

AP-77 Pride Energy #14 - South Fork Lakes Unit

Sept 2004 - well spudded
Oct 2004 - well completed
Aug 2007 - Closure form C-144 submitted
Jan 2008 - Form C-141 submitted
Feb 2008 - Abatement Plan required
Sept 2008 - Stage 2 Abatement Plan submitted

chronology in Stage 2 Plan refers to pollution coming from a Humble Oil legacy pit from 1961 using 1964 aerial photo of site. apparently Pride Energy constructed their drilling pit for Well #14 at the same location as the 1961 pit. Claim that "evidence collected to date permits a conclusion that the documented impairment of groundwater (2500 mg/l Cl) is wholly or primarily due to seepage associated with the 1961 drilling pit."

Mar 1961 Humble Oil submits Notice of Intent to Drill unit #1
July 1961 well is completed
July 1967 Humble submits plugging and abandonment form C-103

Pride Energy abatement plan is "pump and use"

depth to groundwater estimated with info from surrounding wells at 24 to 38 ft bgs
later determined to be 23 ft bgs

"brine from the pit probably migrated through the vadose zone to groundwater via saturated flow during operation of the drilling pit or sometime during the drying process"

MW1 located at SE corner of former drilling pit footprint
concentration in groundwater 3 ft below water table: 1100 mg/l Cl and 2200 mg/l TDS
concentration in groundwater 17-20 ft below water table: 3100 mg/l Cl and 5400 mg/l TDS
concentration after purging: 4700 mg/l Cl and 8100 mg/l TDS

estimate downgradient migration at 150 feet

the following data dated Jan 2008
soil concentrations at 8 ft: 1300 to 14,000 mg/kg
soil concentrations at 12 ft: 1500 to 12,000 mg/kg
soil concentrations at 16 ft: 900 to 9200 mg/kg
highest concentrations in center of pit and SE corner

used trench burial system for closure

bc

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**STAGE 2
WORKPLANS**

09/15/2008

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**STAGE 2
WORKPLANS**

09/15/2008

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

September 15, 2008

Mr. Wayne Price
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: Pride Energy South Four Lakes #14
NMOCD #AP-077

Dear Wayne:

Please accept this Stage 2 Abatement Plan for the above-referenced site as fulfillment of Pride Energy's mandate to submit a Stage 2 Abatement Plan. We installed two borings down gradient of the former drilling pit. The magnitude and extent of brine impact is consistent with a release from the legacy pit drilled by Humble Oil in 1961. The extent of chloride impairment of ground water (i.e. concentrations in excess of 250 mg/L) appears restricted to the area occupied by the production pad. Regulated hydrocarbons are not present in ground water or the vadose zone.

Three additional wells are proposed to refine our estimate of the vertical and horizontal extent of ground water impairment at the site. MW-1 medium and deep are, 2-inch monitoring wells located near the center of mass of ground water chloride and are screened below a low-permeability quartzite horizon. MW-2 and MW-3 are 2-inch monitoring well clusters located about 200 feet down gradient from the former drilling pits.

The proposed ground water remedy is natural restoration with an on-demand pump-and-use contingency plan that recovers brackish ground water for drilling oil and gas wells in the area.

The proposed drilling pit excavation closure is construction of an infiltration barrier to minimize the transport of salt from the vadose zone to ground water. Because the open excavation allows infiltration of precipitation through the impacted vadose zone and may represent an ongoing safety threat to stock, we ask NMOCD to review the vadose zone remedy as soon as possible. We are prepared to meet with you to resolve any outstanding issues associated with this vadose zone remedy - as it is the same design for other Pride sites. We will prepare a Public Notice for your review upon your request.

Sincerely,
R.T. Hicks Consultants, Ltd.



Randall T. Hicks
Principal

Copy: Pride Energy
NMOCD District II
New Mexico State Land Office

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1 Summary

1. Humble Oil and Refining (Humble) drilled South Four Lakes Unit #1 at this location in 1961. The cover of this plan shows a 1964 air photo of the area and the site is located in the upper right corner of the photograph.
2. In 2004, Pride Energy constructed a drilling pit for South Four Lakes #14 at the same location as the 1961 drilling pit
3. Evidence collected to date permits a conclusion that the horizontal extent of ground water impairment (chloride concentrations greater than 250 mg/L) is restricted to the area of the production pad.
4. Evidence collected to date permit a conclusion that the vertical extent of ground water impairment (chloride concentrations greater than 250 mg/L) is restricted to the ground water zone above a well-cemented quartzite horizon that exists at a depth of 52 feet below grade.
5. At MW-1, which is drilled through the legacy Humble drilling pit and is about 10-feet down gradient from the Pride drilling pit, chloride in ground water exceeds 2,500 mg/L.
6. Evidence collected to date permits a conclusion that the documented impairment of ground water is wholly or primarily due to seepage associated with the 1961 drilling pit.
7. Construction of a deep monitoring well using the mud-rotary method is proposed to test the hypothesis that the vertical extent of ground water impairment is restricted to the the aquifer that lies above the local quartzite horizon.
8. Construction of two down gradient monitoring wells is proposed to refine our estimate of the horizontal extent of ground water impairment
9. The proposed ground water remedy program is natural restoration and monitoring with a contingency plan to implement an on-demand pump-and-use program to remove impaired ground water for use in oil and gas well drilling.
10. Six months after NMOCD approval of this plan Pride will provide a report to NMOCD that presents
 - a. The borehole data from the proposed monitoring wells,
 - b. the ground water monitoring and sampling data,
 - c. our analysis of contaminant fate and transport and
 - d. a recommendation to continue with the proposed remedy of natural restoration or to implement an on-demand pump-and-use ground water restoration program as a contingency.

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2.4 Site History – Table 1 and Plate 2

Our examination of historic aerial photographs show that the drilling pit used by Pride Energy was located at the same location as the drilling pit used for the drilling of the Humble Oil and Refining Company well South Four Lakes Unit #1 originally drilled in 1961. Plate 2 is a 1966 aerial photo that shows the scar from the 1961 drilling event with the configuration of the Pride Energy activities superimposed. Prior to the mid 1960s, the State of New Mexico did not require lining of drilling pits, therefore it is probable that the 1961 unlined drilling pit released brine to the subsurface. Table 1 presents the Site History.

Table 1: Site History	
Date	Description
March 3, 1961	Humble Oil and Refining Company submits Notice of Intent to Drill South Four Lakes Unit #1 (API – 30-025-01828) well at this location to a depth of 10,600 feet
July 16, 1961	Humble completes well
July 18, 1967	Humble submits plugging and abandonment Form C-103 to NMOCD
August 30, 2004	Pride submits APD (C-101) for South Four Lakes Unit #14
September 8, 2004	Well spudded
October 25, 2004	Well drilled to total depth
March 10, 2005	Set pump in well
August 21, 2007	C-144 Pit Closure Form submitted to NMOCD
December 10, 2007	Revised C-144 submitted by Elke Environmental to NMOCD
January 30, 2008	C-141 submitted by Elke Environmental to NMOCD
February 12, 2008	NMOCD requires submission of Abatement Plan
April 14, 2008	Stage 1 Abatement Plan submitted by R.T. Hicks Consultants to NMOCD
May 13, 2008	Soil boring program to define vertical and horizontal extent of any impairment to ground water
June 19, 2008	Sampling and monitoring event
September, 2008	Stage 2 Abatement Plan submitted by R.T. Hicks Consultants to NMOCD

3 May 2008 Deep Sampling Program – Field Protocols and Modification of the Stage 1 Abatement Plan

On May 13, 2008, Hicks Consultants mobilized to the site to perform soil boring activities. Hicks Consultants selected Atkins Engineering (Atkins), from Roswell, NM, as the drilling contractor. Using a Foremost Mobile 58 drilling rig and a 7 ¼- inch O.D. hollow stem auger, we installed two soil borings at the site (see Plate 1).

After examination of historic air photos and a close examination of the site, we modified the location of the soil borings shown in Plate 6 of the Stage 1 Abatement Plan. The first boring was drilled adjacent to MW-1 (see Plate 1), and is basically the same location as the proposed boring SB-1 shown on Plate 6 of the Stage 1 Abatement Plan. We drilled the second boring midway between the

proposed borings SB-2 and SB-3 shown on Plate 6 of the Stage 1 Abatement Plan. The relatively low chloride concentrations in this boring obviated the need for additional borings.

Because each boring encountered a hard quartzite horizon at 52-feet below grade, we ceased drilling to avoid creating a vertical pathway between the documented impaired ground water and potentially unimpaired ground water beneath the quartzite. Furthermore, we observed flowing sands under lithostatic or hydrostatic pressure during soil boring activities at another Pride Energy site, State X #1. With the knowledge that flowing sands exist in the area, penetration of the quartzite layer without a mud column in the hole could allow flowing sand to rise in the auger hole, causing the loss of the hole and creation of a permanent conduit through the quartzite.

At each boring location, we

1. Created a borehole log.
2. Measured specific conductance (SC) of ground water collected through the auger using a trip bailer. SC was measured using a Hanna Combo pH & EC meter (Model No. HI 98130). We used the SC measurements to a.) determine the vertical and horizontal extent of any ground water impairment and b.) determine the location of additional boreholes.
3. Complete soil boring as a monitoring well if drilled outside of the deadman (well anchor) zone. The Association of Energy Service Companies (AESC) recommended safe procedures and guidelines for oil and gas well servicing² states "During operations, all wireline units, other vehicles, or portable houses and equipment should be placed outside the guylines of the well service unit and outside the fall zone (lane) of the derrick". The standpipe for a monitoring well would create a hazard during well servicing if placed within the deadman zone.
4. When borehole conditions allowed, we obtained ground water samples for laboratory analysis for SC, chloride, and total dissolved solids (TDS) to correlated field measurements with laboratory measurements. We submitted the ground water samples to Hall Environmental Laboratories in Albuquerque, NM. Laboratory Certificates of Analysis are in Appendix A.

Because ground water analysis of samples from MW-1 did not detect regulated hydrocarbons and deep soil samples from within the former pit did not detect volatile hydrocarbon vapors above 20 ppm using a PID, we did not collect samples from the auger borings for analysis of regulated hydrocarbons.

4 Results of Deep Sampling Program

4.1 Soil Boring SB-01 – Plate 3

SB-01 is located approximately 70-feet east of the southeast corner of the former drilling pit. The borehole log is shown on Plate 3.

² Association of Energy Service Companies (AESC) Recommended Safe Procedures and Guidelines for Oil and Gas Well Servicing. Available: <http://www.aesc.net/Safety/index.cfm?action=view&pdfid=27> and <http://www.aesc.net/Safety/index.cfm>. Accessed July 3, 2008.

Total depth of this borehole is 53.2-feet. The upper 15-feet consist of caliche. Fifteen to 52-feet below ground surface (bgs) is composed of fine sand with interbedded quartzite between 15 and 23-feet bgs. Quartzite (well indurated fine sandstone) exists from 52 to total depth.

Ground water was encountered at 27-feet bgs. We were unable to obtain field measurements at 38 and 43-feet bgs due to fine sands clogging the trip bailer. However, we obtained a ground water sample at total depth. Field measurements indicate SC is 7.33 mS/cm. We were unable to obtain sufficient sample volume for laboratory analysis.

4.2 Soil Boring SB-02 – Plate 4

SB-02 is located down-gradient approximately 65-feet southeast of the southeast corner of the former drilling pit. The borehole log is shown on Plate 4.

Total depth of this borehole is 52-feet. The upper 18-feet consist of caliche. Eighteen to 51-feet below ground surface (bgs) is composed of fine sand. Quartzite exists from 51 to total depth. We ceased drilling at 52-feet to avoid creating a vertical pathway for any impaired ground water.

Ground water was encountered at 23-feet bgs. Field measurements indicate the SC of ground water remained relatively consistent. We obtained sufficient sample volume for laboratory analysis of ground water at 28.3 and 38.2-feet bgs.

4.3 Analysis of Ground Water from Borings – Table 2 and Plate 5

Field and laboratory analysis of ground water samples are shown in Table 2.

Table 2: Analysis of ground water samples

Boring ID	Depth (ft bgs)	Field Measured Values	Lab Analyzed Values		
		SC (mS/cm)	SC (mS/cm)	Chloride (mg/L)	TDS (mg/L)
SB-01	52.2	7.33	---	---	---
SB-02	28.3	1.66	1.60	280	1,100
SB-02	38.2	1.55	1.50	270	1,400
SB-02	48.2	1.65	---	---	---

--- indicates insufficient sample volume for lab analysis

SB-01 shows the highest SC measurement; 7.33 mS/cm at 53.2 feet bgs. SC measurements at SB-02 remained relatively consistent with increasing depth ranging from 1.55 to 1.65 mS/cm (see Plate 5 and Table 2).

Plate 5 shows the soil boring data spatially. Included on Plate 5 is laboratory and field data. Field TDS values were calculated from field SC measurements by correlating the ratio between lab measured conductivity and lab analyzed TDS concentrations (a 0.72 factor, see Table3). Maximum

calculated field TDS is 5,058 mg/L which occurred at SB-01, exceeding New Mexico Quality Control Commission's (WQCC) standards of 1,000 mg/L for domestic water supplies.

Calculated and actual TDS measurements at SB-02 range from 1,100 to 1,447 mg/L TDS. Actual chloride concentrations ranged from 270 to 280 mg/L; which only slightly exceeds the WQCC standard of 250 mg/L.

4.4 Ground Water Monitoring Well Sampling – Table 3 and Appendix A

Table 4, below, summarizes recent and historic ground water chemistry and ground water elevation measurements at MW-01. The Certificate of Analysis for the June 19th sampling event is in Appendix A.

June 2008 ground water monitoring data indicates chloride and TDS concentrations (2,600 and 5,700 mg/L, respectively) are above the WQCC standard at MW-01.

Table 4: Summary of ground water chemistry at MW-01

Sample Date	GW Elevation (ft)	DTW (ft)	Cl (mg/L)	TDS (mg/L)	Specific Conductance (mS/cm) (field measured)
1/24/2008	4123.70	25.10	1910	NA	6.32
3/13/2008	4123.58	25.22	1700	4260	6.74
6/19/2008	4123.45	25.35	2600	5700	6.89

NA indicates not analyzed for this constituent

Although MW-01 is the only monitoring well at the site, data from nearby monitoring wells and data from USGS allow a reasonable assessment of the water table elevation in the area. Plate 6 shows ground water gauging data collected at four nearby Pride Energy sites and a water table elevation map. Ground water flows east-southeast at a gradient of approximately 0.002. Depth to water at the site is approximately 25-feet bgs. Plate 6 agrees with regional data¹ from USGS gauging stations for 1996.

5 Discussion and Conclusions

All of the conclusions listed below will be proved or disproved by the data collection program proposed in the Stage 2 Abatement Plan described in this submission.

5.1 Ground Water Flow is East-Southeast

Regional ground water data suggest a southeast ground water flow direction in much of the South Four Lakes area. Data from the gauging of the newly-installed monitor wells at the various sites in the area now suggest an east-southeast direction of ground water flow at the South Four Lakes #14 site (Plate 6).

5.2 The Extent of Brine Impact is Consistent with a 1962 Release

The lithologic data presented in Plates 4 and 5 show that the upper portion of the aquifer above the quartzite is composed of fine sand. The hydraulic conductivity of fine sand could be as low as 0.1 ft/day or as high as 10 ft/day. Plate 6 shows that the hydraulic gradient in the area of the site is 0.0015. Assuming a porosity of 25% for fine sand, a hydraulic conductivity of 1 ft/day, and use of Darcy's equation, the average linear velocity of ground water at the site is 2 feet/year. In the absence of site-specific hydraulic testing, this calculation must be considered an estimate.

Plate 7 shows our estimate of the extent of chloride impact from the release(s) from the drilling pit area. The distance from the edge of the 1962 reserve pit to the down gradient 250 mg/L chloride isoconcentration line is about 95 feet. We believe that the maximum extent of chloride impact (where chloride concentration exceeds background) could be 200 feet down gradient from the edge of the 1962 pit. The distance from the edge of the 2004-05 Pride Energy drilling pit to the down gradient of chloride impact is about 245 feet.

With a measured hydraulic gradient of 0.0015 and an assumed porosity of 25% for the fine sand, the hydraulic conductivity value required for the average linear velocity to equal 245 feet/4 years (61.25 feet/year) is 28 ft/day. We believe it possible but not probable that chloride molecules from the Pride drilling pit materially contributed to the impact observed as SB-1 and MW-1.

5.3 The Vertical Extent of Brine Impact is Limited by the Quartzite at 52 Feet below Grade

Soil borings SB-01 and SB-02 partially penetrated a very hard quartzite layer at 52-feet bgs. We believe 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 typically screened for water supply wells.

5.4 The Magnitude of Ground Water Impairment is 5700 mg/L TDS

MW-1 was drilled through the area of the 1962 Humble drilling pit and is 10-feet down gradient of the 2004-05 Pride drilling pit. We conclude that MW-1 lies within the center of mass of the brine release at the site. The TDS of the most recent ground water sample at MW-1 is 5700 mg/L and the chloride concentration is 2600 mg/L.

5.5 Natural Dilution and Dispersion Will Effectively Abate the Ground Water Impairment

At this site, we believe the ground water flux is relatively small due to the low hydraulic gradient and fine-grained sediments that comprise the uppermost ground water zone. While this condition will minimize migration of the documented ground water impairment, natural restoration of ground water due to dilution and dispersion will require decades. Due to the location of the site, we believe it highly unlikely that the area of the production pad will be a site of ground water use in the foreseeable future. Therefore, rapid restoration of ground water quality is not warranted.

6 Stage 2 Abatement Plan

Data collected to date indicates a highly localized area of impaired ground water beneath the site. Data from the Elke Environmental report shows that chloride above 1,000 mg/kg exists in the vadose zone below the former drilling pit (1961 and 2004). The source of the chloride in the vadose zone at the Elke Environmental boring TP-5 is probably leakage from the Pride drilling pit. The other borings conducted by Elke Environmental are 10 times lower in chloride concentration and have relatively low moisture content; the source of this chloride is probably the Humble drilling pit (1961). The source of the chloride detected in SB-2 is probably leakage from the Humble drilling pit. Because MW-1 is located within the footprint of the 1962 drilling pit, the source of chloride in ground water at this location is probably the Humble pit.

6.1 Ground Water Remedy

Although the impairment of ground water was probably caused by the legacy drilling pit originally operated by Humble Oil and Refining, Pride Energy is considered a "responsible party" with Humble. Pride Energy proposes to

1. Conduct three additional quarterly ground water sampling events and several slug (recovery) tests to provide data that will assist in creating a better estimate the rate of natural ground water restoration and the rate of contaminant migration
2. Compare the results of the slug testing to the results from an aquifer pumping test at a nearby site then create an estimate of the fate and transport of impaired ground water at this site.
3. After NMOCD approval of the Stage 1 and 2 Abatement Plan:
 - a. use mud rotary drilling and install MW-1 Middle and Deep (Plate 8 and Plate 9) to define the vertical extent of ground water impairment,
 - b. use mud rotary drilling and install MW-2 Shallow, Middle and Deep and MW-3 Shallow, Middle and Deep (Plates 8 and Plate 10) to further define the horizontal and vertical extent of ground water impairment.
4. Six months after NMOCD approval of this plan, Pride will provide a report to NMOCD that presents
 - a. The borehole data from the proposed monitoring wells,
 - b. the ground water monitoring and sampling data,
 - c. our analysis of contaminant fate and transport and
 - d. our recommendation to continue with the proposed remedy of natural restoration or to implement an on-demand pump-and-use ground water restoration program as a contingency.

6.2 Vadose Zone Remedy

1. Expand the existing pit excavation as necessary to create a 3-foot wide area where subsurface impact of pit leakage does not exist (Plate 11, 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 suggested in Plate 11, step 2.
3. Over the sloping surface, place "shingles" of recycled or new 20-mil, reinforced liner material with a permeability of less than 10^{-9} cm/sec. The 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 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. Plate 11, 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 stormwater away from the former drilling pit.
6. Seed the reclaimed pit with a mixture acceptable to the State Land Office.

6.3 Schedule of Activities

We will perform two additional ground water monitoring and sampling events at MW-1 to complete a full year of quarterly monitoring at the site. We will analyze the ground water for the following:

- Chloride
- TDS
- BTEX

Upon OCD approval of the Abatement Plan, Pride will commence the proposed work elements.

PLATES

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APPENDIX A

PLATES

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APPENDIX A



COVER LETTER

Wednesday, May 28, 2008

Andrew Parker
R.T. Hicks Consultants, LTD
901 Rio Grande Blvd. NW
Suite F-142
Albuquerque, NM 87104
TEL: (505) 266-5004
FAX (505) 266-0745
RE: Pride Energy-S4L #14

Order No.: 0805247

Dear Andrew Parker:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 5/16/2008 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman".

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001



Hall Environmental Analysis Laboratory, Inc.

Date: 28-May-08

CLIENT:	R.T. Hicks Consultants, LTD	Client Sample ID:	SB-02@38.2 fbg
Lab Order:	0805247	Collection Date:	5/13/2008 12:45:00 PM
Project:	Pride Energy-S4L #14	Date Received:	5/16/2008
Lab ID:	0805247-01	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SLB
Chloride	270	1.0		mg/L	10	5/20/2008 4:32:09 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: TAF
Specific Conductance	1500	0.010		umhos/cm	1	5/20/2008
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: KMS
Total Dissolved Solids	1400	400		mg/L	1	5/19/2008

Qualifiers:	* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	J Analyte detected below quantitation limits	MCL Maximum Contaminant Level
	ND Not Detected at the Reporting Limit	RL Reporting Limit
	S Spike recovery outside accepted recovery limits	

Hall Environmental Analysis Laboratory, Inc.

Date: 28-May-08

CLIENT: R.T. Hicks Consultants, LTD
Lab Order: 0805247
Project: Pride Energy-S4L #14
Lab ID: 0805247-02

Client Sample ID: SB-02@28.3 fbgs
Collection Date: 5/13/2008 12:38:00 PM
Date Received: 5/16/2008
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SLB
Chloride	280	1.0		mg/L	10	5/20/2008 5:06:59 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: TAF
Specific Conductance	1600	0.010		µmhos/cm	1	5/20/2008
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: KMS
Total Dissolved Solids	1100	100		mg/L	1	5/19/2008

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

QA/QC SUMMARY REPORT

Client: R.T. Hicks Consultants, LTD
Project: Pride Energy-S4L #14

Work Order: 0805247

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
---------	--------	-------	-----	------	----------	-----------	------	----------	------

Method: EPA Method 300.0: Anions

Sample ID: MB *MBLK* Batch ID: R28613 Analysis Date: 5/20/2008 11:36:14 AM

Chloride ND mg/L 0.10

Sample ID: LCS *LCS* Batch ID: R28613 Analysis Date: 5/20/2008 11:53:38 AM

Chloride 4.853 mg/L 0.10 97.1 90 110

Method: SM 2640C Total Dissolved Solids

Sample ID: MB-15979 *MBLK* Batch ID: 15979 Analysis Date: 5/19/2008

Total Dissolved Solids ND mg/L 20

Sample ID: LCS-15979 *LCS* Batch ID: 15979 Analysis Date: 5/19/2008

Total Dissolved Solids 1012 mg/L 20 99.7 80 120

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name RT HICKS

Date Received:

5/16/2008

Work Order Number 0805247

Received by: AMF

Checklist completed by:

Signature

[Handwritten Signature]

5/16/08
Date

Sample ID labels checked by:

Initials

AS

Matrix:

Carrier name Client drop-off

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on shipping container/cooler? Yes No Not Present Not Shipped
- Custody seals intact on sample bottles? Yes No N/A
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time? Yes No
- Water - VOA vials have zero headspace? No VOA vials submitted Yes No
- Water - Preservation labels on bottle and cap match? Yes No N/A
- Water - pH acceptable upon receipt? Yes No N/A

Container/Temp Blank temperature?

16°

<6° C Acceptable

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Analytical Report 299691

for

R.T. Hicks Consultants, LTD

Project Manager: Randy Hicks

Pride Energy Company

South Four Lakes #14

20-MAR-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



20-MAR-08

Project Manager: **Randy Hicks**
R.T. Hicks Consultants, LTD
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

Reference: XENCO Report No: **299691**
Pride Energy Company
Project Address: T11S-R34E, Section 35, Unit Letter I

Randy Hicks:

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 299691. 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. 299691 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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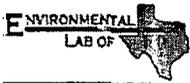


Sample Cross Reference 299691



R.T. Hicks Consultants, LTD, Albuquerque, NM
Pride Energy Company

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-1	W	Mar-13-08 10:10		299691-001



Certificate of Analysis Summary 299691

R.T. Hicks Consultants, LTD, Albuquerque, NM

Project Name: Pride Energy Company

Project Id: South Four Lakes #14

Date Received in Lab: Mar-14-08 05:16 pm

Contact: Randy Hicks

Report Date: 20-MAR-08

Project Location: T11S-R34E, Section 35, Unit Letter I

Project Manager: Brent Barron, II

Analysis Requested	<i>Lab Id:</i>	299691-001			
	<i>Field Id:</i>	MW-1			
	<i>Depth:</i>				
	<i>Matrix:</i>	WATER			
	<i>Sampled:</i>	Mar-13-08 10:10			
Anions by EPA 300/300.1	<i>Extracted:</i>				
	<i>Analyzed:</i>	Mar-15-08 10:29			
	<i>Units/RL:</i>	mg/L RL			
Chloride		1710	25.0		
Sulfate		390	25.0		
BTEX by EPA 8021B	<i>Extracted:</i>	Mar-19-08 10:00			
	<i>Analyzed:</i>	Mar-19-08 17:44			
	<i>Units/RL:</i>	mg/L RL			
Benzene		ND	0.0010		
Toluene		ND	0.0020		
Ethylbenzene		ND	0.0010		
m,p-Xylenes		ND	0.0020		
o-Xylene		ND	0.0010		
Xylenes, Total		ND			
Total BTEX		ND			
Metals per ICP by SW846 6010B	<i>Extracted:</i>				
	<i>Analyzed:</i>	Mar-17-08 16:36			
	<i>Units/RL:</i>	mg/L RL			
Calcium		585	0.100		
Magnesium		112	0.010		
Potassium		5.05	0.500		
Sodium		511	0.500		
TDS by SM2540C	<i>Extracted:</i>				
	<i>Analyzed:</i>	Mar-17-08 16:00			
	<i>Units/RL:</i>	mg/L RL			
Total dissolved solids		4260	5.00		
Total Alkalinity by EPA 310.1	<i>Extracted:</i>				
	<i>Analyzed:</i>	Mar-17-08 14:15			
	<i>Units/RL:</i>	mg/L RL			
Alkalinity, Total (as CaCO ₃)		230	4.00		

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



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 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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2505 N. Falkenburg Rd., Tampa, FL 33619
5757 NW 158th St, Miami Lakes, FL 33014
6017 Financial Dr., Norcross, GA 30071

Phone	Fax
(281) 589-0692	(281) 589-0695
(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(813) 620-2000	(813) 620-2033
(305) 823-8500	(305) 823-8555
(770) 449-8800	(770) 449-5477



Form 2 - Surrogate Recoveries



Project Name: Pride Energy Company

Work Order #: 299691

Project ID: South Four Lakes #14

Lab Batch #: 717610

Sample: 299447-003 S / MS

Batch: 1 Matrix: Water

Units: mg/L

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0307	0.0300	102	80-120	
4-Bromofluorobenzene	0.0320	0.0300	107	80-120	

Lab Batch #: 717610

Sample: 299447-003 SD / MSD

Batch: 1 Matrix: Water

Units: mg/L

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0309	0.0300	103	80-120	
4-Bromofluorobenzene	0.0322	0.0300	107	80-120	

Lab Batch #: 717610

Sample: 299691-001 / SMP

Batch: 1 Matrix: Water

Units: mg/L

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0325	0.0300	108	80-120	
4-Bromofluorobenzene	0.0329	0.0300	110	80-120	

Lab Batch #: 717610

Sample: 506150-1-BKS / BKS

Batch: 1 Matrix: Water

Units: mg/L

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0336	0.0300	112	80-120	
4-Bromofluorobenzene	0.0353	0.0300	118	80-120	

Lab Batch #: 717610

Sample: 506150-1-BLK / BLK

Batch: 1 Matrix: Water

Units: mg/L

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0327	0.0300	109	80-120	
4-Bromofluorobenzene	0.0328	0.0300	109	80-120	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Form 2 - Surrogate Recoveries



Project Name: Pride Energy Company

Work Order #: 299691

Project ID: South Four Lakes #14

Lab Batch #: 717610

Sample: 506150-I-BSD / BSD

Batch: 1 Matrix: Water

Units: mg/L

SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0306	0.0300	102	80-120	
4-Bromofluorobenzene	0.0331	0.0300	110	80-120	

** Surrogates outside limits; data and surrogates confirmed by reanalysis

*** Poor recoveries due to dilution

Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.



Blank Spike Recovery



Project Name: Pride Energy Company

Work Order #: 299691

Project ID: South Four Lakes #14

Lab Batch #: 717368

Sample: 717368-1-BKS

Matrix: Water

Date Analyzed: 03/17/2008

Date Prepared: 03/17/2008

Analyst: WRU

Reporting Units: mg/L

Batch #: 1

BLANK /BLANK SPIKE RECOVERY STUDY

Total Alkalinity by EPA 310.1	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Alkalinity, Total (as CaCO3)	ND	200	172	86	80-120	

Lab Batch #: 717419

Sample: 717419-1-BKS

Matrix: Water

Date Analyzed: 03/15/2008

Date Prepared: 03/15/2008

Analyst: LATCOR

Reporting Units: mg/L

Batch #: 1

BLANK /BLANK SPIKE RECOVERY STUDY

Anions by EPA 300/300.1	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Chloride	ND	10.0	9.45	95	85-115	
Sulfate	ND	10.0	8.71	87	90-110	L

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



BS / BSD Recoveries



Project Name: Pride Energy Company

Work Order #: 299691

Analyst: SHE

Date Prepared: 03/19/2008

Project ID: South Four Lakes #14

Date Analyzed: 03/19/2008

Lab Batch ID: 717610

Sample: 506150-1-BKS

Batch #: 1

Matrix: Water

Units: mg/L

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B	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
Analytes											
Benzene	ND	0.1000	0.0867	87	0.1	0.0848	85	2	70-125	25	
Toluene	ND	0.1000	0.0868	87	0.1	0.0848	85	2	70-125	25	
Ethylbenzene	ND	0.1000	0.0916	92	0.1	0.0885	89	3	71-129	25	
m.p-Xylenes	ND	0.2000	0.1841	92	0.2	0.1774	89	4	70-131	25	
o-Xylene	ND	0.1000	0.0998	100	0.1	0.0959	96	4	71-133	25	

Relative Percent Difference RPD = $200 * (D-F) / (D+F)$

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 #: 299691

Lab Batch #: 717419

Project ID: South Four Lakes #14

Date Analyzed: 03/15/2008

Date Prepared: 03/15/2008

Analyst: LATCOR

QC- Sample ID: 299690-001 S

Batch #: 1

Matrix: Water

Reporting Units: mg/L

MATRIX / MATRIX SPIKE RECOVERY STUDY

Inorganic Anions by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	4150	1000	5250	110	85-115	
Sulfate	415	1000	1400	99	90-110	

Matrix Spike Percent Recovery [D] = $100 \cdot (C-A)/B$

Relative Percent Difference [E] = $200 \cdot (C-A)/(C+B)$

All Results are based on MDL and Validated for QC Purposes



Form 3 - MS / MSD Recoveries



Project Name: Pride Energy Company

Work Order #: 299691

Project ID: South Four Lakes #14

Lab Batch ID: 717610

QC- Sample ID: 299447-003 S

Batch #: 1 Matrix: Water

Date Analyzed: 03/19/2008

Date Prepared: 03/19/2008

Analyst: SHE

Reporting Units: mg/L

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	ND	0.1000	0.1038	104	0.1000	0.1121	112	7	70-125	25	
Toluene	ND	0.1000	0.1030	103	0.1000	0.1122	112	8	70-125	25	
Ethylbenzene	ND	0.1000	0.1055	106	0.1000	0.1161	116	9	71-129	25	
m,p-Xylenes	ND	0.2000	0.2079	104	0.2000	0.2291	115	10	70-131	25	
o-Xylene	ND	0.1000	0.1095	110	0.1000	0.1212	121	10	71-133	25	

Matrix Spike Percent Recovery $[D] = 100 \cdot (C-A)/B$
Relative Percent Difference $RPD = 200 \cdot (D-G)/(D+G)$

Matrix Spike Duplicate Percent Recovery $[G] = 100 \cdot (F-A)/E$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable, N = See Narrative, EQL = Estimated Quantitation Limit



Sample Duplicate Recovery



Project Name: Pride Energy Company

Work Order #: 299691

Lab Batch #: 717419
Date Analyzed: 03/15/2008
QC- Sample ID: 299690-001 D
Reporting Units: mg/L

Date Prepared: 03/15/2008
Batch #: 1

Project ID: South Four Lakes #14
Analyst: LACOR
Matrix: Water

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Anions by EPA 300/300.1	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Chloride	4150	4140	0	20	
Sulfate	415	406	2	20	

Lab Batch #: 717329
Date Analyzed: 03/17/2008
QC- Sample ID: 299654-001 D
Reporting Units: mg/L

Date Prepared: 03/17/2008
Batch #: 1

Analyst: LACOR
Matrix: Water

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Metals per ICP by SW846 6010B	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Calcium	45.1	45.8	2	25	
Magnesium	22.6	21.8	4	25	
Potassium	8.64	8.45	2	25	
Sodium	172	172	0	25	

Lab Batch #: 717538
Date Analyzed: 03/17/2008
QC- Sample ID: 299683-002 D
Reporting Units: mg/L

Date Prepared: 03/17/2008
Batch #: 1

Analyst: RBA
Matrix: Water

SAMPLE / SAMPLE DUPLICATE RECOVERY					
TDS by SM2540C	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Total dissolved solids	978	972	1	30	

Lab Batch #: 717368
Date Analyzed: 03/17/2008
QC- Sample ID: 299680-001 D
Reporting Units: mg/L

Date Prepared: 03/17/2008
Batch #: 1

Analyst: WRU
Matrix: Water

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Total Alkalinity by EPA 310.1	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Alkalinity, Total (as CaCO3)	228	236	3	20	
Alkalinity, Carbonate (as CaCO3)	ND	ND	NC	20	
Alkalinity, Bicarbonate (as CaCO3)	ND	ND	NC	20	

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

Environmental Lab of Texas
 Variance/ Corrective Action Report- Sample Log-In

Client: R.T. Hicks
 Date/ Time: 3-14-08 4:15
 Lab ID #: 299691
 Initials: AL

Sample Receipt Checklist

	Yes	No	Client Initials
#1 Temperature of container/ cooler?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-1.5 °C
#2 Shipping container in good condition?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
#3 Custody Seals intact on shipping container/ cooler?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not Present
#4 Custody Seals intact on sample bottles/ container?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not Present
#5 Chain of Custody present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
#6 Sample instructions complete of Chain of Custody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
#7 Chain of Custody signed when relinquished/ received?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
#8 Chain of Custody agrees with sample label(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	ID written on Cont./ Lid
#9 Container label(s) legible and intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not Applicable
#10 Sample matrix/ properties agree with Chain of Custody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
#11 Containers supplied by ELOT?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
#12 Samples in proper container/ bottle?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Below
#13 Samples properly preserved?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Below
#14 Sample bottles intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
#15 Preservations documented on Chain of Custody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
#16 Containers documented on Chain of Custody?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
#17 Sufficient sample amount for indicated test(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Below
#18 All samples received within sufficient hold time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	See Below
#19 Subcontract of sample(s)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not Applicable
#20 VOC samples have zero headspace?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Not Applicable

Variance Documentation

Contact: _____ Contacted by: _____ Date/ Time: _____

Regarding: _____

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

Analytical Report 306329

for

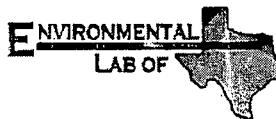
R.T. Hicks Consultants, LTD

Project Manager: Andrew Parker

Pride Energy Company

South Four Lakes # 14

27-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**



27-JUN-08

Project Manager: **Andrew Parker**
R.T. Hicks Consultants, LTD
901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

Reference: XENCO Report No: **306329**
Pride Energy Company
Project Address: T11S-R34E, Section 35, Unit Letter I

Andrew Parker:

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 306329. 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. 306329 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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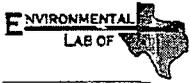


Sample Cross Reference 306329



R.T. Hicks Consultants, LTD, Albuquerque, NM
Pride Energy Company

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-1	W	Jun-20-08 08:55		306329-001



Certificate of Analysis Summary 306329
R.T. Hicks Consultants, LTD, Albuquerque, NM

Project Name: Pride Energy Company

Project Id: South Four Lakes # 14

Date Received in Lab: Jun-20-08 05:00 pm

Contact: Andrew Parker

Report Date: 27-JUN-08

Project Location: T11S-R34E, Section 35, Unit Letter I

Project Manager: Brent Barron, II

Analysis Requested	<i>Lab Id:</i>	306329-001		
	<i>Field Id:</i>	MW-1		
	<i>Depth:</i>			
	<i>Matrix:</i>	WATER		
	<i>Sampled:</i>	Jun-20-08 08:55		
Alkalinity by SM2320B	<i>Extracted:</i>			
	<i>Analyzed:</i>	Jun-26-08 10:45		
	<i>Units/RL:</i>	mg/L RL		
Alkalinity, Total (as CaCO3)		190	4.00	
Alkalinity, Bicarbonate (as CaCO3)		190	4.00	
Alkalinity, Carbonate (as CaCO3)		ND	4.00	
Inorganic Anions by EPA 300	<i>Extracted:</i>			
	<i>Analyzed:</i>	Jun-23-08 08:50		
	<i>Units/RL:</i>	mg/L RL		
Chloride		2600	25.0	
Sulfate		477	25.0	
Metals per ICP by SW846 6010B	<i>Extracted:</i>			
	<i>Analyzed:</i>	Jun-23-08 11:59		
	<i>Units/RL:</i>	mg/L RL		
Calcium		ND		
Magnesium		120	0.010	
Potassium		4.41	0.500	
Sodium		564	0.500	
TDS by SM2540C	<i>Extracted:</i>			
	<i>Analyzed:</i>	Jun-23-08 16:30		
	<i>Units/RL:</i>	mg/L RL		
Total dissolved solids		5700	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



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 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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(770) 449-8800	(770) 449-5477



Blank Spike Recovery



Project Name: Pride Energy Company

Work Order #: 306329

Project ID: South Four Lakes # 14

Lab Batch #: 726566

Sample: 726566-1-BKS

Matrix: Water

Date Analyzed: 06/26/2008

Date Prepared: 06/26/2008

Analyst: WRU

Reporting Units: mg/L

Batch #: 1

BLANK /BLANK SPIKE RECOVERY STUDY

Alkalinity by SM2320B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Alkalinity, Bicarbonate (as CaCO3)	ND	200	176	88	80-120	

Lab Batch #: 726337

Sample: 726337-1-BKS

Matrix: Water

Date Analyzed: 06/23/2008

Date Prepared: 06/23/2008

Analyst: LATCOR

Reporting Units: mg/L

Batch #: 1

BLANK /BLANK SPIKE RECOVERY STUDY

Inorganic Anions by EPA 300 Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
Chloride	ND	10.0	11.6	116	80-120	
Sulfate	ND	10.0	12.0	120	80-120	

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 #: 306329

Lab Batch #: 726337

Date Analyzed: 06/23/2008

QC- Sample ID: 306329-001 S

Reporting Units: mg/L

Date Prepared: 06/23/2008

Batch #: 1

Project ID: South Four Lakes # 14

Analyst: LATCOR

Matrix: Water

MATRIX / MATRIX SPIKE RECOVERY STUDY

Inorganic Anions by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	2600	500	3270	134	80-120	X
Sulfate	477	500	1080	121	80-120	X

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

Relative Percent Difference [E] = 200*(C-A)/(C+B)

All Results are based on MDL and Validated for QC Purposes



Sample Duplicate Recovery



Project Name: Pride Energy Company

Work Order #: 306329

Lab Batch #: 726566
Date Analyzed: 06/26/2008
QC- Sample ID: 306329-001 D
Reporting Units: mg/L

Date Prepared: 06/26/2008
Batch #: 1

Project ID: South Four Lakes # 14
Analyst: WRU
Matrix: Water

SAMPLE / SAMPLE DUPLICATE RECOVERY

Alkalinity by SM2320B	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Alkalinity, Total (as CaCO3)	190	180	20	20	
Alkalinity, Bicarbonate (as CaCO3)	190	180	20	20	
Alkalinity, Carbonate (as CaCO3)	ND	ND	20	20	

Lab Batch #: 726337
Date Analyzed: 06/23/2008
QC- Sample ID: 306329-001 D
Reporting Units: mg/L

Date Prepared: 06/23/2008
Batch #: 1

Analyst: LATCOR
Matrix: Water

SAMPLE / SAMPLE DUPLICATE RECOVERY

Inorganic Anions by EPA 300	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Chloride	2600	2590	20	20	
Sulfate	477	463	20	20	

Lab Batch #: 726094
Date Analyzed: 06/23/2008
QC- Sample ID: 306329-001 D
Reporting Units: mg/L

Date Prepared: 06/23/2008
Batch #: 1

Analyst: LATCOR
Matrix: Water

SAMPLE / SAMPLE DUPLICATE RECOVERY

Metals per ICP by SW846 6010B	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Calcium	ND	603	NC	25	
Magnesium	120	116	3	25	
Potassium	4.41	4.85	10	25	
Sodium	564	575	2	25	

Lab Batch #: 726342
Date Analyzed: 06/23/2008
QC- Sample ID: 306329-001 D
Reporting Units: mg/L

Date Prepared: 06/23/2008
Batch #: 1

Analyst: WRU
Matrix: Water

SAMPLE / SAMPLE DUPLICATE RECOVERY

TDS by SM2540C	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Total dissolved solids	5700	5580	2	30	

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

Environmental Lab of Texas
 Variance/ Corrective Action Report- Sample Log-In

Client: R. T. Hicks
 Date/ Time: 6 20 08 1700
 Lab ID #: 306329
 Initials: al

Sample Receipt Checklist

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

Variance Documentation

Contact: _____ Contacted by: _____ Date/ Time: _____

Regarding: _____

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