Tulsa, OK

Project Name: Pride Energy Company

Project Id: South Four Lakes #15 Contact: Matt Pride Project Location: T12S-R34E, Section 2, Unit Letter G

Date Received in Lab:Sat May-31-08 01:05 pmReport Date:03-JUN-08

Project Manager: Brent Barron, II

	Lab Id:	304935-0	19	304935-0	20		
Amalucia Daguartad	Field Id:	B-4 (20	り	B-4 (25)		
Analysis Requested	Depth:						
	Matrix:	SOIL		SOIL			
	Sampled:	May-29-08	16:50	May-29-08	17:00		
Inorganic Anions by EPA 300	Extracted:						
g	Analyzed:	Jun-03-08]	12:45	Jun-03-08 l	2:45		
	Units/RL:	mg/kg	RL	mg/kg	RL		
Chloride		82.7	25.0	80.6	25.0		

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Brent Barron

Odessa Laboratory Director



- 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 effect the recovery of the spike concentration. This condition could also effect 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 MQL(PQL) and above the SQL(MDL).
- 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.
- * Outside XENCO'S scope of NELAC Accreditation

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(210) 509-3334	(210) 509-3335
(813) 620-2000	(813) 620-2033
(305) 823-8500	(305) 823-8555
(770) 449-8800	(770) 449-5477
	Phone (281) 589-0692 (214) 902 0300 (210) 509-3334 (813) 620-2000 (305) 823-8500 (770) 449-8800





Project Name: Pride Energy Company

Work Order #: 304935		Project ID: South Four Lak						
Lab Batch #: 724237	Sample: 724237	7-1-BKS	Matri	ix: Solid				
Date Analyzed: 06/03/2008	Date Prepared: 06/03/2	2008	Analys	st: LATCO	OR			
Reporting Units: mg/kg	Batch #: 1	BLANK	/BLANK SPI	OVERY S	TUDY			
Inorganic Anions by EPA 300	Blank Result	Spike Added [B]	Blank Spike Result	Blank Spike %R	Control Limits %R	Flags		
Analytes	[A] [B] Result %R %R [C] [D]							
Chloride	ND	10.0	9.91	99	75-125			

Blank Spike Recovery [D] = 100*[C]/[B] All results are based on MDL and validated for QC purposes. ,



Form 3 - MS Recoveries



Project Name: Pride Energy Company

Work Order #: 304935						
Lab Batch #: 724237			Pro	oject ID:	South Four	Lakes #15
Date Analyzed: 06/03/2008	Date Prepared:	06/03/2008	3	Analyst:	LATCOR	•
QC- Sample ID: 304935-001 S	Batch #:	1		Matrix:	Soil	
Reporting Units: mg/kg	MAT	RIX / MA	TRIX SPIKE	RECOV	ERY STU	DY
Inorganic Anions by EPA 300	Parent Sample Bosult	Spike	Spiked Sample Result	%R	Control Limits	Flag
Analytes	[A]	Added [B]		[U]	% K	
Chloride	ND	100	87.7	88	75-125	
			· · · · · · · · · · · · · · · · · · ·			

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





Project Name: Pride Energy Company

Work Order #: 304935

Lab Batch #: 724237				Project I	D: South Fo	our Lakes #15
Date Analyzed: 06/03/2008	Date Pre	pared: 06	/03/2008	Analy	st: LATCO	R
QC- Sample ID: 304935-001 D	B	atch #:	1	Matr	ix: Soil	
Reporting Units: mg/kg		SAMPLE	/ SAMPLE	DUPLIC	ATE REC	OVERY
Inorganic Anions by EPA 300]	Parent Sampl Result [A]	e Sample Duplicate Result	RPD	Control Limits %RPD	Flag
Analyte			[B]			
Chloride		ND	ND	NC	20	

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

	Co	mpany Nami	e: Trid	lent E	nviror	ment	al		Projes	1 Marrie	Pri	de El	nergy	Com	pany	22	
Direct Invoice To: Matt Prixte	Pro	ject Manage	r: <u>Gil</u>	Van C)even	ler			(roject i	So	uth F	our L	akes	915	1	
City State Ze Cote Tuisa, OK 74170 1050	tip.	Address	s: <u>P. C</u>). Boy	(7624	Aliente) Avente			troject L	ocation	r: <u>T1</u>	2 <u>S-R</u>	<u>34E.</u>	Sectio	on 2, I	<u>Unit Le</u>	<u>stter</u>
Telechone No: 918-524-9200	Cny, Su	ita. Zip Code	A22	ano	9740	/08-/	624			COC	• <u>V1</u>	26-0:	53108	<u>-1</u>	1999 (1997) 1999 (1997)	<u></u>	
Fax No 918-524-9292		Fay No	413	403	9968	in de la seconda d seconda de la seconda de											
Emsil Report to mattp@pride-energy.com	En	uail Report to	gil@	rident	enviro	menta	al com		A.								
Sempler, 'Gil Van Deventer		41	17.	N,	K	والمجاودة والمستنب			42.5								
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LAF # (lab use only) sa	Dev	e.	No: O	a Ś	HO P	22	Visio	Bong	PH A	trotte	ARIE	Collins of	animok TEX 80	N H C	10.10	a big	L IS
/B-1 (5)	05/29/08	0745	11	x	100	1.00		X	西抗		1°	3 5	0 0		+°+	"IX	
B-1 (10)	05/29/08	0750		X X				X			Ħ	<u>, 16</u>			\dagger	Tx	
B-1.(15)	05/29/08	0755	1	< _			ा	X								Tx	Ť
H B-1 (20)	05/29/08	0802	1)	<u>d</u>	83			X							11	Tx	T
B-1 (25)	05/29/08	/(0811)	1)	4				X				33				X	
B-2(5))	05/29/08	1050	1 2	4				X	<u> (</u>						100	X	影
B 2/153	05/29/08	1053	11	9				X								X	制数
B.2 (20)	05/29/08	1100.	\mathbb{P}^{1}				11	X					¥Ľ.			X	
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Page 10of 14

		Company Na	me: Pride Energ	y Company	Con	npany Name	Trident	Enviro	nmental.		Project	Name: <u>P</u>	ride Ener	gy Com	ipany		
		Direct Invocce	To: Matt Pride		Prop	eci Manager	Gil Van	Deven	ter det de	<u>62</u> 903	Pr	ojeci #: <u>S</u>	outh Fou	Lakes	#15		C CALCEL
		Builting Addr	ess: POBOX /	10950	Salar Salar Salar Salar Salar Sal	Address	POB	0x /62	700 700		Project Lo	cation: T	125-R34	<u>. Secli</u>	<u>on 2,°U</u>	Init Lette	er G
		City, State, Zip G	No. 918-524-92	4170-1950		ie, Zip Code:	432.63	1.8740	100-102			00 # V	120-0531	08-2	and the second s		<u>analisisten</u> Sindiki
	:	Fax	No: 918-524-92	92		Far No	413-40	3-9968									
		Email Repor	n w: matip@pride-o	nergy.com	Em	ail Report to	gil@tride	nt enviro	nmental.c	οm							
		Same	der. Gil Van Dev	enter		£1	1.0	X		<u> </u>							
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			B-4 ((10)	05/29/08	1538	1 X	9 N 🖄	調整に	880	\$ (\$ \$)	德森蒙				X	X
		1.44	6 B-4 ((15')	05/29/08	1541	1 X		25.5		()范内		1212		331	X	X
		Maria and Antonio	B-4 ((20')	05/29/08	1650	1 X				(1					X	
		10 0 00 00	B-4 ((25')	05/29/08	1700	11 X				41						X
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Page 1⊡of 14

Variance/ Corrective Action Re	port-Samp	le Log-Ir	Ŷ	
Xient: <u>Pride Energy com</u> p	any	•	······································	
Date/Time: <u>5/3/ /08 4 8</u>				
Lab ID # : 304935-			· .	
Sample Receipt	Checklist	`. · ·		
#1 Temperature of emitalney apple?	1000	hla		Client initials
#2 Shipping container in good condition?	des	No		
#3 Custody Seals intact on shipping container/ cooler?	Res	No	Not Present	
#4 Custody Seals intact on sample bottles/ container?	Cos	No	Not Present	
#5 Chain of Custody present?	Yes	No		
#6 Sample instructions complete of Chain of Custody?	Ves	NO		
#7#Schain of custody signed when reunquished received r	- Ves	No	ID written on Coot / Lie	
#9 Container label(s) legible and intact?	Tres	No	Not Applicable	
#10 Sample matrix/ properties agree with Chain of Custody?	(Yes	No		
#11 Containers supplied by ELOT?	Yes	No		al en gasser a se
#12 Samples In proper container/ bottle?	<u>Yes</u>	No	See Below	
#13 Samples properly preserved?	(Yes)	No	See Below	
#15 Preservations documented on Chain of Custody?	Net	No		
#16 Containers documented on Chain of Custody?	(Yes)	No		
#17 Sufficient sample amount for indicated test(s)?	Yes	No	See Below	
#18 All samples received within sufficient hold time?	(Yes)	No	See Below	
#19 Subcontract of sample(s)?	Yes	No	Not Applicable	
17211 1/11/2 COMPLET BOND 7070 DODDEDDEDD	Yes	NO	C Not Applicable	
TEA AND SUITING TEAD TO TEAD DOCT	and a standard and a standard and a standard and a standard a standard a standard a standard a standard a stand	en er sen er Sen er sen er		NO TRANSFORME
Variance Docu	mentation			
Variance Docu	mentation			
Variance Docu	mentation		Date/ Time:	
Variance Docu Contact: Contact	mentation		Date/ Time:	
Variance Docu Contact: Regarding:	mentation		Dáte/ Time:	
Variance Docu Contact: Regarding:	mentation		Date/ Time	
Variance Docu Contact: Regarding: Corrective Action Taken;	mentation		Date/ Time	
Variance Docu Contact: Regarding: Corrective Action Taken;	mentation		Date/ Time	
Variance Docu Contact: Contacted by Regarding: Corrective Action Taken;	mentation		Date/ Time	
Variance Docu Contact: Contacted by Regarding: Corrective Action Taken:	mentation		Date/ Time	
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Variance Docu Contact: Contacted by Corrective Action Taken: Check all that Apply: See attached e-mail/ fax:	mentation		Date/ Time	
	imentation	ceed with	Date/ Time	
Variance Docu Contact: Contacted by Corrective Action Taken: Corrective Action Taken: Check all that Apply: See attached e-mall/ fax: Client understands and woi Cooling process had begun	Inentation	ceed with	Date/ Time: analysis event	
Variance Docu Contact: Contacted by Regarding	Inentation	ceed with	Date/ Time: analysis: event	
Variance Docu Contact: Contacted by Regarding	imeintation	ceed with	Date/ Time: analysis event	
Veriance: Contact: Contacted by: Regarding: Corrective Action Taken: Check all that Apply: Client understands and woil Cooling. process had begun	imeintation	ceed with sampling	Date/ Time: analysis event	
Veriance: Docu Contact: Contacted by: Regarding:	Internation	ceed with sampling	Date/ Time: analysis event	

Analytical Report 304938

for

Pride Energy Company

Project Manager: Matt Pride

Pride Energy Company

South Four Lakes #15

05-JUN-08



12600 West I-20 East Odessa, Texas 79765

Texas certification numbers: Houston, TX T104704215

Florida certification numbers: Houston, TX E871002 - Miami, FL E86678 - Tampa, FL E86675 Norcross(Atlanta), GA E87429

> South Carolina certification numbers: Norcross(Atlanta), GA 98015

> North Carolina certification numbers: Norcross(Atlanta), GA 483

Houston - Dallas - San Antonio - Austin - Tampa - Miami - Latin America Midland - Corpus Christi - Atlanta



05-JUN-08

Project Manager: Matt Pride Pride Energy Company P.O. Box 701950

Tulsa, OK 74170

Reference: XENCO Report No: **304938 Pride Energy Company** Project Address: T12S-R34E, Section 2, Unit Letter G

Matt Pride:

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 304938. 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. 304938 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.

Respectful

Brent Barron, II Odessa Laboratory Manager

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Sample Cross Reference 304938

Pride Energy Company, Tulsa, OK

Pride Energy Company

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
B-1	W	May-29-08 09:00		304938-001
B-2	W	May-29-08 11:50		304938-002
B-3	W	May-29-08 15:00		304938-003
B-4	W	May-29-08 17:22		304938-004

NVIRONMENTAL I AR O

Pride Energy Company, Tulsa, OK

Project Name: Pride Energy Company

Project Id: South Four Lakes #15 Contact: Matt Pride

Project Location: T12S-R34E, Section 2, Unit Letter G

Date Received in Lab: Sat May-31-08 01:05 pm

Report Date: 05-JUN-08

								Project Ma	nager:	Brent Barron, II	
	Lab Id:	304938-0	001	304938-0	02	304938-0	03	304938-0	04		
Analysis Paguastad	Field Id:	B-1		B-2		B-3		B-4			
Anuiysis Kequesieu	Depth:										
	Matrix:	WATE	R	WATE	R	WATE	R	WATE	R		
	Sampled:	May-29-08	09:00	May-29-08	11:50	May-29-08	15:00	May-29-08	17:22		
Inorganic Anions by EPA 300	Extracted:										
	Analyzed:	Jun-02-08	10:36	Jun-02-08 1	0:36	Jun-02-08 I	0:36	Jun-02-08	10:36		
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL		
Chloride		1040	10.0	56.0	5.00	1450	25.0	4550	50.0		
TDS by SM2540C	Extracted:										
	Analyzed:	Jun-02-08	16:15	Jun-02-08 I	6:15	Jun-02-08 I	6:15	Jun-02-08 1	16:15		
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL		
Total dissolved solids		2210	5.00	418	5.00	3270	5.00	7790	5.00		

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

.

Odessa Laboratory Director

- 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 effect the recovery of the spike concentration. This condition could also effect 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 MQL(PQL) and above the SQL(MDL).
- 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.
- * Outside XENCO'S scope of NELAC Accreditation

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(210) 509-3334	(210) 509-3335
(813) 620-2000	(813) 620-2033
(305) 823-8500	(305) 823-8555
(770) 449-8800	(770) 449-5477
	Phone (281) 589-0692 (214) 902 0300 (210) 509-3334 (813) 620-2000 (305) 823-8500 (770) 449-8800



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South Cour Lakes

נכבבים נוספונים ביבבים מששט מנוינים ביליבים			Ⅲ□□ S Ⅲ□		III 🗆 ater	OR	
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					DO		
Chloride		ND					

 $\label{eq:lank spike Recovery D $$ CT $$ CC $$ OC $$$





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Chloride						

Matrix Spike Percent Recovery [D]] []] (C[A)/] Relative Percent Difference [E]] []] (C[A)/(C]) All Results are based on MDL and Dalidated for QC Purposes





					D □South □o	ur Lakes 🎞
D בברב לכבו לבב מתבערים שנוונים D		בסבבים בכאמ			IIII LATCOR	ι
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Total dissolved solids				۵		

Spike Relative Difference RPD $\square * \square (\square A) (\square A)$ All Results are based on MDL and validated for QC purposes.



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Hint: Line C.B.J.1 (.0.8.) Hund ab ID r			ort- Sampi	e rog-ir		
nitist:	Client: Date/ Time	2131/08 14 18	×٩Υ			in an
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	nitiple	- <u>N</u> G				
Image: second with a single of container / cont	(1)0613.	Sample Receipt	Checklist			
If a Temperature of container / cooler? CY 63 No -7 C 2: Shipping container / good condition? CY 63 No Not Present: 3: Custody Seals induct on shipping container/ cooler? CY 63 No Not Present: 4: Custody Seals induct on sample bottles/ container? CY 63 No Not Present: 4: Custody Seals induct on sample bottles/ container? CY 63 No Not Present: 4: Custody Seals induct on sample to the relinguished / received? CY 63 No Induction container in good when relinguished / received? 4: Contain of Custody ignees with sample tabel(s)? Yes? No Not Applicable Induction of Custody? 4: Oraliance tabel(s) legible and intect? Yes? No Not Applicable Induction of Custody? 4: Oralianer sample by ELOT? Yes? No See Below Induction of Custody? 4: Samples bottles intact? Yes? No See Below Induction 4: Samples proper/ preserved? Yes? No See Below Induction 4: Samples received within sufficient hold time? Yes? No See Below Induction 1: Container sample received within suffic					Client In	itials
33 Custody Seals Intact on Shipping container/ cooler? Top No Not Present 44 Custody Seals Intact on Sample bottles/ container? Cg3 No Not Present 45 Chain of Custody signed when relynquished/ received? Cg3 No Not Present 46 Chain of Custody signed when relynquished/ received? Cg3 No Hot Present 46 Chain of Custody signed when relynquished/ received? Cg3 No Hot Present 47 Sample instructions complete of Chain of Custody? Cg3 No No Hot Present 48 Chain of Custody signed with Chain of Custody? Cg3 No No No Additional Costody? 410 Sample signed with chain of Custody? Cg3 No See Below Additional Costody? Cg3 No	1 Temper	ature of container/ cooler?	(Yes)	NO		
#4 Custody Seats Intact on sample bottles: container? Cap to Custody present? Cap to Custody present? #5 Chain of Custody signed when relinquibled/ received? Cap to Custody signed when relinquibled/ received? No #6 Chain of Custody signed when relinquibled/ received? Cap to Custody signed when relinquibled/ received? No #6 Chain of Custody signed when relinquibled/ received? Cap to Custody signed when relinquibled/ received? No #10 Costainers aupplied of Class of the Custody? Crest No Not Applicable? #10 Costainers aupplied by ELOT? Crest No Not Applicable? #11 Containers aupplied by ELOT? Cap to No See Below Els Sample bottles intact? #13 Samples property preserved? Cap to No See Below Els Sample bottles intact? #13 Samples property preserved? Cap to No See Below Els Sample bottles intact? #14 Sample bottles intact? Cap to No See Below Els Sample bottles intact? #15 Preservations documented on Chain of Custody? Crest No Saa Below Els Sample bottles intact? #15 Subcontract of sample(spi?) Cap to No See Below Els Sample bottles intact? Els Sample bottles intact? #19 Subcontract of	#3 Custody	Seals intact on shipping container/ cooler?	Res	No	Not Present	
45 Chain of Custody present? Yes No 46 Sample instructions complete of Chain of Custody? Yes No 47 Chain of Custody signed when reinquished/ received? Yes No 48 Chain of Custody signees with sample label(9)? Yes No 49 Container label(3) legible and intext? Yes No 41 Containers supplied by ELOT? Yes No 41 Containers supplied by ELOT? Yes No 41 Samples proper container/ bottle? Yes No 41 Samples properly preserved? Yes No 41 Samples properly preserved? Yes No 41 Samples properly preserved? Yes No 41 Samples doutmented on Chain of Custody? Yes No 41 Samples received within sufficient hold time? Yes No 418 Sall samples received within sufficient hold time? Yes No Sam Below 419 Subcontract of sample(s)? Yes No Sam Below No 419 Subcontract of sample(s)? Yes No No Sam Below 419 Subcontract of sample(s)? Yes No No Sam Below	#4 Custody	Seals Intact on sample bottles/ container?	Cos	No	Not Present	
Bit Sample instructions complete of Unlain of Custody? Ups No Image: Custody signess with sample label(s)? Yes No Image: Custody signess with sample label(s)? Yes No No Not Applicable: #8: Schain of Custody signess with sample label(s)? Yes No Not Applicable: Image: Custody signess with sample label(s)? Yes No Not Applicable: #9: Container label(s) legible and intext? Yes No No Not Applicable: #11: Containers supplied by ELOT? Yes No See Below Image: Custody signess properly preserved? Yes No See Below #13: Samples properly preserved? Yes No See Below Image: Custody signess documented on Chain of Custody? Yes No See Below #14: Sample bottles intact? Yes No See Below Image: Custody signess documented on Chain of Custody? Yes No See Below #16: Container documented on Chain of Custody? Yes No See Below Image: Custody #16: Container documented on Chain of Custody? Yes No See Below Image: Custody #18: Apple received within sufficient hold time? Yes No <td>#5 Chain o</td> <td>Custody present?</td> <td>(Yes)</td> <td>No</td> <td></td> <td></td>	#5 Chain o	Custody present?	(Yes)	No		
Ale Chain of Custody agrees with sample label(s)? Cest No D written on Cont/Lid D Container abel(s) legible and intact? Cest No Applicable Sample in propercontainer/ bottle? Cest No See Below Sample in propercontainer/ bottle? Cest No See Below Sample answer Cest No See Below Sample answer Cest No See Below See Below Sample answer Cest No See Below Sample answer Cest No See Below See Below Sample answer Cest No See Below See Below See Below See Below See Below See See	#0 Sample	Instructions complete of Unain of Ustody /	(Vac)	NO		
#9 Container label(\$) legible and intect? (***) No Not Applicable #10 Sample matrixy properties agrees with Chain of Custody? (***) *** *** #11 Containers supplied by ELOT? (***) *** *** #13 Samples property preserved? (***) (***) No See Below #13 Sample bottles intact? (***) No See Below *** #14 Sample bottles intact? (***) No See Below *** #15 Presenations documented on Chain of Custody? (****) No *** *** #17 Sufficient sample amount for indicated test(o)? (******) No See Below *** #18 All samples received within sufficient hold time? (************************************	#8 Chain o	f Custody agrees with sample label(s)?	Yes	No	ID written on Cont./Lid	
#10: Sample matrix/ properties agree with Chain of Custody? Yes No	#9 Contain	er label(s) legible and intact?	(Yes)	No	Not Applicable	
#11 Container's supplied by ELOT? Vistor #12 Samples in proper container// bottle? Vistor #13 Samples proper/preserved? Vistor #14 Container's documented on Chain of Custody? Vistor #15 Preservations documented on Chain of Custody? Vistor #16 Container's documented on Chain of Custody? Vistor #17 Sufficient sample amount for indicated test(s)? Vistor #18 Nall samples received within sufficient hold time? Vistor #19 Subcontract of sample(s)? Yes #20 VOC samples have zero headspace? Vistor Variance Documentation Contact Contacted by: Date/ Time; Regarding Corrective Action Taken: Collent understands and would like to proceed with analysis Collent understands and would like to proceed with analysis Collent process had begun shortly after sampling event	#10 Sample	matrix/ properties agree with Chain of Custody?	Yes	No		
#12 Samples in proper container bottler Qess No See Below #13 Samples property preserved? Yess No See Below #15 Preservations documented on Chain of Custody? Yess No See Below #16 Containers documented on Chain of Custody? Yess No See Below #16 Containers documented on Chain of Custody? Yess No See Below #17 Sufficient sample amount for indicated test(s)? Yess No See Below #18 All samples received within sufficient hold time? Yess No See Below #19 Subcontract of sample(s)? Yess No See Below #20 VOC samples have zero headspace? Yess No See Below Warfance Documentation No See Below No See Below geomyter Contacted by: Date/ Time:	#11 Contain	ters supplied by ELOT?	CY85	No		
In the sample's property preserved on the set of the set	#12 Sample	in proper container/ bottler	(Ves)	NO	See Below	
#15 Preservations' documented on Chain of Custody? (res) No Image: Containers documented on Chain of Custody? (res) No #15 Containers documented on Chain of Custody? (res) No See Betow Image: Containers documented on Chain of Custody? (res) No See Betow Image: Containers documented on Sangles to the sample amount for indicated test(s)? (res) No See Betow Image: Containers documented on Sangles to the sample amount for indicated test(s)? (res) No See Betow Image: Containers documented on Sangles to the sample amount for indicated test(s)? (res) No See Betow Image: Contacted by: Image	#14 Sample	a bottles intact?	Yes	No	See Dallow	
#16: Containers documented on Chain of Custody? Yes No See Below #17: Sufficient sample amount for indicated test(s)? Yes No See Below #18: Subport received within sufficient hold time? Yes No See Below #19: Subcontract of sample(s)? Yes No See Delow #19: Subcontract of sample(s)? Yes No No See Delow #20: VOC samples have zero headspace? Yes No Not Application Contact: Contacted by: Date/ Time: Regarding:	#15 Preser	vations'documented on Chain of Custody?	(Yes)	No		
#17# Sufficient sample amount for indicated test(s)? Yes No See Below #18# All samples received within sufficient hold time? Yes No See Below #19# Subcontract of sample(s)? Yes No See Below #20 VOC samples have zero headspace? Yes No Not Approximes Contact: Contacted by: Pes No Mot Approximes Regarding: Contacted by: Date/ Time: Person Corrective Action Taken: See attached e-mail/ fax Client understands and would like to proceed with analysis Cooling process had begun shortly after sampling event	#16 Contai	ners documented on Chain of Custody?	(Yes)	S No		
#18 * All samples received within sufficient noid time? Ctab No See percey #19 * Subcontract of sample(s)? Yes* No Not Approximes in the set of the set o	#17 Sufficie	ant sample amount for indicated test(s)?	CYes	No	See Below	
Important Contraction Important Contraction Important Contraction Variance: Documentation Contract: Contracted by: Date/ Time: Regarding: Contracted by: Date/ Time: Corrective Action Taken: Contracted e-mail/ fax Contracted by: Check all that Apply: See attached e-mail/ fax Cilent understands and would like to proceed with analysis Cooling process had begun shortly after sampling event Cooling process had begun shortly after sampling event	#18 All san	ples received within sufficient hold time?	Ves	No	Not Amateria	
Variance: Documentation Contact: Contacted by: Date/ Time: Regarding:	#19 3000	amples have zero headspace?	Yes	No	Not Applicable	
Contact: Contacted by: Date/ Time: Regarding: Corrective Action Taken: Corrective Action Taken: Check all that Apply: See attached e-mail/ fax Client understands and would like to proceed with analysis Cooling process had begun shortly after sampling event		Vedera Com				
Contact Contacted by: Date/ Time: Regarding:		vanaite bocu	nentation			
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Check all that Apply: See attached e-mail/ fax Client understands and would like to proceed with analysis Cooling process had begun shortly after sampling event				.		<u></u>
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Texas certification numbers: Houston, TX T104704215

Florida certification numbers: Houston, TX E871002 - Miami, FL E86678 - Tampa, FL E86675 Norcross(Atlanta), GA E87429

> South Carolina certification numbers: Norcross(Atlanta), GA 98015

North Carolina certification numbers: Norcross(Atlanta), GA 483

Houston - Dallas - San Antonio - Austin - Tampa - Miami - Latin America Midland - Corpus Christi - Atlanta

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Reference XENCO Report No TITT

 \Box e are reporting to you the results of the analyses performed on the samples received under the profect name referenced above and identified with the XENCO Report Number $\Box \Box \Box \Box \Box \Box$ 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.

□nless 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 \Box 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. \Box will be filed for \Box days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. \Box e 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).

 \Box e 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.

Respectful

B COMB COMPANY Manager

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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 reports entitle to be even where the best fidgment 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.

Since CDD – Oouston CDallas CSan Antonio CAustin CTampa Miami CLatin America CAtlanta Corpus Christi

□rent □arron Odessa Laboratory Director



- 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 effect the recovery of the spike concentration. This condition could also effect 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 MQL(PQL) and above the SQL(MDL).
- 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.
- * Outside XENCO'S scope of NELAC Accreditation

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(305) 823-8500	(305) 823-8555
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South Four Lakes □15

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Blank Spike Recovery DD 100*CD BD All results are based on MDL and validated for QC purposes.





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D 06/23/2008 D _		06/23/2008			LATCOR	
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Chloride	2600	500	3270	134	80-120	x

Matrix Spike Percent Recovery DDD 100*(C-A)/B Relative Percent Difference ED 200*(C-A)/(CB) All Results are based on MDL and Dalidated for QC Purposes





L B 1 726337					D □South Fo	ur Lakes □1
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D D D D D D D D D D D D D D D D D D D	B				IIII] Water	
	Image: Display 306329-001 D B Image: Display 306329-001 D Image: Display 30632				FIII	
Total dissolved solids		5700	5580	2	30	

Spike Relative Difference RPD 200 * $\Gamma(B-A)/(B\Box A)$ \Box All Results are based on MDL and validated for QC purposes.

12600 West I-20 East Odosca, Texas 79765	orato	Files / C	Hone: 432- Fax: 432-	663-1800 563-1713		14445								c	HAM	OF	CUST	ODY	REC	ORD	AND .	ANAL	Y5/5	i rie	QVES	ıT			
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4003372 AB # (180 USO ONIV)		FIEL	D CODE		Date Sampled	Time Sempled	No. of Containers	8	HNO	HCI BTEX only)	NaOH HjSO4	Nore	Other (Spootly)	Viena Stime	Soli	Other (specify):	TPH. 418.1 8015M 1005	LENDING (LO, MQ, Ka, K, F) Minna (C), 604, 603, HC/2	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb I	Volatiles	atton sozieroso or <u>atta</u>	ÿ	LORM	otal Diracived Bolicis (160.1	SPLP 1312	Fotal Fe and Mn	RUBH TAT (Pre-Schedu	
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Environmental Lab of Texas Variance/ Corrective Action Report- Sample Log-In

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Client	Fride Energy	
Date/ Time:	6.20.08 17.00	
Lab ID # :	306332	
Initial ⁵	aL	

Sample Receipt Checklist

			_	Client Initia
#1	Temperature of container/ cooler?	Yes	No	5.0 °C
#2	Shipping container in good condition?	Ves	No	
#3	Custody Seals Intact on shipping container/ cooler?	Yes	No	Not Present
#4	Custody Seals intact on sample bottles/ container?	1	No	Not Present
#5	Chain of Custody present?	103	No	
# 5	Sample instructions complete of Chain of Custody?	6	No	
#7	Chain of Custody signed when relinquished/ received?	Ves	No	
#8	Chain of Custody agrees with sample label(s)?	Yes	No	ID written on Cont./ Lid
#9	Container label(s) legible and intact?	Vez	No	Not Applicable
#10	Sample matrix/ properties agree with Chain of Custody?	Yes/	No	
#11	Containers supplied by ELOT?	Yes	No	
#12	Samples in proper container/ bottle?	Yes	No	See Below
#13	Samples properly preserved?	Ves	No	See Below
#14	Sample bottles intact?	Tes	No	
#15	Preservations documented on Chain of Custody?	Tes 1	No	
#16	Containers documented on Chain of Custody?	69	No	
#17	Sufficient sample amount for indicated test(s)?	Kes	No	See Below
#18	All samples received within sufficient hold time?	(es)	No	See Bolow
#19	Subcontract of sample(s)?	Yes	No	(Not Applicable)
#20	VOC samples have zero headspace?	Yes	No	Not Applicable

Variance Documentation

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Date/ Time:

4

Contact:

Regarding:

Corrective Action Taken:

Check all that Apply:

See attached e-mail/ fax

Contacted by:

Client understands and would like to proceed with analysis Cooling process had begun shortly after sampling event

APPENDIX D

MONITORING WELL SAMPLING DATA FORMS

WELL SAMPLING DATA FORM

	CLIENT:	Pride E	Energy Co	mpany	-	WELL ID:	MW- 1
SI	TE NAME:	E NAME: S. Four Lakes #15		#15	DATE:		September 9, 2008
SITE L	SITE LOCATION: T12S-R34E-Sec 2 Unit G			. 8	SAMPLER:	Rozanne Johnson	
LAT/LONG: N 33º 18' 31.6", W 103º 28' 48.1"							
							-
PURGING		:	eturge pump				
SAMPLING METHOD: Disposable Bailer					Direc	t from Disc	charge Hose 🔲 Other:
DESCRIBE EQUIPMENT DECONTAMINATION METHOD BEFORE SAMPLING THE WELL:							
☑ Gloves ☑ Alconox ☑ Distilled Water Rir⊡e Oth <u>er:</u>							
DISPOSAL METHOD OF PURGE WATER: Surface Discharge Drums SWD Disposal Facility							
TOTAL D	EPTH OF V	VELL:	49.69	Feet			
DEPTH T	O WATER: OF WATEF		26.55	Feet		11. 1	Minimum gallons to purge 3 well volumes
WELL DI		2.0	Inch		•	12	Actual Gallons purged
TIME		TEMP.	COND.	рН	DO mg/l		PHYSICAL APPEARANCE AND REMARKS
3:39 PM	2	19.6	10.5	7.37			
3:47 PM	6	19.3	13.8	7.03			
3:59 PM	12	19.2	14.2	7.01			
4:10 PM		19.2	14.2	7.01			Samples Collected
							Major Ions (1-1000ml Plastic)
							BTEX 8021B (2-40 ml glass VOA)
						-	
							· · · · · · · · · · · · · · · · · · ·
					L		l
24 min_:Total Time (hr:min) 12 :Total Vol (gal) 0.5 :Average Flow Rate (gal/min)							
COMMENTS:							

Myron Model 6P instrument used to obtain pH, conductivity and temperature measurements.

Delivered samples to Cardinal Laboratories Hobbs, New Mexico for analyses.

WELL SAMPLING DATA FORM

CLIENT: Pride Energy Company			any	WELL ID: Monitor Well #1		
SYSTEM: South Four Lakes #15				DATE: June 20, 2008		
SITE LOCATION: T12S R34E Sec2 Unit G			Init G	SAMPLER: Rozanne Johnson		
PURGING METHOD: Hand Bailed			ailed 🗹	Pump, Type: Variable Controlled Purge Pump		
SAMPLING METHOD: 🔽 Disposable Baile		ble Bailer	Direct from Discharge Hose D Other:			
DEPTH TO WATER:	/ELL:	49.69	Feet			
HEIGHT OF WATER	COLUMN:	23.23	Feet	In. Well Diameter		
WELL VOLUME:3.7 Gal15 Gallons purged prior to sampling						
TIME	TEMP. °C	COND. mS/cm	pН	PHYSICAL APPEARANCE AND REMARKS		
7:40	20.5	15.12	6.78	Silt and Sand		
7:42	20.6	14.22	6.79	Clear		
7:50	20.7	14.05	6.81			
7:55				Samples Collected with Disposable Bailer		
				Chlorides/TDS (1-1000ml Plastic)		

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

Myron Model 6P instrument used to obtain pH, conductivity, and temperature measurements.

Delivered samples to Xenco Laboratories for Chlorides and TDS analysis.