AP - 079

STAGE 2 WORKPLANS

08/18/2008

AP079

R. T. HICKS CONSULTANTS, LTD.

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

August 18, 2008

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

RE: Pride Energy State X #1 Pit
NMOCD #AP-079

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 three monitoring wells down gradient of the former drilling pit. The magnitude and extent of brine impact is consistent with a release from the 1957-58 drilling pit of the Neville G. Penrose well that occupied this site. The extent of chloride impairment of ground water (i.e. concentrations in excess of 250 mg/L) is restricted to the area formerly occupied by the drilling pad. Regulated hydrocarbons are not present in ground water or the vadose zone.

Two additional wells are proposed to refine our estimate of the vertical and horizontal extent of ground water impairment at the site. MW-5 is a deep, 2-inch monitoring well located near the center of mass of ground water chloride and MW-6 is a 2-inch monitoring well located about 275 feet down gradient from the former Pride drilling pit.

The proposed ground water remedy is a pump-and-use strategy 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 plan to construct the infiltration barrier within the next month.

Please contact me if you have any questions regarding this plan. 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

August 18, 2008

Pride Energy State X#1 Site
Stage 2 Abatement Plan

Section 1 T12S R34E Unit L
NMOCD # AP-79

R.T. Hicks Consultants, Ltd.

901 Rio Grande Blvd. NW, Suite F-142
Albuquerque, NM 87104

August 18, 2008

Stage 2 Abatment Plan: Pride Energy State X #1

Section 1 T12S R34E Unit L NMOCD # AP-79

prepared for :

New Mexico Oil Conservation Division

1220 South St. Francis Drive

Santa Fe, NM 87505

R.T. Hicks Consultants, Ltd.

901 Rio Grande Blvd. NW, Suite F-142

Albuquerque, NM 87104

1 Summary

- The magnitude and extent of brine impact is consistent with a release from the 1957-58 drilling pit of the Neville G. Penrose well that occupied this site
- Pride Energy is a "responsible person" with Penrose and is required to implement an NMOCD-approved abatement plan
- Two additional wells are proposed to define the vertical and horizontal extent of ground water impairment at the site
    - MW-5 is a deep, 2-inch monitoring well located near the center of mass of ground water chloride and
    - MW-6 is a 2-inch monitoring well located about 275 feet down gradient from the former Pride drilling pit
- The proposed ground water remedy is construction of a 4-inch well and a pump-and-use strategy 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 effectively abate the transport of salt from the vadose zone to ground water
- Regulated hydrocarbons are not present in ground water or the vadose zone

2 Description of the Site

2.1 Location

The site is located in T12S R34E Section 1 Unit Letter L (N 33° 18' 19.8", W 103° 28' 14.1", API # 30-025-01838). To access the site:

1. Drive west on Highway 380 eight miles from the intersection of Highway 380 and Highway 206 in Tatum, New Mexico
2. Drive south about 0.25 miles on the dirt lease road
3. The site is at the end of the access road.

Plates 1 and 2 of the Stage 1 Abatement Plan[1] shows the general area and access to the site.

2.2 Site Map – Plate 1

As of May 13, 2008, current environs at the site include:

- an abandoned wellhead with a dry hole marker
- an open drilling pit excavation
- five soil borings within the excavation
- three soil borings on the former drilling pad
- four monitoring wells.

[1] Pride Energy Company – State X #1 Site Stage 1 Abatement Plan (AP-79), RT Hicks Consultants, April 14th, 2008.

Plate 1 is a site map showing these features.

2.3 Field Program May-July, 2008

On May 13, 2008, R.T. Hicks Consultants (Hicks Consultants) performed a soil boring program at the State X #1 site. The purpose of the soil boring program was to delineate the vertical and horizontal extent of ground water impairment caused by the former drilling pit as discussed in our Stage 1 Abatement Plan.

On June 19, 2008, we performed ground water monitoring and sampling activities at the site.

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

2.4 Site History – Table 1 and Plate 2

Table 1 Site History

Date	Description
November, 1956	Well spudded by Penrose
March, 1957	Well plugged and abandoned by Penrose
September 8, 2003	Well re-entered by Yates Petroleum, cleaned to 7000 feet
February 15, 2005	Pride commenced re-entry of well
May 31, 2006	Pride drilled to 5520
October 17, 2006	Perforate well
December 17, 2006	Pride swabs well
February 7, 2007	Pride swabs well
September 6, 2007	Pride plans plugging of well
August 2, 2007	Submit C-144
December 12, 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
May 09, 2008	Soil boring program to define vertical and horizontal extent of any impairment to ground water
June 19, 2008	Sampling and monitoring event

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 original well in 1957. Plate 2 is a 1966 aerial photo that shows the scar from the 1957 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 and it is possible that the 1957 drilling pit was not lined and released brine to the subsurface.

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

On May 09, 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 three soil borings at the site.

After examination of historic air photos and a close examination of the site, we modified the location of the three soil borings shown in Plate 6 of the Stage 1 Abatement Plan. We elected to drill the first boring southeast (down gradient, see Plate 3) of the soil boring TP4, which was drilled in the drilling pit excavation (see Plate 1). The depth discrete ground water specific conductivity readings from this boring obviated the need to drill the planned boring near MW-1 and for the second boring we moved further down gradient (southeast). The relatively high field conductance of ground water

samples at this second boring was surprising because the release from the drilling pit was relatively recent. The last boring is about 120 feet down gradient from the edge of the drilling pit.

We observed flowing sands under lithostatic or hydrostatic pressure during soil boring activities. Because we were using hollow stem drilling equipment vs. mud rotary, we were concerned that we could not create pressure to hold down the flowing sands and drilling deeper could compromise our ability to create a proper borehole seal. Therefore, we ceased drilling shortly after encountering these flowing sands rather than ceasing drilling after auger samples returned field data suggesting that we had defined the base of impairment.

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. The wellhead at the site was plugged and abandoned in May 2008, which eliminated the deadman zone of active sites where completion of monitoring wells is not recommended. Therefore, we completed each soil boring as a monitoring well.
4. When conditions allowed, we obtained ground water samples through the auger 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 TPH, 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 (MW-02) – Plate 4

SB-01 is located approximately 35-feet southwest from the southeast corner of the former drilling pit. The borehole log is shown on Plate 4.

Total depth of this borehole is 73-feet. The upper 30-feet consist of caliche. Thirty to 70-feet below ground surface (bgs) is composed of fine sand with interbedded quartzite. From 70-feet bgs to total depth, we observed fine flowing sands under hydrostatic or lithostatic pressure. When the borehole was left open overnight, these fine sands flowed up the borehole to 48-feet bgs. We ceased drilling at 73-feet to avoid losing the borehole to flowing sands.

Ground water was encountered at 36-feet bgs. Field measurements indicate SC increases with depth, from 4.35 mS/cm at 40.5-feet bgs to 14.94 mS/cm at 73.8-feet bgs. We obtained sufficient sample volume for laboratory analysis of ground water at 40.5, 50.8, 65.84, and 73.8-feet bgs. Field and laboratory analysis of ground water samples is shown in Table 2, below.

We completed SB-01 as monitoring well MW-02. Total depth of MW-02 is 65.3-feet with 10-feet of screen from 55.3 to 65.3-feet bgs.

4.2 Soil Boring SB-02 (MW-03) – Plate 5

SB-02 is located down gradient approximately 65-feet south southeast from the southeast corner of the former drilling pit. The borehole log is shown on Plate 5.

Total depth of this borehole is 68-feet. The upper 6-feet consist of fine sand. Six to 18-feet bgs is composed of clay and silt. Caliche exists from 18 to 20-feet bgs. Fine sands extend from 20-feet bgs to total depth. At total depth, we observed these fine flowing sands under hydrostatic or lithostatic pressure, as observed in SB-01. These fine sands flowed up the borehole to 60-feet bgs. We ceased drilling at 68-feet to avoid losing the borehole to flowing sands.

Ground water was encountered at 38-feet bgs. Field measurements indicate SC increases with depth, from 4.52 mS/cm at 48.3-feet bgs to 8.23 mS/cm at 68-feet bgs. We obtained sufficient sample volume for laboratory analysis of ground water at 68-feet bgs. Field and laboratory analysis of ground water samples is shown in Table 2, below.

We completed SB-02 as monitoring well MW-03. Total depth of MW-03 is 67-feet with 20-feet of screen from 47 to 67-feet bgs.

4.3 Soil Boring SB-03 (MW-04) – Plate 6

SB-03 is located down gradient approximately 120-feet south southeast from the southeast corner of the former drilling pit. The borehole log is shown on Plate 6.

Total depth of this borehole is 68.2-feet. The upper 13-feet consist of caliche. Thirteen to 27-feet bgs is composed of fine sand with interbedded quartzite. From 27-feet bgs to total depth consists of fine sands. We observed fine sands with hydrostatic or lithostatic properties at 68-feet; therefore, we ceased drilling at 68.2-feet to avoid losing the borehole to flowing sands.

Ground water was encountered at 37-feet bgs. We were unable to obtain field measurements at 42.9 and 48-feet bgs due to fine sands clogging the trip bailer. However, we obtained field measurements at 53 and 68.2-feet bgs. Field measurements indicate SC increases with depth, from 2.01 mS/cm at 53-feet bgs to 5.09 mS/cm at 68.2-feet bgs. We obtained sufficient sample volume for laboratory analysis of ground water at 68.2-feet bgs. Field and laboratory analysis of ground water samples is shown in Table 2, below.

We completed SB-03 as monitoring well MW-04. Total depth of MW-04 is 68.2-feet with 20-feet of screen from 48.2 to 68.2-feet bgs. Please see the borehole log for completion details.

4.4 Analyses of Ground Water from Borings– Table 2 and Plate 7

Table 2 presents all of the data obtained during the boring program and Plate 7 shows the data in relation to the site.

Table 2: Analysis of ground water samples from soil boring program

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	40.5	4.35	4.00	1,100	2,600
	50.8	8.84	7.80	2,600	5,200
	65.84	13.78	12.00	4,500	8,500
	73.8	14.94	15.00	4,800	7,500
SB-02	48.3	4.52	---	---	---
	58.3	4.99	---	---	---
	68	8.12	7.80	2,800	5,500
SB-03	53	2.01	---	---	---
	68.2	5.90	5.30	1,700	3,900

--- indicates insufficient sample volume for lab analysis

4.5 Ground Water Monitoring Well Sampling – Table 3, Plate 8 and Appendix A

On June 16 and 19, 2008, Rozanne Johnson of Arc Environmental, the selected contractor for Hicks Consultants, mobilized to the site to perform well development of the three newly-drilled wells and sampling and monitoring of all four ground water monitoring wells at the site.

Table 3, below, summarizes recent and historic ground water chemistry and ground water elevation measurements at MW-01, -02, -03, and -04. The Certificate of Analysis for the June 19th sampling event is in Appendix A. The results of the sampling are also presented in Plate 8.

Table 3 – Monitoring Well Sampling Results						
Well Name	Date	GW Elev	DTW	Cl	TDS	Specific Conductance {field measured}
		(ft msl)	(ft)	(mg/L)	(mg/L)	(mS/cm)
MW-01	1/24/08	4110.2	33.5	1120		
MW-01	3/13/08	4110.21	33.49	1100	3610	3190
MW-01	6/19/08	4110.11	33.59	1780	3930	4.83
MW-02	6/19/08	4110.75	33.05	8060	10500	
MW-03	6/19/08	4110.16	33.34	4830	9210	
MW-04	6/19/08	4109.81	33.34	3780	7280	

5 Discussion and Conclusions

5.1 The Majority of the Release that Occurred Between 2005 and 2008 Entered Ground Water beneath the Northwest Corner of the Drilling Pit

The data from Plate 5 of the Stage 1 Abatement Plan is partially reproduced below as Figure 1. Cross-checking the field chloride analyses (presented in Figure 1) with laboratory analyses of split samples (reported in the Elke Environmental Report attached to the February 2008 C-144 for the site) shows good agreement.

At TP3 and TP4, a 2005-2008 release probably caused brine saturation of soil from 8-12 feet. At TP3, samples from 14-20 feet below grade suggest that the pore space is partially filled with brine. The sample from 22 feet at TP3 has not been significantly impacted by the recent brine release because the moisture content is 1.73% (by weight) and the chloride concentration is low (177 mg/kg). At TP4, the full thickness of the vadose zone appears impacted with brine from the recent release.

TP2 shows no evidence of a significant brine release. The data from TP1 suggests that brine did not reach ground water at this location.

At TP5, saturation of pore space with brine did not occur. However, some brine penetrated below 22 feet. The sample from 26 feet at TP5 exhibits a moisture content of 6.28% (by weight) and a laboratory chloride concentration of 384 mg/kg.

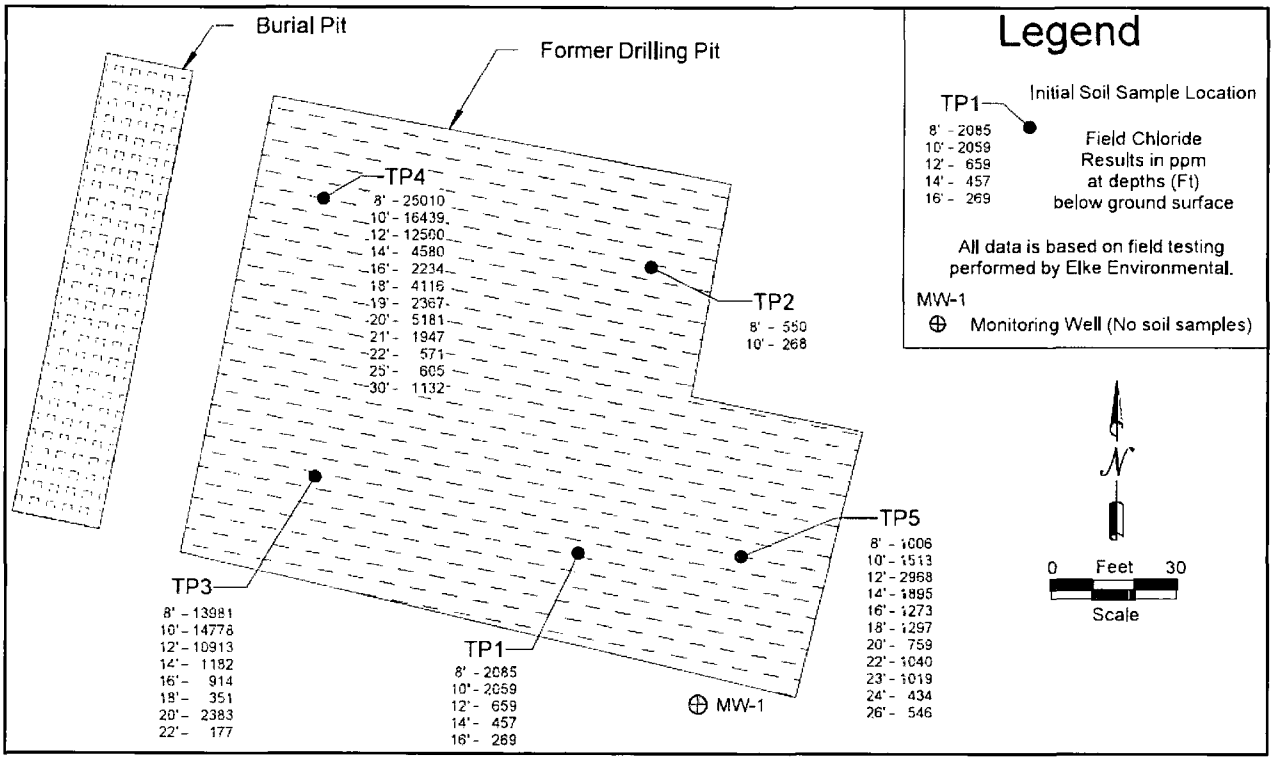


Figure 1: Portion of Plate 5 submitted in the Stage 1 Abatement Plan

From these data we conclude that the northwest and west side of the Pride drilling pit released a quantity of brine that caused saturation of the caliche to a depth of about 12 feet. Saturated flow through preferential pathways occurred from the drilling pit to ground water in this area. Brine released from the central portion of the Pride drilling pit did not enter ground water. In the eastern portion of the drilling pit (near TP5) brine saturated did not occur but some brine migration to ground water did occur. MW-1 is down gradient from this portion of the former drilling pit and exhibits the lowest chloride concentration (less than 2000 mg/L) of all four monitoring wells.

5.2 The Magnitude and Extent of Brine Impact is Consistent with a 1957 Release

Plate 3 shows that the hydraulic gradient in the area is 0.0028. According to Musharrafieh and Chudnoff[2], the hydraulic conductivity of the Ogallala Aquifer in this area is 40-60 ft/day. Assuming a porosity of 25% for the aquifer, the average liner velocity (pore velocity) is between 160 and 240 feet/year using the referenced published estimates for hydraulic conductivity.

However, the fine sand with some interbedded quartzite layers in the upper 40-feet of the Ogallala Aquifer at the site is not consistent with a "good aquifer" (see Table 4). Moreover, the published hydraulic conductivities for the Ogallala Aquifer include the coarser-grained lower section of the

[2] Numerical Simulation of Groundwater Flow for Water Rights Administration in the Lea County Underground Water Basin New Mexico, New Mexico Office of the State Engineer, Technical Report 99-1, 1999

unit. The site data suggest that the hydraulic conductivity of the upper portion of the Ogallala is about 10 feet/day or less. Using 10 feet/year in the calculation of pore velocity yields a rate of 40 feet/year for average linear velocity. A pump test would provide the necessary data to confirm our assumption of the 10 feet/year hydraulic conductivity.

K (cm/s)	10^{2}	10^{1}	10^{0}=1	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}	10^{-7}	10^{-8}	10^{-9}	10^{-10}
K (ft/day)	10^{5}	10,000	1,000	100	10	1	0.1	0.01	0.001	0.0001	10^{-5}	10^{-6}	10^{-7}
Relative Permeability	Pervious				Semi-Pervious				Impervious				
Aquifer	Good					Poor			None				
Unconsolidated Sand & Gravel	Well Sorted Gravel		Well Sorted Sand or Sand & Gravel			Very Fine Sand, Silt, Loess, Loam							
Unconsolidated Clay & Organic					Peat		Layered Clay			Fat / Unweathered Clay			
Consolidated Rocks	Highly Fractured Rocks				Oil Reservoir Rocks			Fresh Sandstone		Fresh Limestone, Dolomite		Fresh Granite	

Table 4: Hydraulic Conductivity Values (Wikepedia - Source: modified from Bear, 1972)

At a rate of 40 feet/year, the impact of the brine release from the Pride Energy pit (2005-08) would migrate about 80 feet, which is 20 feet less than the distance between the edge of the 2005 drilling pit and SB-2 (MW-3) and 70 feet less than the distance from the edge of the drilling pit and SB-3 (MW-4). Plate 9 shows our interpretation of the magnitude and extent of chloride from the Penrose and Pride Energy drilling pits.

Using an average linear velocity of 40 feet/year, chloride concentrations above natural background should exist about 2,000 feet down gradient from the site if brine entered ground water around year 1960 and only 80 feet if brine entered ground water in mid 2006. The distance between the northwest corner of the drilling pit (TP4), where we believe the majority of the brine entered ground water, and SB-3 (MW-4) is about 260 feet.

We conclude that brine released from the Pride drilling pit has not significantly impacted the monitoring wells. The proposed additional deep wells plus proposed hydraulic conductivity testing will provide data that may support or refute this conclusion and will refine the estimate of the extent of ground water impact.

6 Stage II Abatement Plan

Data collected to date indicates impaired ground water exists beneath the site and chloride above 1,000 mg/kg exists in the vadose zone below the former drilling pit. The source of the chloride in

the vadose zone is the Pride drilling pit and possibly residual chloride from an earlier release from the Penrose drilling pit (1956-57). The origin of the chloride detected in monitoring wells MW-2, MW-3 and MW-4 is probably leakage from the Penrose drilling pit. The origin of chloride at MW-1 is probably the Pride drilling pit.

6.1 Ground Water Remedy

Although the impairment of ground water was probably caused by Penrose, Pride Energy is considered a "responsible party" with Penrose. Pride Energy proposes to

1. Conduct three additional quarterly ground water sampling events and evaluate the recovery of each well after sampling. These data should assist in creating a better estimate of the hydraulic conductivity of the uppermost saturated zone, the rate of natural ground water restoration and the rate of contaminant migration
2. Evaluate the ground water 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 MW-5 (Plates 10 and 11) to further define the vertical magnitude of ground water impairment,
   b. use mud rotary drilling and install MW-6 (Plates 10 and 12) to further define the horizontal and vertical magnitude and extent of ground water impairment.
   c. install one recovery well for a pump-and use ground water restoration program for nearby oil and gas drilling operations. The location of the recovery well will be determined in the field after obtaining specific conductance measurements from MW-05 and MW-06. We will provide additional details regarding the pump-and-use strategy after completion and testing of MW-5 and MW-06.
   d. Survey the wells to permit accurate determination of water table elevations.
4. In April of 2010, provide an annual ground water monitoring report to NMOCD that evaluate the data from the proposed drilling of MW-5 and MW-6, pumping and ground water sampling program and propose recommendations for:
   a. a natural restoration/monitoring ground water remedy or
   b. continuation of a pump-and-use ground water restoration strategy

6.2 Vadose Zone Remedy

1. Expand the existing drilling pit excavation as necessary to create a 3-foot wide area where subsurface impact of pit leakage does not exist (Plate 13, 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 13, step 2.
3. Over the sloping surface, place "shingles" of recycled or new 20-mil, reinforced liner material that meet NMOCD specifications. 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 13, 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 approved by the State Land Office.

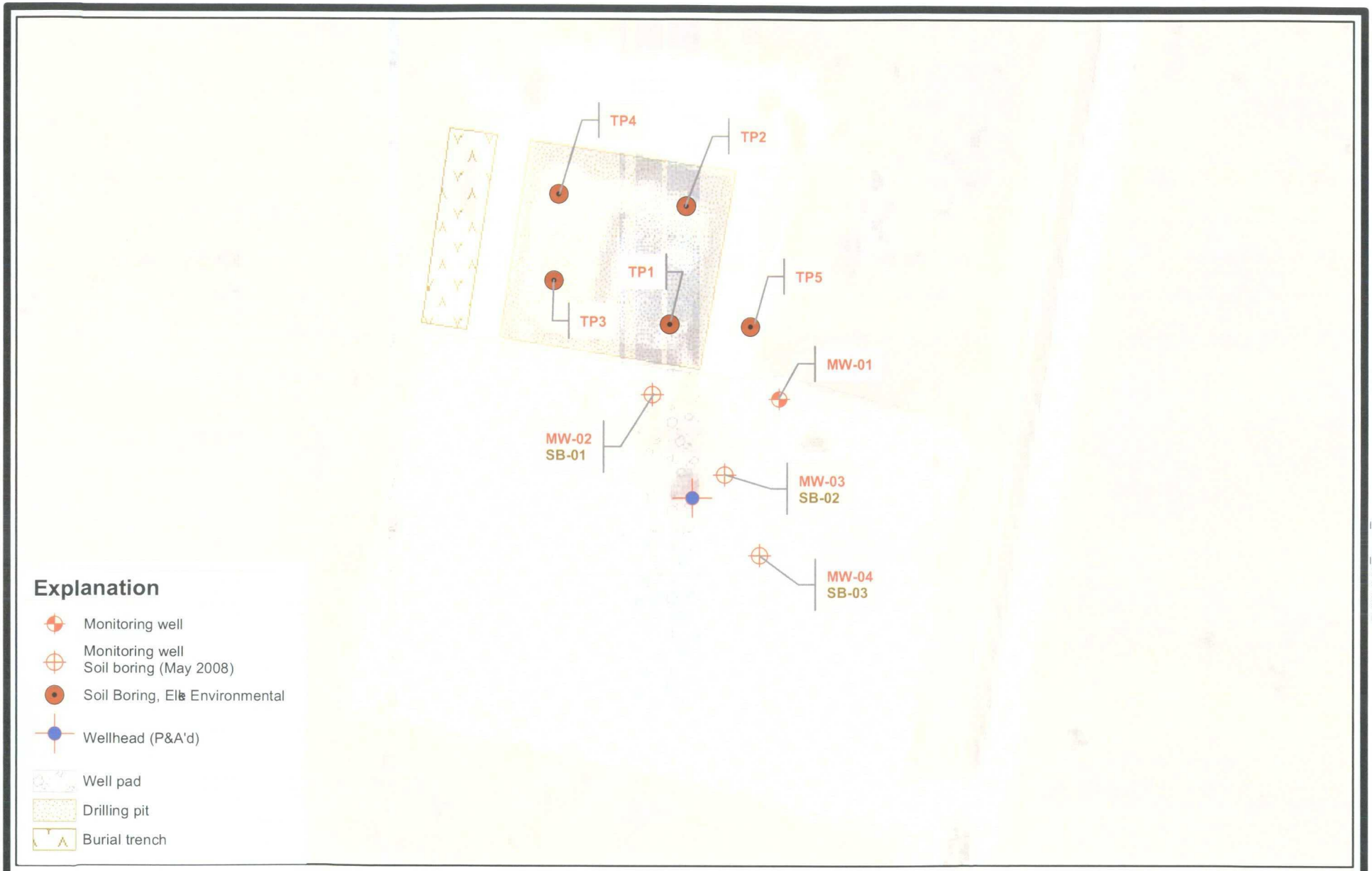
6.3 Schedule of Activities

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:

- Major Anions/Cations
- TDS
- BTEX

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

PLATES



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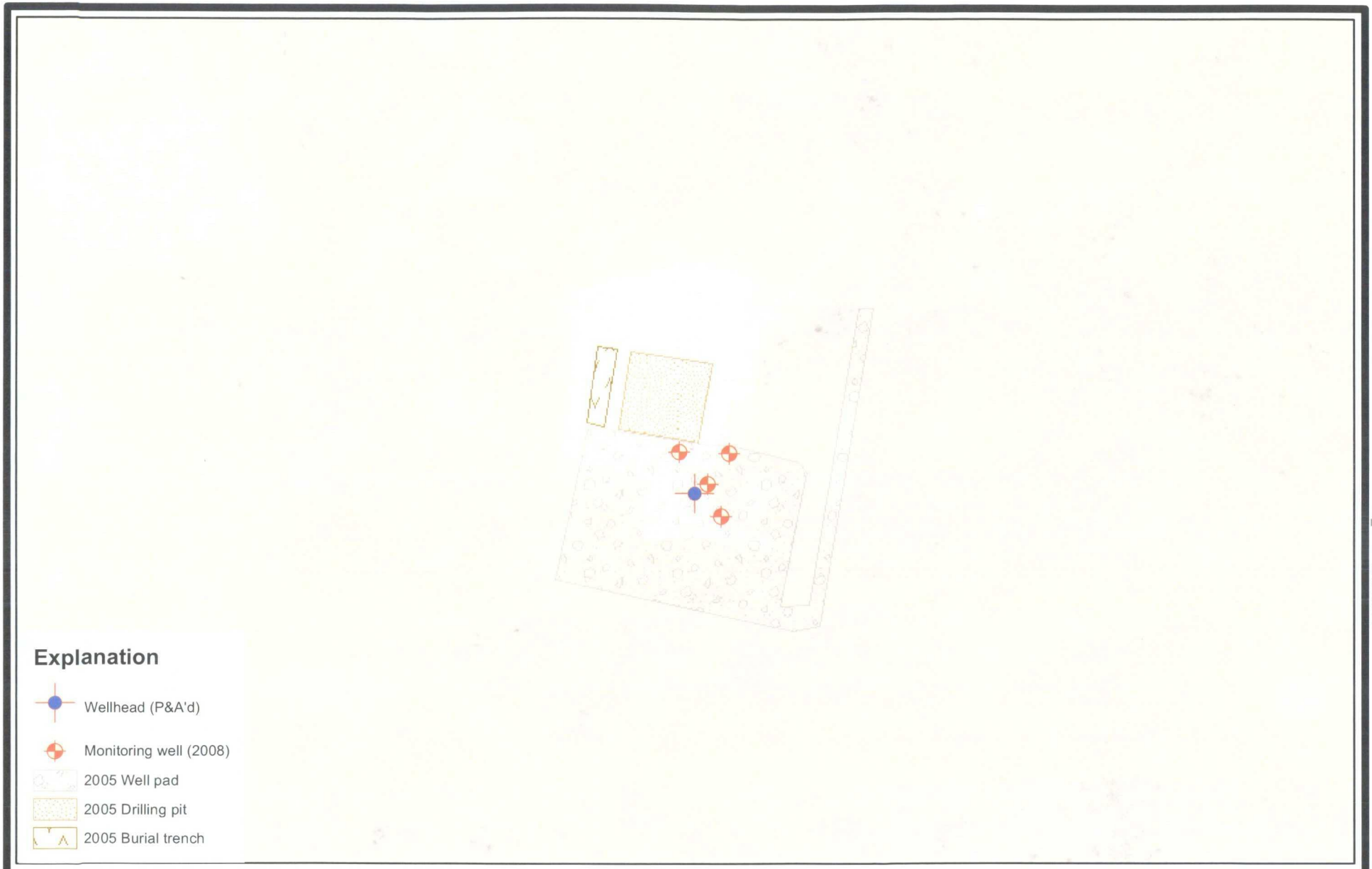
8/12/2008

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Site Map	Plate 1
	Pride Energy: State X #1	August 2008



Source: 1966 USGS Aerial Photograph (EDAC)

0 100 200 Feet

N
W E
S

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1966 Aerial Photograph Showing the 2005 Well Pad Layout Relative to the Well Pad Associated with 1956 Spudding Activities

Plate 2

Pride Energy: State X #1

August 2008

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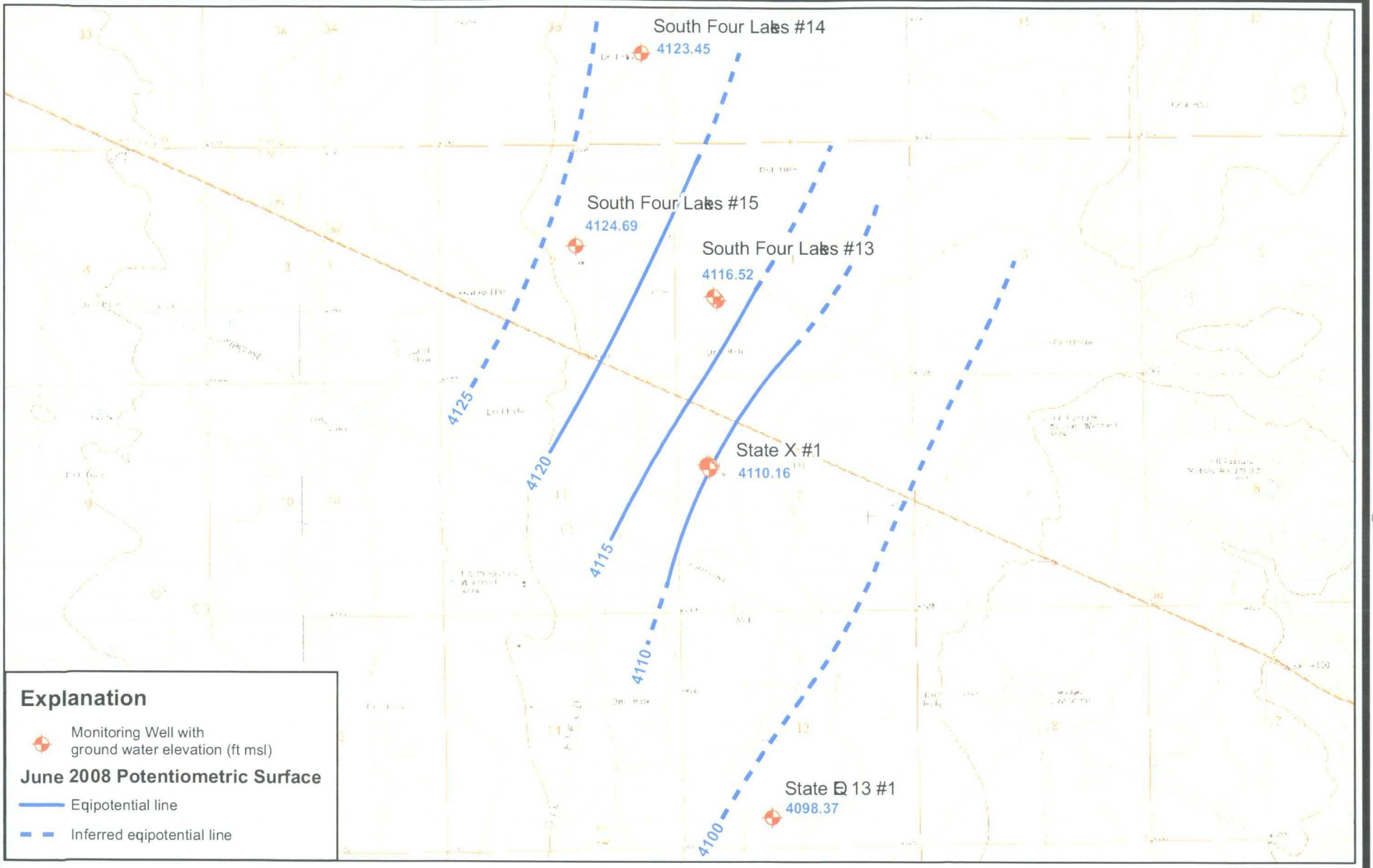
8/12/2008



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Potentiometric Surface (June 2008) Pride Energy: State X #1	Plate 3 August 2008

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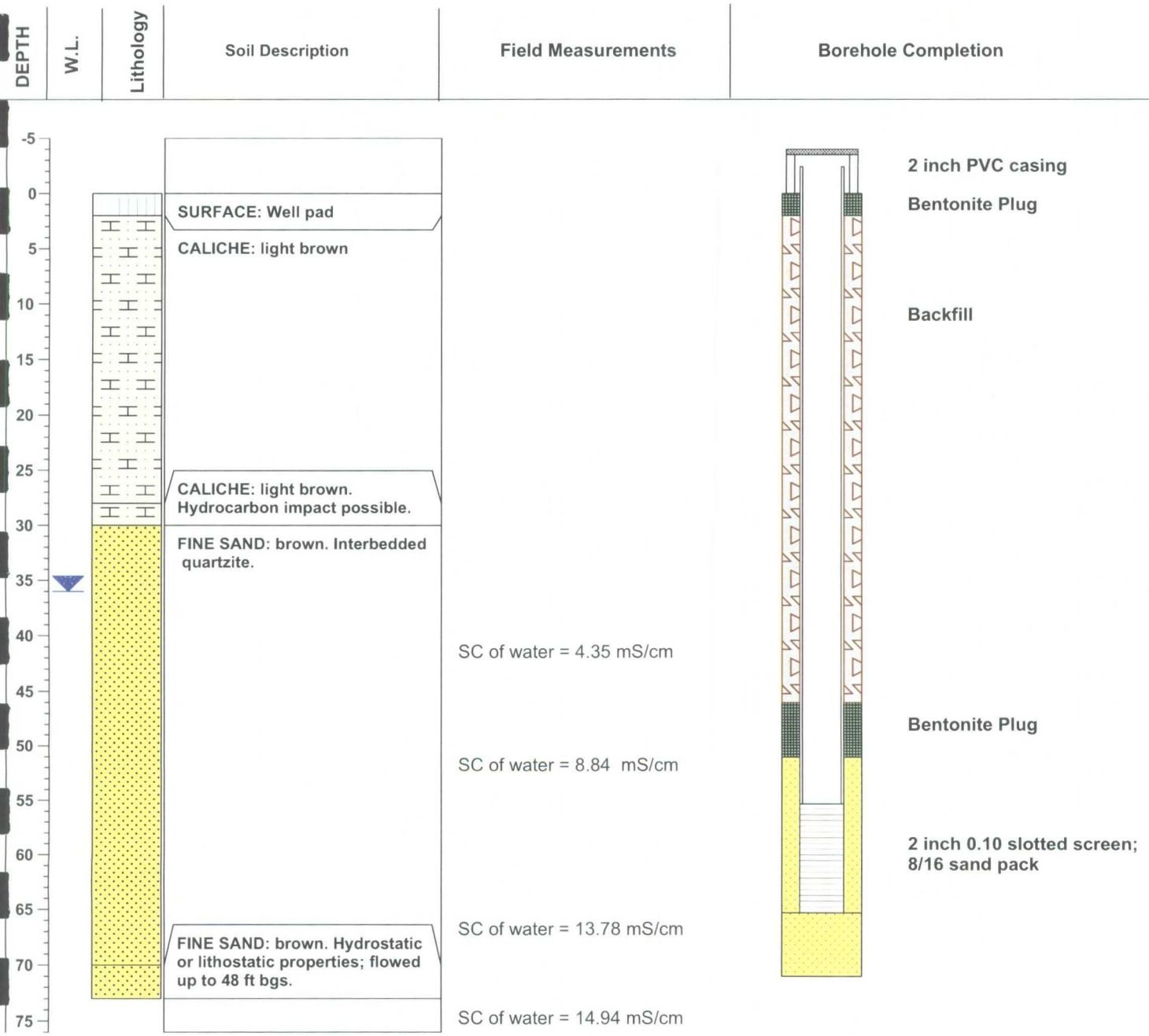
8/12/2008

Borehole/Well Log

Site Name:	State X #1	Coordinate System:	UTM Zone 13 (meters)
Address:	9.5 miles west on Hwy 380	X:	64239.713
City, State:	Tatum, NM	Y:	3685038.855
County:	Lea	Z	4141.4
Driller:	Atkins Engineering	Datum:	NAD 83
Auger Type:	Hollow Stem	Borehole ID:	SB-01
Auger Dia.:	7.25	Well ID:	MW-02
Drill Date:	05/07/08	Total Depth:	73



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Borehole/Well Log

Site Name:	State X #1	Coordinate System:	UTM Zone 13 (meters)
Address:	9.5 miles west on Hwy 380	X:	642407.74
City, State:	Tatum, NM	Y:	3685038.855
County:	Lea	Z	4141.3
Driller:	Atkins Engineering	Datum:	NAD 83
Auger Type:	Hollow Stem	Borehole ID:	SB-02
Auger Dia.:	7.25	Well ID:	MW-03
Drill Date:	05/09/08	Total Depth:	68

DEPTH	W.L.	Lithology	Soil Description	Field Measurements	Borehole Completion
-5					2 inch PVC casing
0			SURFACE: Well pad		
5			FINE SAND: Possible hydrocarbon impact; dark grey.		Bentonite Plug
10			CLAY: Medium brown.		
15			CLAY: Reddish brown.		
20			CLAY AND SILT: Light brown.		Backfill
25			SILT: Light brown.		
30			CALICHE: Light brown.		
35	▼		FINE SAND: Light brown. Hydrostatic or lithostatic pressure. Flowed up to 60 ft bgs.		
40					Bentonite Plug
45					
50				SC of water = 4.52 mS	2 inch 0.10 slotted screen; 8/16 sand pack
55					
60				SC of water = 4.99 mS	
65					
70				SC of water = 8.23 mS	

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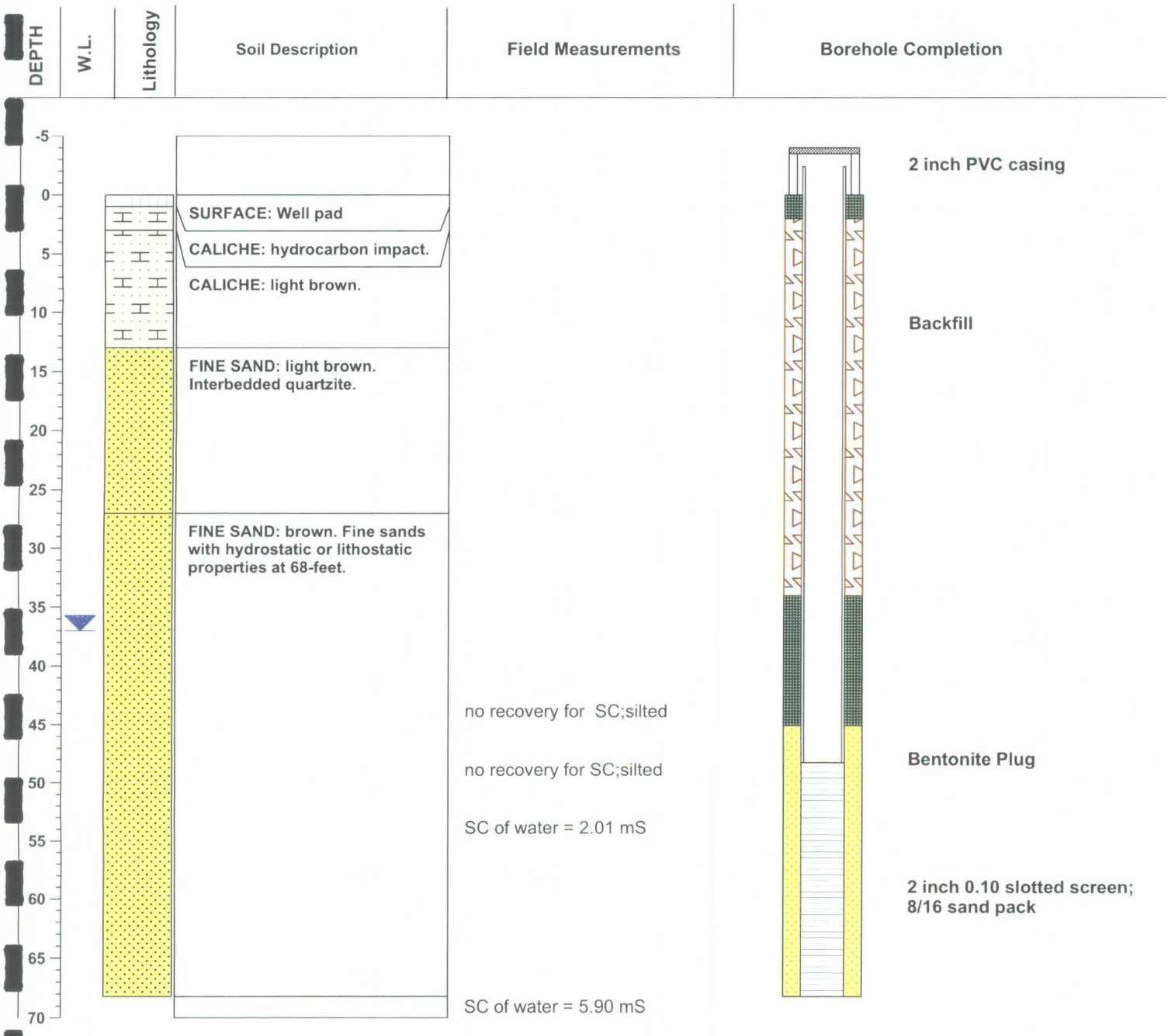
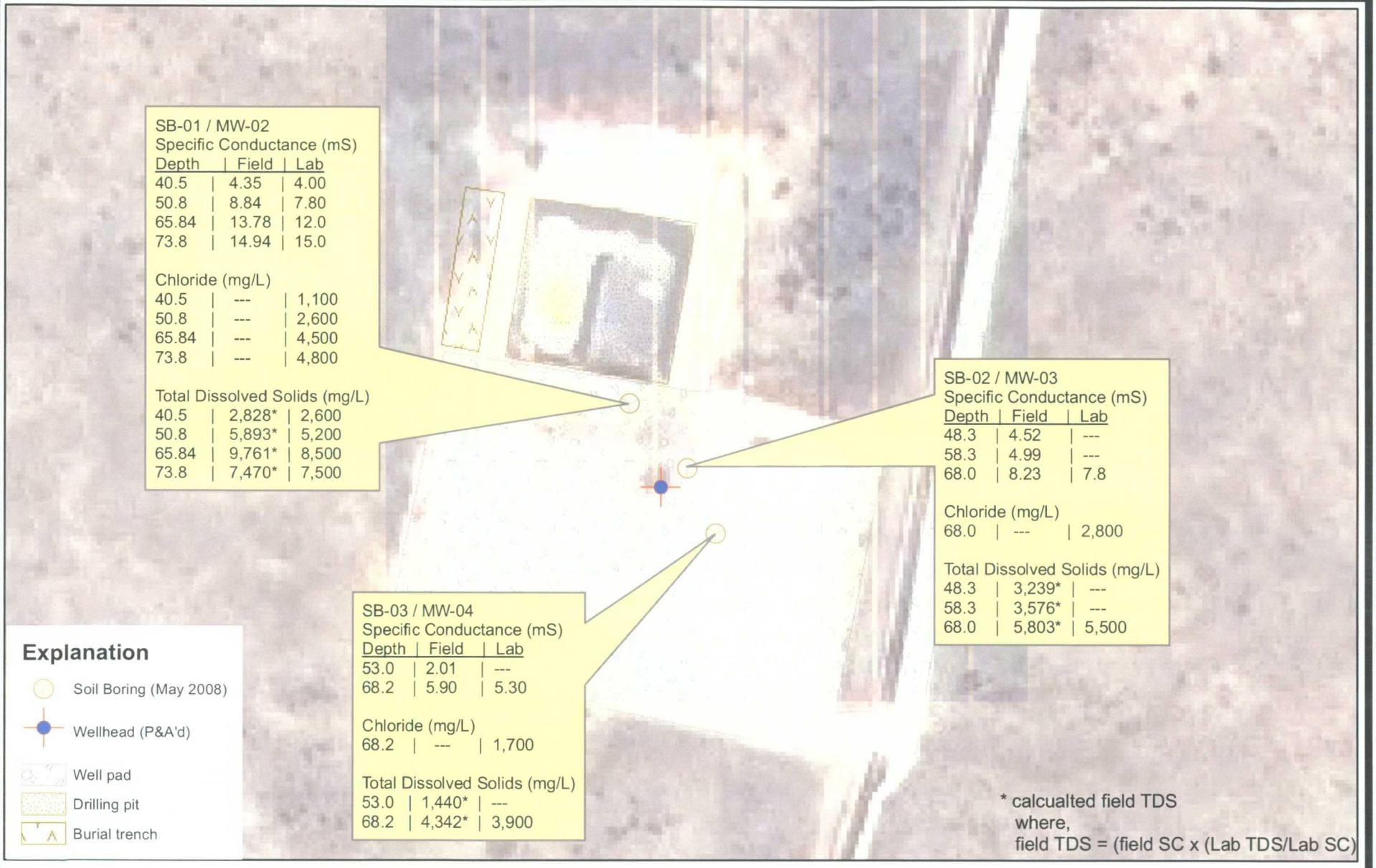
Borehole/Well Log

Site Name:	State X #1	Coordinate System:	UTM Zone 13 (meters)
Address:	9.5 miles west on Hwy 380	X:	642414.413
City, State:	Tatum, NM	Y:	3685023.603
County:	Lea	Z	4141.25
Driller:	Atkins Engineering	Datum:	NAD 83
Auger Type:	Hollow Stem	Borehole ID:	SB-03
Auger Dia.:	7.25	Well ID:	MW-04
Drill Date:	05/12/08	Total Depth:	68.2



R.T. Hicks Consultants, Ltd

901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505-266-5004 Fax: 505-266-0745



S:/PROJECTS/PRIDEENERGY/ADDITIONSITES/STATEX1/PLATES/STAGEII/PLATE7 SOILBOREDATA.MXD

8/12/2008

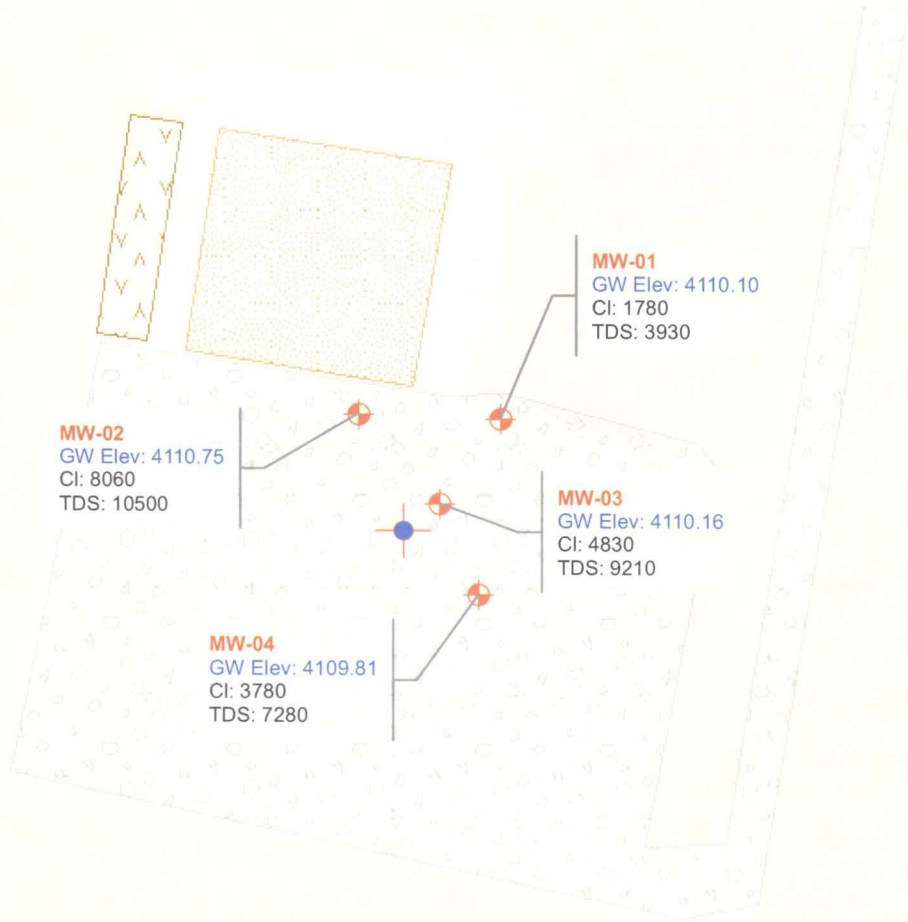
R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Chemistry of Ground Water During Soil Boring Activities

Plate 7

Pride Energy: State X #1

August 2008



Explanation

- Monitoring well with ground water chemistry (mg/L)
- Wellhead (P&A'd)
- Well pad
- Drilling pit
- Burial trench

Note: Ground water elevations approximate; casing elevations not surveyed.

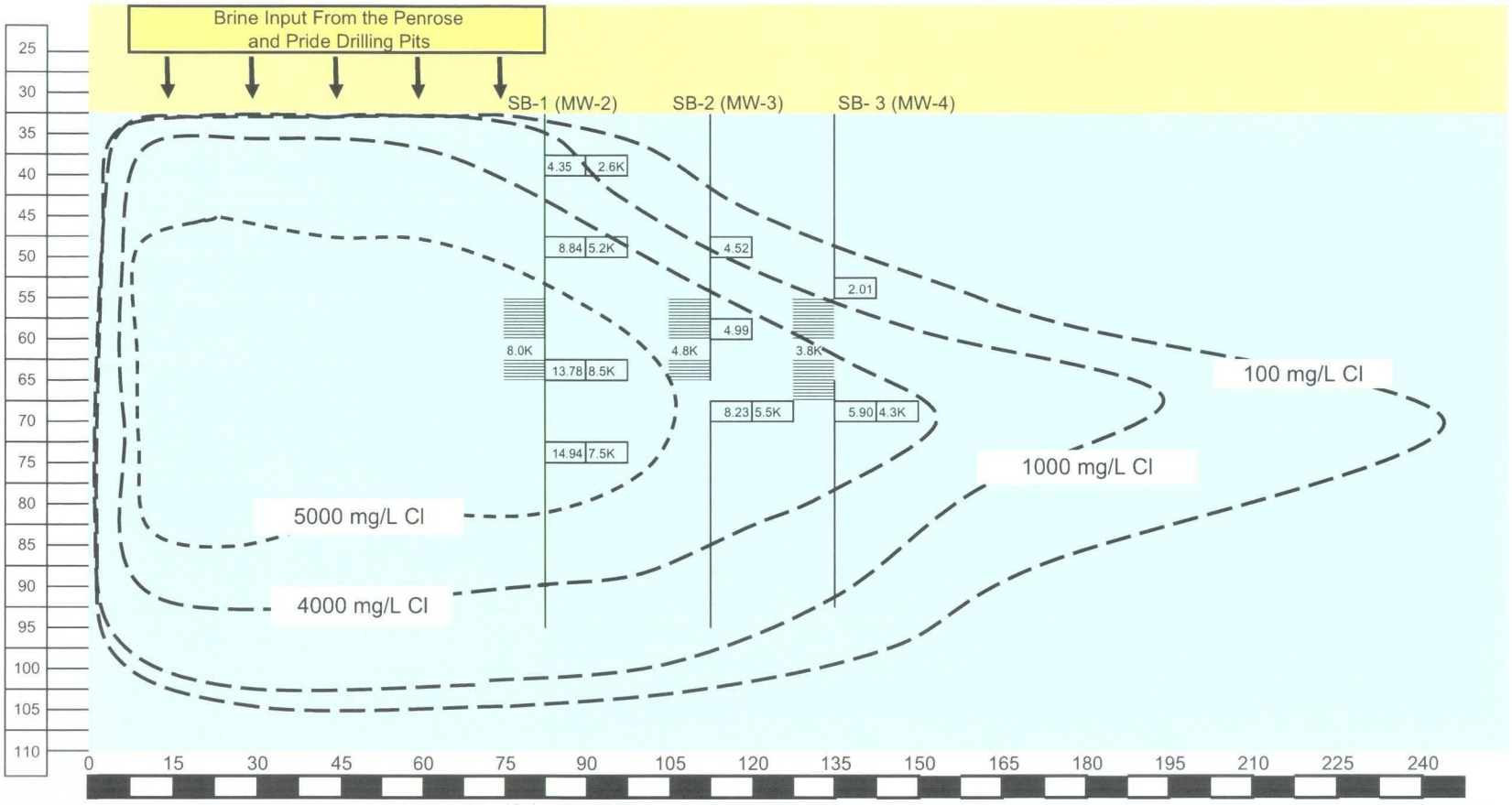
0 50 100 Feet

N W E S

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Chloride and TDS in Ground Water (June 19, 2008)	Plate 8
	Pride Energy: State X #1	August 2008

7/16/2008

S:/PROJECTS/PRIDEENERGY/ADDITIONSITES/STATEX1/PLATES/STAGEII/PLATE8_GROUNDWATERDATA.MXD



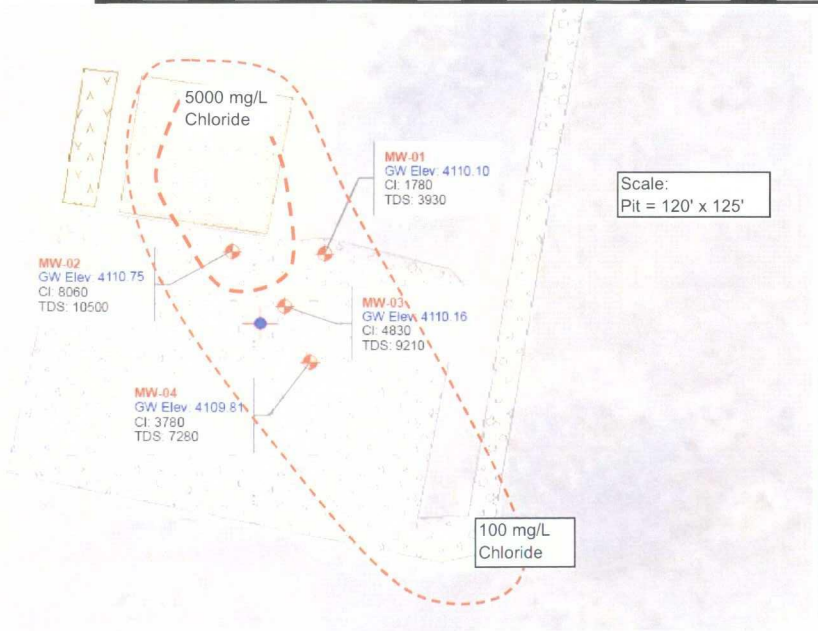
Legend

Well Soil Boring

13.78 8.5K

8.0K Sc Cl-Lab

Cl-Lab



R.T. Hicks Consultants Albuquerque, NM	**Magnitude and Extent of Chloride** **X#1 Site** **Pride Energy**	**Plate 9** **Aug-08**

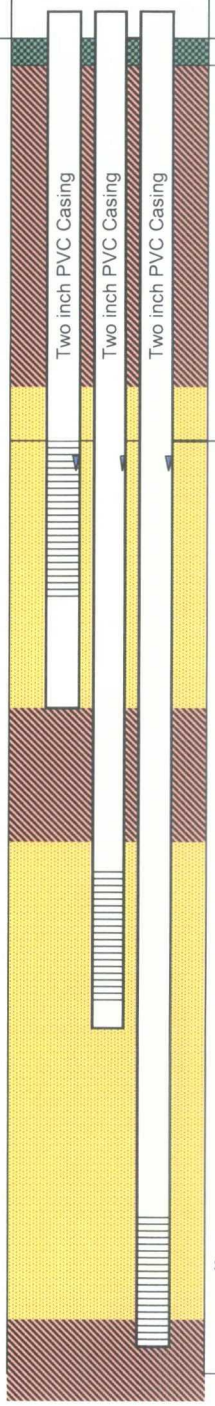
S:/PROJECTS/PRIDEENERGY/ADDITIONSITES/STATEX1/PLATES/STAGEII/PLATE10_PROPOSED_BORINGS.MXD

8/12/2008

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Proposed Well Locations	Plate 10
	Pride Energy: State X #1	August 2008

Client:	Pride Energy	Well Description:	Schematic Drawing of MW-5
Project Name:	X #1		
Location:			

Depth (feet)	Comments:	Material Descriptions:
0.0		Cement, 0-2 feet
2.0		
4.0		
6.0		
8.0		
10.0		
12.0		
14.0		Hydrated bentonite, 2-28 feet
16.0		
18.0		
20.0		
22.0		
24.0		
26.0		
28.0		
30.0		Sand, 28-48 feet Screen 30-40 feet
32.0		
34.0		
36.0		
38.0		
40.0		
42.0		
44.0		
46.0		
48.0		
50.0		Hydrated bentonite 48-58 feet if possible
52.0		
54.0		
56.0		
58.0		
60.0		
62.0		
64.0		
66.0		
68.0		Sand, 60-Total Depth Screen 60-70 feet
70.0		
72.0		
74.0		
76.0		
78.0		
80.0		
82.0		
84.0		
86.0		
88.0		
90.0		Screen 90-Total Depth
92.0		
94.0		
96.0		Red Beds
98.0		
100.0		
102.0		

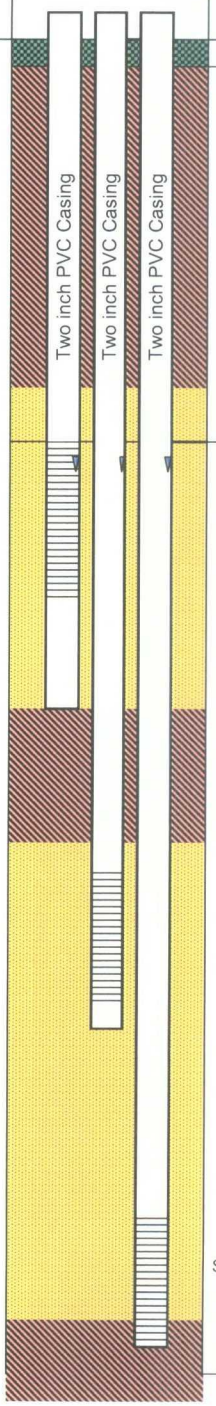


R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
505-266-5004

Pride Energy X #1	Plate 11
MW-6	August 2008

Client:	Pride Energy	Well Description:	Schematic Drawing of MW-6
Project Name:	X #1		
Location:			

Depth (feet)	Comments:	Material Descriptions:
0.0		Cement, 0-2 feet
2.0		
4.0		
6.0		
8.0		
10.0		
12.0		
14.0		Hydrated bentonite, 2-28 feet
16.0		
18.0		
20.0		
22.0		
24.0		
26.0		
28.0		
30.0		Sand, 28-48 feet Screen 30-40 feet
32.0		
34.0		
36.0		
38.0		
40.0		
42.0		
44.0		
46.0		
48.0		
50.0		Hydrated bentonite 48-58 feet if possible
52.0		
54.0		
56.0		
58.0		
60.0		Sand, 60-Total Depth Screen 60-70 feet
62.0		
64.0		
66.0		
68.0		
70.0		
72.0		
74.0		
76.0		
78.0		
80.0		
82.0		
84.0		
86.0		
88.0		
90.0		Screen 90-Total Depth
92.0		
94.0		
96.0		Red Beds
98.0		
100.0		
102.0		



R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
505-266-5004

Pride Energy X #1	Plate 12
MW-6	August 2008

APPENDIX A

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

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-State X#1

Order No.: 0805245

Dear Andrew Parker:

Hall Environmental Analysis Laboratory, Inc. received 6 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,

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
Project: Pride Energy-State X#1
Lab Order: 0805245

CASE NARRATIVE

Prep Comments for TDS_PREP, Sample 0805245-01A: The prep HoldTime was exceeded by 4.00 days. Prep Comments for TDS_PREP, Sample 0805245-02A: The prep HoldTime was exceeded by 3.97 days. Prep Comments for TDS_PREP, Sample 0805245-03A: The prep HoldTime was exceeded by 3.95 days. Prep Comments for TDS_PREP, Sample 0805245-04A: The prep HoldTime was exceeded by 3.93 days.

Hall Environmental Analysis Laboratory, Inc.

Date: *28-May-08*

CLIENT:	R.T. Hicks Consultants, LTD	**Client Sample ID:**	SB-01@40.5 fbgs
Lab Order:	0805245	**Collection Date:**	5/8/2008 10:48:00 AM
Project:	Pride Energy-State X#1	**Date Received:**	5/16/2008
Lab ID:	0805245-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **SLB**
Chloride	1100	5.0		mg/L	50	5/22/2008 7:51:36 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **TAF**
Specific Conductance	4000	0.010		µmhos/cm	1	5/20/2008
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: **KMS**
Total Dissolved Solids	2600	100	H	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	**Client Sample ID:**	SB-01@50.8 fbgs
Lab Order:	0805245	**Collection Date:**	5/8/2008 11:23:00 AM
Project:	Pride Energy-State X#1	**Date Received:**	5/16/2008
Lab ID:	0805245-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **SLB**
Chloride	2600	20		mg/L	200	5/27/2008 4:07:00 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **TAF**
Specific Conductance	7800	0.010		µmhos/cm	1	5/20/2008
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: **KMS**
Total Dissolved Solids	5200	400	H	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	**Client Sample ID:**	SB-01@65.84 fbgs
Lab Order:	0805245	**Collection Date:**	5/8/2008 11:47:00 AM
Project:	Pride Energy-State X#1	**Date Received:**	5/16/2008
Lab ID:	0805245-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **SLB**
Chloride	4500	20		mg/L	200	5/27/2008 4:24:25 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **TAF**
Specific Conductance	12000	0.050		µmhos/cm	5	5/20/2008
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: **KMS**
Total Dissolved Solids	8500	400	H	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	**Client Sample ID:**	SB-01@73.8 fbgs
Lab Order:	0805245	**Collection Date:**	5/8/2008 12:17:00 PM
Project:	Pride Energy-State X#1	**Date Received:**	5/16/2008
Lab ID:	0805245-04	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **SLB**
Chloride	4800	20		mg/L	200	5/27/2008 4:41:50 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **TAF**
Specific Conductance	15000	0.050		µmhos/cm	5	5/20/2008
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: **KMS**
Total Dissolved Solids	7500	1000	H	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	**Client Sample ID:**	SB-02@68 fbgs
Lab Order:	0805245	**Collection Date:**	5/12/2008 11:00:00 AM
Project:	Pride Energy-State X#1	**Date Received:**	5/16/2008
Lab ID:	0805245-05	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **SLB**
Chloride	2800	10		mg/L	100	5/22/2008 9:01:15 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **TAF**
Specific Conductance	7800	0.010		µmhos/cm	1	5/20/2008
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: **KMS**
Total Dissolved Solids	5500	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	**Client Sample ID:**	SB-03@68.2 fbgs
Lab Order:	0805245	**Collection Date:**	5/12/2008 2:30:00 PM
Project:	Pride Energy-State X#1	**Date Received:**	5/16/2008
Lab ID:	0805245-06	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: **SLB**
Chloride	1700	5.0		mg/L	50	5/22/2008 9:18:39 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **TAF**
Specific Conductance	5300	0.010		µmhos/cm	1	5/20/2008
SM 2540C TOTAL DISSOLVED SOLIDS						Analyst: **KMS**
Total Dissolved Solids	3900	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		

QA/QC SUMMARY REPORT

Client: R.T. Hicks Consultants, LTD
Project: Pride Energy-State X#1 **Work Order:** 0805245

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions									
Sample ID: MB		*MBLK*			Batch ID:	**R28630**	Analysis Date:	5/21/2008 9:54:46 AM	
Chloride	ND	mg/L	0.10						
Sample ID: MB		*MBLK*			Batch ID:	**R28669**	Analysis Date:	5/22/2008 9:24:52 AM	
Chloride	ND	mg/L	0.10						
Sample ID: MB		*MBLK*			Batch ID:	**R28689**	Analysis Date:	5/27/2008 2:05:08 PM	
Chloride	ND	mg/L	0.10						
Sample ID: LCS		*LCS*			Batch ID:	**R28630**	Analysis Date:	5/21/2008 10:12:10 AM	
Chloride	4.777	mg/L	0.10	95.5	90	110			
Sample ID: LCS		*LCS*			Batch ID:	**R28669**	Analysis Date:	5/22/2008 9:42:17 AM	
Chloride	4.813	mg/L	0.10	96.3	90	110			
Sample ID: LCS		*LCS*			Batch ID:	**R28689**	Analysis Date:	5/27/2008 2:22:32 PM	
Chloride	4.844	mg/L	0.10	96.9	90	110			
Method: SM 2540C 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	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	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 0805245 | Received by: AMF

Checklist completed by:  Signature 5/16/08 Date | Sample ID labels checked by: RB Initials

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 _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: RT HICKS CONSULTANTS
Address: ON FILE
Phone #: 505-266-5004
Fax #:

Project Name: PRIDE ENERGY – STATE X #1
Project #:
Project Manager: ANDREW PARKER
Sampler: A. PARKER
Sample Temperature: 16°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No. 0805245
5/8	10:48	Aq	SB-01 @ 40.5 fbgs	125mL				1
5/8	11:23	Aq	SB-01 @ 50.8 fbgs	625 mL				2
5/8	11:47	Aq	SB-01 @ 65.84 fbgs	125 mL				3
5/8	12:17	Aq	SB-01 @ 73.8 fbgs	125 mL				4
5/12	11:00a	Aq	SB-02 @ 68 fbgs	625 mL				5
5/12	14:30	Aq	SB-03 @ 68.2 fbgs	625 mL				6

ANALYSIS REQUEST

HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	TDS	SPECIFIC CONDUCTANCE	CHLORIDE		Air Bubbles or Headspace (Y or N)
1															X		
2													X	X	X		
3															X		
4															X		
5													X	X	X		
6													X	X	X		

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
5/16/08	11:35	Andrew Parker		5/16/08 11:35
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks: Try to run S.C and TDS on all samples

Analytical Report 306331

for

R.T. Hicks Consultants, LTD

Project Manager: Andrew Parker

Pride Energy Company

State "X" # 1

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: **306331**
Pride Energy Company
Project Address: T12S-R34E, Section 13, Unit Letter E

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 306331. 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. 306331 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

Sample Cross Reference 306331

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

Pride Energy Company

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
MW-1	W	Jun-19-08 12:00		306331-001
MW-2	W	Jun-19-08 11:05		306331-002
MW-3	W	Jun-19-08 10:05		306331-003
MW-4	W	Jun-19-08 09:20		306331-004

ENVIRONMENTAL LAB OF

Certificate of Analysis Summary 306331

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

Project Name: Pride Energy Company

Project Id: State "X" # 1
Contact: Andrew Parker
Project Location: T12S-R34E, Section 13, Unit Letter E

Date Received in Lab: Jun-20-08 05:00 pm
Report Date: 27-JUN-08
Project Manager: Brent Barron, II

Analysis Requested									
	Lab Id:	306331-001		306331-002		306331-003		306331-004	
	Field Id:	MW-1		MW-2		MW-3		MW-4	
	Depth:								
	Matrix:	WATER		WATER		WATER		WATER	
	Sampled:	Jun-19-08 12:00		Jun-19-08 11:05		Jun-19-08 10:05		Jun-19-08 09:20	
Alkalinity by SM2320B	*Extracted:*								
	Analyzed:	Jun-26-08 10:45		Jun-26-08 10:45		Jun-26-08 10:45		Jun-26-08 10:45	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Alkalinity, Total (as CaCO3)		250	4.00	910	4.00	390	4.00	190	4.00
Alkalinity, Bicarbonate (as CaCO3)		250	4.00	910	4.00	390	4.00	190	4.00
Alkalinity, Carbonate (as CaCO3)		ND	4.00	ND	4.00	ND	4.00	ND	4.00
Inorganic Anions by EPA 300	*Extracted:*								
	Analyzed:	Jun-23-08 08:50		Jun-23-08 08:50		Jun-23-08 08:50		Jun-23-08 08:50	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Chloride		1780	50.0	8060	100	4830	50.0	3780	50.0
Sulfate		270	50.0	ND	100	356	50.0	306	50.0
Metals per ICP by SW846 6010B	*Extracted:*								
	Analyzed:	Jun-23-08 11:59		Jun-23-08 11:59		Jun-23-08 11:59		Jun-23-08 11:59	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Calcium		548	0.100	155	0.100	921	0.100	723	0.100
Magnesium		74.8	0.010	82.7	0.010	105	0.010	82.8	0.010
Potassium		3.26	0.500	4.93	0.500	9.75	0.500	9.45	0.500
Sodium		295	0.500	4390	0.500	1330	0.500	1080	0.500
TDS by SM2540C	*Extracted:*								
	Analyzed:	Jun-23-08 16:30		Jun-23-08 16:30		Jun-23-08 16:30		Jun-23-08 16:30	
	Units/RL:	mg/L	RL	mg/L	RL	mg/L	RL	mg/L	RL
Total dissolved solids		3930	5.00	10500	5.00	9210	5.00	7280	5.00

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

Blank Spike Recovery

Project Name: Pride Energy Company

Work Order #: 306331 **Project ID:** State "X" # 1

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

Alkalinity by SM2320B Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
		BLANK /BLANK SPIKE RECOVERY STUDY				
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

Inorganic Anions by EPA 300 Analytes	Blank Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Control Limits %R	Flags
		BLANK /BLANK SPIKE RECOVERY STUDY				
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 #: 306331
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: State "X" # 1
Analyst: LATCOR
Matrix: Water

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
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 #: 306331

Lab Batch #: 726566 **Project ID:** State "X" # 1
Date Analyzed: 06/26/2008 **Date Prepared:** 06/26/2008 **Analyst:** WRU
QC- Sample ID: 306329-001 D **Batch #:** 1 **Matrix:** Water
Reporting Units: mg/L

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

Lab Batch #: 726337
Date Analyzed: 06/23/2008 **Date Prepared:** 06/23/2008 **Analyst:** LATCOR
QC- Sample ID: 306329-001 D **Batch #:** 1 **Matrix:** Water
Reporting Units: mg/L

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

Lab Batch #: 726094
Date Analyzed: 06/23/2008 **Date Prepared:** 06/23/2008 **Analyst:** LATCOR
QC- Sample ID: 306329-001 D **Batch #:** 1 **Matrix:** Water
Reporting Units: mg/L

Metals per ICP by SW846 6010B Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Calcium	ND	603	NC	25	
Magnesium	120	116	3	25	
Potassium	4.41	4.85	10	25	
Sodium	564	575	2	25	
Fluoride	ND	ND	NC	20	

Lab Batch #: 726342
Date Analyzed: 06/23/2008 **Date Prepared:** 06/23/2008 **Analyst:** WRU
QC- Sample ID: 306329-001 D **Batch #:** 1 **Matrix:** Water
Reporting Units: mg/L

TDS by SM2540C Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
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.

XENCO Laboratories / Environmental Lab of Texas

12600 West I-20 East
Odessa, Texas 79765
Phone: 432-563-1800
Fax: 432-563-1713

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Company Name:	R. T. Hicks Consultants	Company Name:	R. T. Hicks Consultants	Project Name:	Pride Energy Company
Direct Invoice To:	Andrew Parker	Project Manager:	Andrew Parker	Project #:	State "X" #1
Billing Address:	901 Rio Grande Blvd NW Suite F-142	Address:	901 Rio Grande Blvd NW Suite F-142	Project Location:	T12S-R34E, Section 13, Unit Letter E
City, State, Zip Code:	Albuquerque, NM 87104	City, State, Zip Code:	Albuquerque, NM 87104	COC #:	
Telephone No:	505-366-5004	Telephone No:	505-366-5004		
Fax No:		Fax No:			
Email Report to:	andrew@rthicksconsult.com	Email Report to:	andrew@rthicksconsult.com		

Sampler: Rozanne Johnson (575) 631-9310 rozanne@valornet.com
Printed Signature

LAB # (lab use only)	FIELD CODE	Date Sampled	Time Sampled	No. of Containers	Preservative: Ice	HNO_3	HCl BTEX only)	NaOH	H_2SO_4	None	Other (Specify)	Matrix: Water	Sludge	Soil	Other (specify):	Analyze For: TCLP: TPH 418.1 8015M 1005 1006	TOTAL: Cations (Ca, Mg, Na, K, Fl)	Anions (Cl, SO4, CO3, HCO3)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B	RCI	N.O.R.M	Total Dissolved Solids (SM2540(	SPLP 1312	Chloride	Total Fe and Mn	RUSH TAT (Pre-Schedule)	Standard TAT
306331																															
-01	MW-1	06/19/08	12:00	1	X							X					X	X							X					X
-02	MW-2	06/19/08	11:05	1	X							X					X	X							X					X
-03	MW-3	06/19/08	10:05	1	X							X					X	X							X					
-04	MW-4	06/19/08	9:20	1	X							X					X	X							X					

Special Instructions:
Email results to: andrew@rthicksconsult.com and rozanne@valornet.com

Sample Containers Intact? Y N
Temperature Upon Receipt:
Laboratory Comments:
ILP014
5.0 w/labels & seals

Relinquished by:	Date	Time	Received by:	Date	Time
Rozanne Johnson	6/20/08	17:00			
Relinquished by:	Date	Time	Received by ELOT:	Date	Time
			Andrea Lam	6.20.08	17:00

Environmental Lab of Texas

Variance/ Corrective Action Report- Sample Log-In

Client: R. T. Hicks

Date/ Time: 6.20.08 17:00

Lab ID # : 306331

Initials: AL

Sample Receipt Checklist

					Client Initials
#1	Temperature of container/ cooler?	Yes	No	5.2 °C	
#2	Shipping container in good condition?	Yes	No		
#3	Custody Seals intact on shipping container/ cooler?	Yes	No	Not Present	
#4	Custody Seals intact on sample bottles/ container?	Yes	No	Not Present	
#5	Chain of Custody present?	Yes	No		
#6	Sample instructions complete of Chain of Custody?	Yes	No		
#7	Chain of Custody signed when relinquished/ received?	Yes	No		
#8	Chain of Custody agrees with sample label(s)?	Yes	No	ID written on Cont./ Lid	
#9	Container label(s) legible and intact?	Yes	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?	Yes	No	See Below	
#14	Sample bottles intact?	Yes	No		
#15	Preservations documented on Chain of Custody?	Yes	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	
#20	VOC samples have zero headspace?	Yes	No	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