# Petroglyph Operating Company July 2010 Monthly Report

Covering the period of 7/12/2010 through 8/11/2010

Prepared for Colorado Oil and Gas Conservation Commission

August 19, 2010

Prepared by

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## Petroglyph Operating Company, Inc. Monthly Report – July 2010

Petroglyph Operating Company, Inc. (Petroglyph) is submitting this monthly report for the activities that have occurred at their Little Creek Field in the Raton Basin from the end of the last reporting period through August 11, 2010. Along with this monthly report, Petroglyph is submitting an electronic copy of all data including Microsoft Excel spreadsheets from which the attached summaries and graphs were created.

## 1.0 Phase I Remediation System

The Phase I remediation system associated with the Methane Investigation, Monitoring and Mitigation Program (MIMMP) has been operational for approximately nineteen months beginning on December 8, 2008. The system was started with pumping from Recovery 1 Kittleson and Recovery 3 PEI. Recovery 1 gas production has dropped from approximately 25.7 MCFD at the start of mitigation to approximately 4.4 MCFD at the start of this reporting period. During the period the values fluctuated between approximately 4.7 MCFD and approximately 3.7 MCFD. Readings dropped to 0 MCFD on July 20<sup>th</sup> and August 4<sup>th</sup> and 5<sup>th</sup> due to pump shut down on those dates.

Recovery 3 gas flows were measured at approximately 0.75 MCFD at the start of mitigation and increased to approximately 1 MCFD and remained around 1 until late February 2009 and then began a slow and steady decline. During this reporting period the gas flows varied between approximately 0.17 and 0.20 MCFD. The ending readings dropped to 0 on August 4<sup>th</sup> and 5<sup>th</sup> due to pump shut down. Recovery 4 has shown variability ranging between 0.9 MCFD and 0 until mid April 2009 when the readings were consistently under 0.001 MCFD. Readings at Recovery 4 showed an increase beginning in late July/early August 2009 and have been a bit variable since that time. During this reporting period the readings for Recovery 4 showed fairly steady readings between a high of 0.267 MCFD and a low of 0.2579 MCFD with a drop in the final reading to 0.1761 MCFD (August 5). Gas flows at Recovery 5 are estimated from Barton recorder data. Recovery 5 gas flows continued to show an overall decline. Initial readings from this well were between 15 and 20 MCFD. During the most recent reporting period the levels declined slightly from 0.74 MCFD at the beginning of the period to 0.53 MCFD on the last reading (taken on August 6th).

The average pumping rate for Recovery 1 was 19.4 gpm during the reporting period. The average pumping rate at Recovery 3 has been 4 gpm intermittently (or averaging about 1 gpm over a day's time) (Table 1). Recovery 4 is not functioning properly as explained in previous monthly reports and has not been pumped since early April 2009. Recovery 5 pumped at an average of 6.4 gpm.

Gas flow in POCI 55 monitoring well and the Recovery wells is shown graphically in Attachment 1. The POCI 55 well has not shown any gas flows since April 2008 shortly after passive venting of mitigation wells began.

Injection started in Injection 01 and 04 on December 9, 2008 and Injection 02, 03, 05, 06 and 07 on December 10, 2008 (Table 1). Injection rates vary for the individual injection wells and range from 1.4 to 8.3 gpm during this reporting period with several wells showing an increase in injection rates and several wells showing a decrease in injection rates. The two wells on the Rohr property (Injection 04 and 05) have accepted the most water. Injection 08 Haeffner has not accepted water very well. All of the approximately 19 million gallons of water that have been recovered have been re-injected following methane off gassing and flaring.

Petroglyph has an extensive monitoring program for domestic water wells surrounding the remediation system for changes in both water levels and in gas detected at the wellhead. In addition, Petroglyph monitors several of their production wells for changes in water level. All of these results are discussed in subsequent sections of this report. None of the monitoring has ever shown results that can be directly attributable to the remediation system pumping.

## 2.0 Phase II Remediation System

Petroglyph submitted the Phase II Methane Remediation System Class V Underground Injection Control (UIC) permit application to Region 8 of the EPA on January 7, 2009. The draft permit was issued for public comment and a public meeting was held in Walsenburg on August 10, 2009. The final permit was signed and issued on May 26, 2010 and became effective on June 25, 2010. Petroglyph submitted a Sampling Plan required by the UIC Permit and received final EPA approval on July 23, 2010 of the Sampling Plan allowing start up of the Phase II system.

A Colorado Division of Water Resources application for the Phase II system was submitted on February 18, 2009 and additional information to support that application was submitted on June 23<sup>rd</sup> and approved on July 12<sup>th</sup>. Well permits for the production wells to be used for the Phase II operations were approved on July 15<sup>th</sup>

The COGCC provisionally approved Petroglyph's request to move to Phase II contingent upon receipt of other required permits from the EPA and Division of Water Resources. Final staff approval to proceed was obtained upon receipt of the EPA and Division of Water Resources permits and submittal and approval of a Sampling Plan for Phase II. The COGCC staff reviewed the Sampling Plan to ensure it meets their requirements and issued approval to proceed on July 26, 2010.

The Phase II remediation system officially started operation on August 6, 2010. All of the recovery wells were pumped and the Rohr 04-10 production well was also pumped. The reverse osmosis plant ran and treated water was injected. For the first four days of the Phase II operation produced water was 4822 bbls, injected was 4602 bbls, and brine was 221 bbls (5%). The plant was not run continuously during these first four days as the system is being operated to address start-up issues.

## **3.0 Ongoing Investigation**

#### Aquifer Characterization

Petroglyph continues to evaluate data collected through the remediation system operation and ongoing monitoring to refine the aquifer characterization. The geologic model was created for the site using PETREL software and actual data from well logs completed during drilling of the remediation wells. Modeling of the flow of gas and water was completed using actual data and Computer Modeling Group Ltd.'s IMEX software. The modeling verifies that the remediation system is reducing and containing the methane as projected during initial modeling and planning for the remediation system.

## Gas Isotope, Dissolved Methane and Water Quality Sampling

The attached data disk includes the results from gas analyses received during this reporting period for four samples (Injection 5 Rohr, Recovery 1 Kittleson and Recovery 3 PEI, and Recovery 5 Masters). The results for all dissolved methane sampling available to date, including the most recent sample results, are shown in Table 2 with those results received since the last reporting period highlighted in yellow.

#### Methane Source Investigation

Petroglyph continues to evaluate the source of methane both in the domestic wells in the vicinity of the production wells and closer to the outcrop. The BLM wellhead continues to show detectable levels of methane at >100 % LEL and 50% CH4 by volume, a drop in methane volume since the last reporting period. The Haupt #1 showed 5% CH4 by volume in the August 7<sup>th</sup> reading a slight increase from the 0 CH4 % volume from the last reporting period. Any additional information on the ongoing investigation will be included in the monthly reports and/or in separate reporting as the data is collected and evaluated.

## 4.0 Monitoring

## Down-hole Pressure and Fluid Level Monitoring

#### Private Wells

Petroglyph has installed continuous pressure monitoring for fluid levels in water wells at Barrett, Bergman and Coleman located within one mile of the remediation system; Meyer located in the River Ridge Ranch Subdivision but more than one mile from the remediation system; Bruington located in City Ranch Subdivision; and Garza-Vela located in the Silver Spurs Ranch Subdivision.

Information from these wells is downloaded monthly by Petroglyph, graphed, and included in electronic data disk with this monthly report. The POCI 55 Monitoring Well located near the remediation system also has a pressure gage. Attachment 2 shows graphically the changes in pressure for each of these wells. Attachment 4 is a combined graph showing the water levels in both the domestic wells monitored and Petroglyph production wells.

Water level elevations in the POCI 55 well increased slightly from approximately 6229 to approximately 6231 feet through the monitoring period. Barrett pressure also remained at approximately the same level with water levels at approximately 6268 feet. Bergman pressure and associated water levels remained at 6359 feet for the entire period.

The Bruington well continues to show an upward trend in water levels with a rise of approximately 3 feet during the reporting period from approximately 6093 feet to approximately 6096 feet. Coleman also showed an upward trend in water levels with a rise of 3 feet during the reporting period from approximately 6230 feet to 6233 feet. Garza Vela showed a slight variation up and down through-out the period between approximately 6294 feet to approximately 6292 feet ending at approximately 6293 feet. The Meyer well water elevations showed an increase from approximately 6114.7 to 6116.1 feet. The Gonzalez transducer showed a rise in pressure and associated water levels from approximately 6110 feet to approximately 6112.9 feet.

#### Petroglyph Production Wells

Fifteen Petroglyph production wells are currently monitored for fluid level and casing pressure: Lively 02-02, Lively 02-12, Lively 03-01, Lively 03-10, Lively 03-12, Lively 10-04, Rohr 04-10, Rohr 04-14, Rohr 08-01, Rohr 09-04, Rohr 09-05, Rohr 09-10, State 36-02, State 36-05, State 36-11. A Petroglyph monitoring well installed in the Vermejo coals is also included (Pearson 19-16). The Lively 02-02, Lively 02-12, Lively 03-01, Lively 03-10, Lively 03-12, Lively 10-04, Rohr 04-10, Rohr 09-10, State 36-02, State 36-11 are measured using an echometer. The echometer provides a general indication of water level trends. Two monitoring wells are also monitored continuously for water levels (Lively 03-03, and Lively 10-12). The monitoring occurs in the formation into which the wells are completed, the Vermejo/Trinidad Formation. Changes in fluid levels in Petroglyph's production wells are shown graphically in Attachment 3.

Since Petroglyph is no longer pumping these wells to draw down water levels, pressure is equalizing within the Vermejo coals. Consequently, water levels have risen in all wells as would be expected, although the rate of rise is leveling off in most wells. Seven of the wells show little to no overall water level elevation change throughout the period: Lively 03-10, Lively 03-12, Lively 10-04, Lively 02-02, Rohr 04-10, State 36-02, and State 36-05. Another well started and ended the period at the same elevation but experienced one or more fluctuations through the period (State 36-11). Six wells showed a small increase in water levels during the monitoring period (Lively 03-01, Pearson 19-16, Rohr 08-01, Rohr 09-04, Rohr 09-05, and Rohr 04-14) of between 1.5 and 6 feet. The Lively 02-02 and Lively, 02-12 showed greater increases in water levels during the period of 15 and 46 feet, respectively.

#### Comparison of Production Well and Private Well Data

Attachment 4 compares the water elevations for certain Petroglyph production wells and the private wells which are measured and discussed previously. As shown in Attachment 4 the majority of the private wells have water levels significantly higher in elevation than the production wells. Production well water levels showed a large rise after pumping ceased (250-300 feet); however domestic well water levels have remained relatively

constant to decreasing during the same period indicating a lack of connection between the production wells in the Vermejo Formation and domestic wells in the Poison Canyon Formation. Attachment 4 also includes a table which shows the completion interval, location and well status.

#### Gas Flow Monitoring In Domestic Wells

Gas flow monitors have been installed by Petroglyph at the Angely, Bounds, Bruington, Coleman, and Smith wells. All of these wells except for Bruington and Bounds lie within one mile of the remediation system. Continuous gas flow monitoring occurs at Coleman and Smith, while gas flow is spot monitored with a gage and orifice tester at Angely, Bounds, and Bruington. Gas pressure at the Bounds and Angely wells is currently monitored by COGCC or their consultant; however the data, when available, is presented in this report.

Attachment 5 includes graphs representing gas flow measurements from Bruington, Coleman, Angely, Bounds and Smith. The Bruington and Smith wells are not showing any gas. The water level recovery of the Bruington well precludes any gas flow so these results continue to show 0 gas flow. Gas flow may resume when the well stabilizes. Gas concentrations at the wellhead are still monitored monthly and reported. The Coleman well previously only showed gas when the well is initially pumped. The cistern at the well was being serviced on July 9 resulting in a 50 MCFD flow over 120 minutes, a longer duration than has been previously observed. The Angely and Bounds wells were not sampled during the reporting period.

A drop in gas flow in the domestic wells appears to have occurred in correlation with the original implementation of the remediation system wells and venting of gas through these wells in late 2008 and early 2009 with continued decreases in gas flows from the remediation system recovery wells. This would indicate that the remediation system has been correctly located to remediate the area of largest gas concentration in the domestic wells.

## Bi-Weekly and Monthly Water Well Monitoring

Petroglyph has routinely monitored for methane gas levels near 86 wellheads in the vicinity of the site. Measurements are taken near the wellhead, at the well vent and in some cases are also taken at the cistern or a second wellhead. One new wellhead was added during the previous reporting period bringing the total wells monitored to 87.

Table 3 shows all of the wellheads that are currently being sampled, the sampling start date, the date of the last sample, the number of samples since the last reporting period and a description of the sampling results and any changes from the previous reporting period. A column that discusses the historical readings for each site is included on the table.

Of the 87 wellheads, 16 were not sampled during this reporting period. Sampling may vary during any one reporting period due to a variety of reasons. During this reporting period 59 wellheads were sampled once, 2 wellheads were sampled twice and 10 wellheads were sampled three times.

As shown on Table 3, the comparison of monitoring results for the 71 wellheads sampled during this period with previous results showed that overall gas levels at 51 wellheads had no change from the previous monitoring period measurements. Changes in % LEL, % by volume CH4, and % volume  $O_2$  were evaluated to determine if the area around the wellheads was showing an indication of increasing or decreasing methane gas content. Of the remaining 20 wellheads, 11 wellheads showed a decrease in methane with 3 of those being only a slight decrease and 7 of the 11 decreasing to a zero methane level. Nine wellheads showed an increase in methane with 2 wellheads showing only a slight increase. It should be noted that all of the wells with detectable methane have shown methane in past measurements. Those wells which show material increases or decreases in this reporting period are those wells which have historically shown wide swings in methane levels from measurement to measurement. The data as presented do not represent significant changes in any well based on review of current and past measurements.

Petroglyph compared those wells showing detectable methane or changes in methane monitored during the reporting period with wells known to have been drilled into the coals within the Raton or Vermejo Formations and lying within 1 to 1.25 miles of the outcrop. Of the 13 wellheads reading detectable methane, 4 are known to have been drilled into the Raton/Vermejo Formations or deeper based on well depths in well logs available from the State Engineer. Of the remaining 9 wells, 3 wells are drilled into the Poison Canyon and located in close proximity to the remediation system. The completion information for 6 wells is not known.

The breakdown by subdivision or area as on Table 3 is as follows:

## Within 1 Mile of Remediation System

- Gas near 25 wellheads routinely monitored
- 5 wellheads were not sampled during this reporting period
- 13 wellheads showed no change with no detectable methane gas
- 2 wellheads showed a slight decrease in methane levels
- 5 wellheads showed increased methane levels, one of which is a slight increase
- Of the 7 wellheads showing detectable methane (Barrett, Bergman, Golden Cycle Land, Hopke, Houghtling, Lively 10-02 and BLM 15-12) 3 are completed in the Poison Canyon Formation and the completion information for the remaining 4 wells is unknown

## **River Ridge Ranch Subdivision and Vicinity Outside of One Mile**

- Gas near 21 wellheads routinely monitored
- 5 wellheads were not sampled during this reporting period
- 15 wellheads showed no change and no detectable methane
- 1 wellhead showed a decrease during this reporting period

• The 1 wellhead showing detectable methane (Meyer) is known to be drilled into the Raton/Vermejo Formation

## **City Ranch and Other Properties**

- Gas near 15 wellheads routinely monitored
- 2 wellheads were not sampled during the reporting period
- 9 wellheads showed no change with no detectable methane gas
- 3 wellheads increased in detectable methane levels with 1 showing only a slight increase
- 1 wellhead showed a decrease in methane levels to zero levels
- The 3 wellheads showing detectable methane (Bruington, Haupt #1 and Tobyas), are known to be drilled into the Raton/Vermejo

## Silver Spurs Ranch

- Gas near 24 wellheads routinely monitored
- 4 wellheads were not sampled during the reporting period
- 12 wellheads showed no change and no detectable methane
- 1 wellheads showed a slight increase in methane levels
- 7 wellheads showed a decrease in methane levels with 6 showing a decrease to 0
- The 2 wellheads with a detectable methane level (Roberts & Stephens) are known to be drilled in the Raton/Vermejo formation.

## **Black Hawk Ranch**

• The 2 domestic wells which are monitored at Black Hawk Ranch showed no change and no detectable methane

Table 4 shows the current monitoring schedule including which wells are monitored biweekly and which wells are monitored monthly or at a different frequency.

Attachment 6 includes charts of gas monitoring of eighteen wells near the mitigation system. The wells being monitored have not indicated a direct response to the remediation pumping and injection. Of the wellhead charts included in Attachment 6 only those for Barrett, Bergman, Golden Cycle Land, Houghtling, Hopke and Lively 10-02 showed methane in recent readings. All indicated some fluctuations with increases in methane levels but such changes are consistent with past variations in methane readings and do not represent any new or unusual charges to the well. Other wellheads which were measured show readings which were unchanged from previous measurements.

## Hand Held Measurements

Petroglyph conducts periodic ground surveys using a hand held methane detector at locations where gas has previously been detected, at locations where a property owner requests such a survey or at locations where previous surveys such as the helicopter survey have detected gas seepage. These surveys are conducted based on need or urgency

so can range from several times a week to a one time survey based on concerns from a property owner. No handheld surveys were collected during the reporting period.

## 5.0 Mitigation

#### Methane Alarms

No activity occurred during the reporting period related to maintaining methane alarms or responding to any methane alarms. There are currently a total of 15 homes with alarm systems provided by Petroglyph. No alarms have ever been triggered by the presence of methane.

#### Water Supply

Petroglyph is currently providing water to 16 homes. Table 5 provides a list of the homes currently receiving water. Water is delivered as needed and can vary from month to month due to residential water use and whether or not the homes are occupied. No new homes were added to the list during this reporting period.

#### Public Outreach

Petroglyph conducted public outreach prior to the start of Phase II in accordance with the requirements of the COGCC. A letter was sent to all landowners within the remediation system as well as those within one mile of the system. Notice was also sent to the County Commissioners and verbal notice was provided to emergency responders. The notice to the County Commissioners was also published in the local newspaper.

#### Health and Safety/Emergency Planning

No changes to Petroglyph's health, safety and emergency planning occurred during the reporting period.

## 6.0 Schedule

The following is the currently anticipated schedule for Phase II of the Methane Investigation Monitoring and Mitigation Program.

- Continued pumping and injection of the Phase II system with ongoing monitoring to evaluate the response in surrounding wells.
- Implementation of the Phase II Sampling Plan with special samples taken in accordance with the Plan
- Routine bi-weekly and monthly sampling will continue with new sampling sites added as needed.
- Hand held seep monitoring will continue as needed.

	Table 1: Recovery and Injection Rates associated with Phase I MIMMP         (water flows as of 8/5/2010; gas flows as of 8/5/2010)								
Well Number	Total Depth (ft)	PBTD	Injection Tubing Depth	Start-up Date	Average Injection Rate (gpm)	Water Totals (gal)		Notes	
Injection 01 Pascual	600	526	458	12/9/2008	1.4	967,000		Average injection rate increased slightly from 1.3 to 1.4 gpm.	
Injection 02 Gonzales	600	575	362	12/10/2008	1.5	965,000		Average injection rate increased slightly from 1.4 to 1.5 gpm.	
Injection 03 Benevides	725	629	454	12/10/2008	1.5	986,000			
Injection 04 Rohr	675	667	455	12/9/2008	7.5	4,864,000			
Injection 05 Rohr	750	735	458	12/10/2008	8.3	5,847,000			
Injection 06 Masters	725	695	438	12/10/2008	6.4	4,471,000			
Injection 07 Walden	750	713	457	12/10/2008	1.6	877,000			
Injection 08 Haeffner	650	713	365	12/10/2008	see note	4,767		Well does not accept water very well. Inject approx. 150 gallons once every two weeks.	
			Pump Depth		Average Pump Rate (gpm)		Gas Totals (mcf)		
Recovery 1 Kittleson	715	705	686	12/8/2008	19.40	15,345,000	10,436		
Recovery 3 PEI	625	591	575	12/8/2008	1 (see note)	818,000	793	Intermittent pumping at 4 gpm. Rate over 24 hrs is approx 1 gpm Started pump 2/10/09 to develop well. Pumps about 100 gallons in 15 minutes,	
Recovery 4 Barrett	500	484	463	2/10/2009	(see note)	3,600	362	per day. Water has not been injected. Last pump date 4/8/09	
Recovery 5 Masters	847	847	822	12/24/2009	6.4	1,982,000	1,415		

			Dissolved Gase from July 6, 20		
	Well	Sample Date	Analyte	Results (In ug/I)	Comments
Mitigation	Injection 03 Benavides	7/17/08	Ethane	4.9	Grabbed during pump testing
wells	Injection 03 Benavides	7/17/08	Methane	280	Grabbed during pump testing
	Injection 04 Rohr	7/22/08	Ethane	2.3	Grabbed during pump testing
	Injection 04 Rohr	7/22/08	Methane	4,500	Grabbed during pump testing
	Injection 05 Rohr	7/28/08	Ethane	3.0	Grabbed during pump testing
	Injection 05 Rohr	7/28/08	Methane	3,100	Grabbed during pump testing
	Injection 05 Rohr	3/9/09	Ethane	11	Injection Water
	Injection 05 Rohr	3/9/09	Methane	5,200	Injection Water
	Injection 05 Rohr	7/30/09	Ethane	4.4	Injection Water
	Injection 05 Rohr	7/30/09	Ethene	ND	Injection Water
	Injection 05 Rohr	7/30/09	Methane	2400	Injection Water
	Injection 05 Rohr	9/01/09	Ethane	4.7	Injection Water
	Injection 05 Rohr	9/01/09	Ethene	ND	Injection Water
	Injection 05 Rohr	9/01/09	Methane	2700	Injection Water
	Injection 05 Rohr	10/2/09	Methane	7800	Injection Water
	Injection 05 Rohr	11/5/09	Ethane	6.7	Injection Water
	Injection 05 Rohr	11/5/09	Ethene	ND	Injection Water
	Injection 05 Rohr	11/5/09	Methane33	2400	Injection Water
	Injection 05 Rohr	12/1/09	Ethane	7.1	Injection Water
	Injection 05 Rohr	12/1/09	Ethene	ND	Injection Water
	Injection 05 Rohr	12/1/09	Methane	2400	Injection Water
	Injection 05 Rohr	2/1/10	Ethane	7	Injection Water
	Injection 05 Rohr	2/1/10	Ethene	ND	Injection Water
	Injection 05 Rohr	2/1/10	Methane	3,000	Injection Water
	Injection 05 Rohr	3/2/10	Ethane	8.2	Injection Water
	Injection 05 Rohr	3/2/10	Ethene	ND	Injection Water
	Injection 05 Rohr	3/2/10	Methane	3,700	Injection Water
	Injection 05 Rohr	4/5/10	Ethane	11	Injection Water
	Injection 05 Rohr	4/5/10	Ethene	ND	Injection Water
	Injection 05 Rohr	4/5/10	Methane	3,300	Injection Water
	Injection 05 Rohr	5/3/10	Ethane	12	Injection Water
	Injection 05 Rohr	5/3/10	Ethene	ND	Injection Water
	Injection 05 Rohr	5/3/10	Methane	3,100	Injection Water
	Injection 05 Rohr	6/1/10	Ethane	2.6	Injection Water
	Injection 05 Rohr	6/1/10	Ethene	ND	Injection Water
	Injection 05 Rohr	6/1/10	Methane	1,300	Injection Water
	Injection 05 Rohr	7/6/10	Ethane	1.3	Injection Water
	Injection 05 Rohr	7/6/10	Ethene	ND	Injection Water
	Injection 05 Rohr	7/6/10	Methane	900	Injection Water
	Injection 06 Masters	7/15/08	Ethane	3.9	Grabbed during pump testing
	Injection 06 Masters	7/15/08	Methane	6,300	Grabbed during pump testing
	Injection 07 Walden	7/29/08	Ethane	12	Grabbed during pump testing
	Injection 07 Walden	7/29/08	Methane	12,000	Grabbed during pump testing
	Injection 02 Gonzales	8/20/08	Ethane	2.7	Grabbed during pump testing

Table 2: Sampling of Dissolved Gases in Water Wells         (results received from July 6, 2010 sampling)						
	Sample		Results	/		
Well	Date	Analyte	(In ug/l)	Comments		
Injection 02 Gonzales	8/20/08	Methane	4.2	Grabbed during pump testing		
Recovery 1 Kittleson	7/8/08	Ethane	3.0	Grabbed during pump testing		
Recovery 1 Kittleson	7/8/08	Methane	4,800	Grabbed during pump testing		
Recovery 1 Kittleson	8/4/08	Ethane	6.8	Grabbed during pump testing		
Recovery 1 Kittleson	8/4/08	Methane	6,800	Grabbed during pump testing		
Recovery 1 Kittleson	1/15/09	Ethane	2.5	IP 12/8/08		
Recovery 1 Kittleson	1/15/09	Methane	2,000	IP 12/8/08		
Recovery 1 Kittleson	7/21/09	Ethane	ND			
Recovery 1 Kittleson	7/21/09	Ethene	ND			
Recovery 1 Kittleson	7/21/09	Methane	2700			
Recovery 1 Kittleson	7/30/09	Ethane	3.7			
Recovery 1 Kittleson	7/30/09	Ethene	ND			
Recovery 1 Kittleson	7/30/09	Methane	4100			
Recovery 1 Kittleson	9/01/09	Ethane	7.3			
Recovery 1 Kittleson	9/01/09	Ethene	ND			
Recovery 1 Kittleson	9/01/09	Methane	8600			
Recovery 1 Kittleson	10/2/09	Methane	9500			
Recovery 1 Kittleson	11/5/09	Ethane	7.3			
Recovery 1 Kittleson	11/5/09	Ethene	ND			
Recovery 1 Kittleson	11/5/09	Methane	7900			
Recovery 1 Kittleson	12/1/09	Ethane	7.5			
Recovery 1 Kittleson	12/1/09	Ethene	ND			
Recovery 1 Kittleson	12/1/09	Methane	8100			
Recovery 1 Kittleson	2/1/10	Ethane	10			
Recovery 1 Kittleson	2/1/10	Ethene	ND			
Recovery 1 Kittleson	2/1/10	Methane	9900			
Recovery 1 Kittleson	3/2/10	Ethane	7.4			
Recovery 1 Kittleson	3/2/10	Ethene	ND			
Recovery 1 Kittleson	3/2/10	Methane	7,500			
Recovery 1 Kittleson	4/5/10	Ethane	11			
Recovery 1 Kittleson	4/5/10	Ethene	ND			
Recovery 1 Kittleson	4/5/10	Methane	6,000			
Recovery 1 Kittleson	5/3/10	Ethane	11			
Recovery 1 Kittleson	5/3/10	Ethene	ND			
Recovery 1 Kittleson	5/3/10	Methane	5,100			
Recovery 1 Kittleson	6/1/10	Ethane	15			
Recovery 1 Kittleson	6/1/10	Ethene	ND			
Recovery 1 Kittleson	6/1/10	Methane	7,000			
Recovery 1 Kittleson	7/6/10	Ethane	8.9			
Recovery 1 Kittleson	7/6/10	Ethene	ND			
Recovery 1 Kittleson	7/6/10	Methane Ethana	8400	Water while drilling		
Recovery 2 Reiss	4/4/08	Ethane	ND	Water while drilling		
Recovery 2 Reiss	4/4/08	Methane	ND 12	Water while drilling		
Recovery 3 PEI	8/25/08	Ethane	13	Grabbed during pump testing		

	Table 2: Sampling of Dissolved Gases in Water Wells         (results received from July 6, 2010 sampling)						
	Sample		Results				
Well	Date 8/25/08	Analyte Mothono	(In ug/I)	Comments			
Recovery 3 PEI	1/16/09	Methane Ethane	9,600 15	Grabbed during pump testing IP 12/8/08			
Recovery 3 PEI							
Recovery 3 PEI	1/16/09	Methane	13,000	IP 12/8/08			
Recovery 3 PEI	7/21/09	Ethane	15				
Recovery 3 PEI	7/21/09	Ethene	2.4				
Recovery 3 PEI	7/21/09	Methane	13000				
Recovery 3 PEI	7/30/09	Ethane	15 ND				
Recovery 3 PEI	7/30/09	Ethene					
Recovery 3 PEI	7/30/09	Methane	17000				
Recovery 3 PEI	9/01/09	Ethane	22				
Recovery 3 PEI	9/01/09	Ethene	ND				
Recovery 3 PEI	9/01/09	Methane	26000				
Recovery 3 PEI	10/2/09	Methane	29000				
Recovery 3 PEI	11/5/09	Ethane	21				
Recovery 3 PEI	11/5/09	Ethene	ND				
Recovery 3 PEI	11/5/09	Methane	24000				
Recovery 3 PEI	11/12/09	Ethane	22				
Recovery 3 PEI	11/12/09	Ethene	ND				
Recovery 3 PEI	11/12/09	Methane	24000				
Recovery 3 PEI	12/1/09	Ethane	20				
Recovery 3 PEI	12/1/09	Ethene	ND				
Recovery 3 PEI	12/1/09	Methane	25000				
Recovery 3 PEI	2/1/10	Ethane	26				
Recovery 3 PEI	2/1/10	Ethene	ND				
Recovery 3 PEI	2/1/10	Methane	29000				
Recovery 3 PEI	3/2/10	Ethane	ND				
Recovery 3 PEI	3/2/10	Ethene	ND				
Recovery 3 PEI	3/2/10	Methane	25,000				
Recovery 3 PEI	4/5/10	Ethane	26				
Recovery 3 PEI	4/5/10	Ethene	ND				
Recovery 3 PEI	4/5/10	Methane	16,000				
Recovery 3 PEI	5/3/10	Ethane	32				
Recovery 3 PEI	5/3/10	Ethene	ND				
Recovery 3 PEI	5/3/10	Methane	18,000				
Recovery 3 PEI	6/1/10	Ethane	37				
Recovery 3 PEI	6/1/10	Ethene	ND				
Recovery 3 PEI	6/1/10	Methane	25,000				
Recovery 3 PEI	7/6/10	Ethane	18				
Recovery 3 PEI	7/6/10	Ethene	ND				
Recovery 3 PEI	7/6/10	Methane	18000				
Recovery 4 Barrett	7/10/08	Ethane	5	Grabbed during pump testing			
Recovery 4 Barrett	7/10/08	Methane	3,500	Grabbed during pump testing			
Recovery 4 Barrett	3/12/09	Ethane	12	IP 2/10/09			
Recovery 4 Barrett	3/12/09	Ethene	48	IP 2/10/09			

			Dissolved Gas from July 6, 20		
	Well	Sample	Analyte	Results (In ug/I)	Comments
	Recovery 4 Barrett	3/12/09	Methane	8,600	IP 2/10/09
	Recovery 5 Masters	5/4/10	Ethane	19	
	Recovery 5 Masters	5/4/10	Ethene	ND	
	Recovery 5 Masters	5/4/10	Methane	13,000	
	Recovery 5 Masters	6/1/10	Ethane	22	
	Recovery 5 Masters	6/1/10	Ethene	ND	
	Recovery 5 Masters	6/1/10	Methane	19,000	
	Recovery 5 Masters	7/6/10	Ethane	ND	
	Recovery 5 Masters	7/6/10	Ethene	ND	
	Recovery 5 Masters	7/6/10	Methane	17,000	
	POCI 55	8/19/09	Methane	7800	Pre Phase II
POCI 55	POCI 55	8/19/09	Ethene	ND	Pre Phase
	POCI 55	8/19/09	Ethane	11	Pre Phase
Wells	Angely, J	3/26/08	Ethane	35	by COGCC
within 1	Angely, J	3/26/08	Methane	15,000	by COGCC
mile of	Barrett, T	6/24/09	Methane	18,000	
Vitigation	Barrett, T	6/24/09	Ethane	11	
System	Barrett, T	6/24/09	Ethene	12	
	Bergman	6/29/09	Ethane	ND	Grabbed during pump testing
	Bergman	6/29/09	Ethene	ND	Grabbed during pump testing
	Bergman	6/29/09	Methane	2,300	Grabbed during pump testing
	Burge, K	8/5/08	Methane	3,900	
	Burge, K	12/18/08	Ethane	2.3	
	Burge, K	12/18/08	Methane	3,600	
	Burge, K	6/9/09	Ethane	3,000	
	Burge, K	6/9/09	Ethene	2.4	
	Burge, K	6/9/09	Methane	3,300	
	Coleman, V	3/1/08	Methane	4,600	filtered via house water filter
	Coleman, V	9/23/07	Methane	4,000	filtered via house water filter
	Coleman, V	9/23/07	Methane	5,000	raw- not filtered
	Coleman, V	3/1/08	Methane	5,000	raw- not filtered
	Coleman, V	12/4/08	Ethane	5,100	raw- not filtered
	Coleman, V	12/4/08	Methane	5,900	raw- not filtered
	Coleman, V	5/9/09	Ethene	2.4	raw- not filtered
	Coleman, V	5/9/09	Ethane	9	raw- not filtered
	Coleman, V	5/9/09	Methane	6,100	raw- not filtered
	Conley, J	3/24/08	Methane	0,100 ND	
	Conley, J	12/4/08	Ethane	U	
	Conley, J	12/4/08	Methane	1.5	
	Conley, J	6/15/09	Ethane	1.6	
	Conley, J	6/15/09	Ethene	2.4	
	Conley, J	6/15/09	Methane	2.5	
	Dee Dee	6/30/09 6/30/09	Ethane Ethene	ND ND	Grabbed during pump testing Grabbed during pump testing

	Table 2: Sampling of Dissolved Gases in Water Wells         (results received from July 6, 2010 sampling)							
	Well	Sample Date	Analyte	Results (In ug/I)	Comments			
	Dee	6/30/09	Methane	5.7	Grabbed during pump testing			
	Derowitsch, D	3/1/08	Methane	4,000				
	Derowitsch, D.	1/15/09	Ethane	4.1				
	Derowitsch, D.	1/15/09	Methane	2,200				
	Derowitsch, D.	4/15/10	Ethane	10				
	Derowitsch, D.	4/15/10	Ethene	ND				
	Derowitsch, D.	4/15/10	Methane	3,700				
E	English, B	3/14/08	Methane	ND				
E	English, B	12/8/08	Ethane	U				
E	English, B	12/8/08	Methane	U				
	English, B	7/8/09	Ethane	ND				
E	English, B	7/8/09	Ethene	ND				
E	English, B	7/8/09	Methane	ND				
ŀ	Hopke, B	2/25/08	Methane	5,900				
ŀ	Hopke, B	3/26/08	Ethane	11	by COGCC			
ŀ	Hopke, B	3/26/08	Methane	3,000	by COGCC			
ŀ	Hopke, B	12/31/08	Ethane	U				
ŀ	Hopke, B	12/31/08	Methane	660				
ŀ	Hopke, B	6/22/09	Methane	4,200				
ŀ	Hopke, B	6/22/09	Ethane	7.2				
ŀ	Hopke, B	6/22/09	Ethene	2.4				
ŀ	Hoppe, C	10/23/08	Ethane	ND				
ŀ	Hoppe, C	10/23/08	Methane	19				
ŀ	Houghtling, J	2/25/08	Methane	9.2				
۴	Kerman, T	3/1/08	Methane	170				
k	Kerman, T	12/4/08	Ethane	U				
k	Kerman, T	12/4/08	Methane	1.1				
۴	Kerman, T	7/8/09	Ethane	ND				
k	Kerman, T	7/8/09	Ethene	ND				
	Kerman, T	7/8/09	Methane	ND				
۲ ۲	Kerman, T WW	11/30/09	Methane	U	Grabbed from hydrant before			
4	Kerman, T WW	11/30/09	Ethane	U	cistern			
4	Kerman, T WW	11/30/09	Methane	0.78				
4	Kerman, T House	11/30/09	Ethane	ND	Grabbed from house after			
4	Kerman, T House	11/30/09	Ethene	ND	cistern			
	Kerman, T House	11/30/09	Methane	ND				
N	Vasters, T	6/29/09	Ethane	10				
N	Vasters, T	6/29/09	Ethene	2.4				
N	Vasters, T	6/29/09	Methane	14,000				
	VcPherson	3/29/08	Methane	54				
	McPherson, P	12/4/08	Ethane	U				
	McPherson, P	12/4/08	Methane	950				
	McPherson, P	6/3/09	Ethane	16				
N	McPherson, P	6/3/09	Ethene	24				

Table 2: Sampling of Dissolved Gases in Water Wells         (results received from July 6, 2010 sampling)							
	(163)	Sample		Results			
	Well	Date	Analyte	(In ug/l)	Comments		
	McPherson, P	6/3/09	Methane	1,700			
	Rohr, W	7/6/09	Ethane	ND	Grabbed during pump testing		
	Rohr, W	7/6/09	Ethene	ND	Grabbed during pump testing		
	Rohr, W	7/6/09	Methane	800	Grabbed during pump testing		
	Searle, S	3/14/08	Methane	7.5			
	Searle, S	12/8/08	Ethane	U			
	Searle, S	12/8/08	Methane	5.8			
	Campbell, J	2/23/09	Ethane	0.6			
	Campbell, J	2/23/09	Methane	110			
	Goodwin, R	3/14/08	Methane	240			
	Goodwin, R	12/15/08	Ethane	U			
	Goodwin, R	12/15/08	Methane	U			
	Goodwin, R	6/29/09	Ethane	1.6			
	Goodwin, R	6/29/09	Ethene	2.4			
	Goodwin, R	6/29/09	Methane	5.2			
	Goodwin, R WW	11/30/08	Ethane	U	Grabbed from hydrant before		
	Goodwin, R WW	11/30/08	Ethene	U	cistern		
Wells on	Goodwin, R WW	11/30/08	Methane	U			
RRR ex	Goodwin, R Cistern	11/30/09	Ethane	U			
near	Goodwin, R Cistern	11/30/09	Ethene	U	Grabbed from cistern		
Mitigation System	Goodwin, R Cistern	11/30/09	Methane	U			
System	Rhoads, K	2/23/09	Methane	21			
	Roloff, B	8/5/08	Methane	3,800			
	Speh, D	10/8/08	Methane	7,200			
	Wolahan	3/10/08	Methane	75			
	Wolahan, E	12/4/08	Ethane	U			
	Wolahan, E	12/4/08	Methane	210			
	Wolahan, E	6/4/09	Methane	24			
	Wolahan, E	6/4/09	Ethene	2.4			
	Wolahan, E	6/4/09	Ethane	1.6			
	Meyer, J	4/29/09	Ethane	ND			
Malla	Meyer, J	4/29/09	Methane	19,000			
Wells on Silver	Goza, C	1/15/09	Ethane	1.4	Blackhawk Ranch		
Silver	Goza, C	1/15/09	Methane	580	Blackhawk Ranch		
Ranch	Gumpert, K	8/5/08	Methane	1,700			
unless	Sample, Mitch	3/10/08	Methane	19,000			
noted	Sample, Mitch WW	11/30/09	Ethane	U			
	Sample, Mitch WW	11/30/09	Ethene	U	Grabbed before cistern		
	Sample, Mitch WW	11/30/09	Methane	48,000			
	Sample, Mitch Cistern	11/30/09	Ethane	23			
	Sample, Mitch Cistern	11/30/09	Ethene	U	Grabbed from cistern		
	Sample, Mitch Cistern	11/30/09	Methane	15,000			
	Stephens, K	9/30/08	Methane	ND			
	Evenden, V	9/30/08	Methane	20,000			

			Dissolved Gas from July 6, 20		
w	ell	Sample Date	Analyte	Results (In ug/I)	Comments
Evenden, V	,	8/26/09	Ethane	2.5	
Evenden, V	,	8/26/09	Ethene	2.4	
Evenden, V	,	8/26/09	Methane	7,700	
Evenden, V	,	10/7/09	Ethane	ND	
Evenden, V	,	10/7/09	Ethene	ND	
Evenden, V	,	10/7/09	Methane	22,000	
Fitzner, P		12/1/08	Methane	4,600	
Fitzner, PV	VW	11/30/09	Ethane	U	
Fitzner, P V	VW	11/30/09	Ethene	U	Grabbed from hydrant before cistern
Fitzner, PV	VW	11/30/09	Methane	2,100	Cistern
Fitzner, P C	Sistern	11/30/09	Ethane	U	
Fitzner, P C	Sistern	11/30/09	Ethene	U	Grabbed from cistern
Fitzner, P C	Sistern	11/30/09	Methane	2,000	
Geisklbrech	nt, G	9/30/08	Methane	ND	
Geisklbrech		1/27/10	Ethane	ND	
Geisklbrech	nt	1/27/10	Ethene	ND	Grabbed at water hydrant
Geisklbrech	nt	1/27/10	Methane	ND	
Haynes, E		6/4/09	Methane	0.8	
Haynes, E		6/4/09	Ethane	1.6	
Haynes, E		6/4/09	Ethene	2.4	
Morine, J		1/15/09	Methane	14	
Palmer (GIS	3)	10/1/08	Methane	ND	
Palmer (GIS		1/27/10	Ethane	ND	
Palmer (GIS	S)	1/27/10	Ethene	ND	Grabbed at water hydrant
Palmer (GIS	S)	1/27/10	Methane	ND	
Stetler	,	3/20/09	Methane	20,000	
Stetler		3/20/09	Ethane	50	
Stetler, J W	W	11/30/09	Ethane	100	
Stetler, J W		11/30/09	Ethene	U	Grabbed before cistern
Stetler, J W		11/30/09	Methane	38,000	
Stetler, J Ci	stern	11/30/09	Ethane	U	
Stetler, J Ci	stern	11/30/09	Ethene	U	Grabbed from cistern
Stetler, J Ci		11/30/09	Methane	22,000	
Modlish		3/20/09	Methane	0.33	
Modlish		3/20/09	Ethane	ND	
Billstrand		7/31/09	Ethane	ND	
Billstrand		7/31/09	Ethene	ND	
Billstrand		7/31/09	Methane	0.42	
					Crobbod during sums tosting
Bruington		7/6/09	Ethane	12	Grabbed during pump testing
Bruington		7/6/09	Ethene	2.4	Grabbed during pump testing
Bruington	_	7/6/09	Methane	7,900	Grabbed during pump testing
Eddleman,		8/28/09	Ethane	ND	
Eddleman,	P	8/28/09	Ethene	ND	

	Table 2: Sampling of Dissolved Gases in Water Wells         (results received from July 6, 2010 sampling)						
	Well	Sample Date	Analyte	Results (In ug/I)	Comments		
	Eddleman, P	8/28/09	Methane	29,000			
	Eddleman, P WW	11/30/09	Ethane	U			
	Eddleman, P WW	11/30/09	Ethene	U	Grabbed before cistern		
	Eddleman, P WW	11/30/09	Methane	45,000			
	Eddleman, P WWIIA	11/30/09	Ethane	U	Filled 100 gallon stock tank and		
	Eddleman, P WWIIA	11/30/09	Ethene	U	agitated with small submersible pump for 2.5 hrs then grabbed		
	Eddleman, PWWIIA	11/30/09	Methane	2,100	sample		
	Wyland, R	9/8/09	Ethane	ND			
	Wyland, R	9/8/09	Ethene	ND			
	Wyland, R	9/8/09	Methane	3			
	Schafer, R	10/2/09	Methane	21	City Ranch		
	Rohr 04-14	11/11/07	Methane	10,070	CBM water		
	Rohr 09-04	11/11/07	Methane	6,350	CBM water		
	Rohr 09-04	9/17/09	Ethane	3.6	CBM water pre-phase II		
	Rohr 09-04	9/17/09	Ethene	ND	CBM water pre-phase II		
	Rohr 09-04	9/17/09	Methane	7300	CBM water pre-phase II		
Other	Rohr 09-10	9/17/09	Ethane	2.1	CBM water pre-phase II		
	Rohr 09-10	9/17/09	Ethene	ND	CBM water pre-phase II		
	Rohr 09-10	9/17/09	Methane	5900	CBM water pre-phase II		
	Rohr 04-10	9/17/09	Ethane	2.3	CBM water pre-phase II		
	Rohr 04-10	9/17/09	Ethene	ND	CBM water pre-phase II		
	Rohr 04-10	9/17/09	Methane	6400	CBM water pre-phase II		

ND = Not Detected

Shading indicates sampling added since last reporting period.

					Table 3           Water Well Measurements for the July 2010 Monthly Report	
Permit Number	Name	Sampling Start Date	Last Sample	Samples Since Last Monthly Report	History (Last Updated with May 2010 Monthly Report)	If sampled, comparison
	Approximately One					-
238689	Angely	7/5/07	5/21/10	None	Methane detected at levels >100 % LEL and above 10% CH4 by volume until approximately 4/9/08, then began dropping and reached approximately 0 by 5/28/08. Have remained at or near 0 except for jump in December 2008, March 2009 and November 2009 readings.	Not measured during this repor
257994	Barrett	7/12/07	8/2/10	7/12/10, 7/22/10, 8/2/10	Methane detected at levels >100 % LEL and above 10% CH4 by volume. Levels have dropped since March 2009 but remain above 0 except for an occasional 0 reading. Occasionally (October 6, 2009 and March 16, 2010) higher levels of methane are observed.	<ul> <li>% LEL decreased from 79 to 7/22/10, and increased again</li> <li>CH4% volume decreased fro 3.25 on 7/22/10, and increase</li> <li>O2% increased from 19.3 to 7/22/10, and increased again</li> <li>CO and H2S remained unch</li> </ul>
244403	Bergman	7/6/07	8/7/10	7/12/10, 7/22/10, 8/7/10	The methane has been variable with higher and lower values until 11/28/07 and then mostly levels at >100 %LEL and greater than 10% CH4 by volume until September 2009 when levels began to show wider variances in %LEL and CH4 of between >100 and 13.00 and as low as 0 in February 2010.	<ul> <li>% LEL remained unchanged</li> <li>CH4% volume decreased from 7.0 on 8/7/10</li> <li>O2% decreased from 20 to 5</li> <li>CO and H2S remained unch</li> </ul>
181278	Bounds	7/12/07	5/21/10	None	Readings from this wellhead have been consistently at or above 100 %LEL with levels of CH4% by volume near 100. This wellhead has also shown fairly consistent low levels of H2S until 6/25/08 when H2S readings became more variable with less H2S present in general.	Not measured during this repo
169043	Burge	3/20/09	8/7/10	8/7/10	Methane detected at levels >100 % LEL and above 10% CH4 by volume until approximately 1/17/08, then began dropping through 3/14/08 and have remained at or near 0 since that time except for a single high reading on 7/2/08 and detectable methane on 10/1 and 10/6/09.	No change from previous meas no detectable methane, O2% v
267694	Coleman	7/5/07	8/2/10	7/12/10, 7/22/10, 8/2/10	Methane detected at wellhead at levels >100 % LEL and above 5% CH4 by volume until approximately 8/15/07, then began dropping with no methane detected since 10/30/07. Well vent has shown more variable and generally higher readings than the wellhead.	<ul> <li>At the wellhead no change from detectable methane; O2% volu At the well vent:</li> <li>% LEL increased from 0 to 1 on 7/22/10</li> <li>CH4% increased from 0 to 0 0.65 on 7/22/10</li> <li>O2% stayed the same at 20 and 7/22/10</li> <li>CO and H2S remained unchan</li> </ul>
235516	Colorado Switzer	7/12/07	8/2/10	8/2/10	No methane has ever been detected at this wellhead.	No change from previous meas methane, O2% volume at 20.9
255929	Conley	7/11/07	2/19/10	None	No methane has ever been detected at this wellhead.	Sampling attempted 8/2/10 but
260097	Dee	7/5/07	8/2/10	8/2/10	No methane has ever been detected at this wellhead. A potentially erroneous reading of 5%LEL occurred on 7/30/09 with no detectable methane.	No change from previous meas methane, O2% volume at 20.9

#### n of results from this period to last period

orting period.

0 to 50 on 7/12/10, then increased to 65 on gain to >100 on 8/2/10 from 3.95 to 2.25 on 7/12/10, then increased to eased again to 5.00 on 8/2/10 to 20.0 on 7/12/10, decreased on 20.0 on gain to 20.6 on 8/2/10 inchanged at 0 ppm

rom 15.0 to 6.0 on 7/22/10 and then increased to

to 19.1 with a high of 19.9 on 7/22/10 nchanged at 0 ppm porting period.

easurements at wellhead and cistern with 0% LEL, 6 volume at 20.9 and CO and H2S at 0 ppm.

om previous measurements with 0% LEL, no plume at 20.9 and CO and H2S at 0 ppm.

0 10 on 8/2/10 with highs of 62 on 7/12/10 and 13

0.50 on 8/2/10 with highs of 3.1 on 7/12/10 and

20.9 on 8/2/10 with a low of 19.9 on both 7/12/10

anged at 0 ppm

easurements with 0% LEL, no detectable .9 and CO and H2S at 0 ppm.

ut gate was locked.

easurements with 0% LEL, no detectable 0.9 and CO and H2S at 0 ppm.

					Table 3           Water Well Measurements for the July 2010 Monthly Report	
Permit Number	Name	Sampling Start Date	Last Sample	Samples Since Last Monthly Report	History (Last Updated with May 2010 Monthly Report)	If sampled, comparison
252931	Derowitsch	7/6/07	8/2/10	7/12/10, 7/22/10, 8/2/10	Methane detected at wellhead at levels approximately 100 % LEL and mostly above 5% CH4 by volume until approximately 9/4/07, then methane levels dropped to 0 and has remained at or near 0 since that time. Both the well vent and cistern have historically shown very low to 0 levels of methane. Late September to December 2009 readings at the well vent indicated levels of methane although the wellhead and cistern showed no detectable methane during that time period.	At the wellhead, well vent, and measurements for detectable r 20.9.
235515	English	8/16/07	8/24/09	None	No methane has ever been detected at this wellhead.	Sampling attempted 8/2/10 but
16861-F	Golden Cycle Land	7/12/07	8/2/10	7/22/10 and 8/2/10	Readings initially showed methane at 100% LEL and greater than 20% by volume CH4, but dropped to 0 by 9/24/07 and remained at 0 (with two readings above 0 on 11/16/07 and 4/23/08) until 10/20/08. Starting 10/20/08 methane was once again detected at higher values along with CO at high levels and showings of H2S.	<ul> <li>%LEL remained unchanged</li> <li>CH4% volume increased from 45 on 8/2/10</li> <li>O2% remained unchanged at CO decreased from 211 to 2 8/2/10</li> <li>H2S remained the same at 0 8/2/10</li> </ul>
253317	Gonzalez	7/12/07	8/2/10	8/2/10	No methane has ever been detected at this wellhead.	No change from previous meas detectable methane, O2% at 2 measured.
256504	Hopke	7/5/07	8/2/10	7/12/10, 7/22/10, 8/2/10	Readings consistently measure methane at >100% LEL and at values of CH4% by volume fairly consistently above 20 until late 2009 when levels dropped to between 10 and 20. The well has shown an overall slow decline in CH4 % by volume over time. H2S also has shown a decline over time such that most recent readings have been at or slightly above 0. No methane has ever been detected at the cistern.	<ul> <li>At the wellhead:</li> <li>% LEL remained unchanged</li> <li>CH4% volume increased from 7/22/10</li> <li>CO and H2S remained unch on 8/2/10</li> <li>At the cistern: no changes from detectable methane, O2% volume</li> </ul>
236272	Houghtling	7/6/07	8/7/10	7/12/10, 7/21/10, 8/7/10	Methane levels at this wellhead have been consistently >100% LEL with CH4% by volume fairly consistently above 20 with an occasional lower values (but not 0). No methane has ever been detected at the cistern.	<ul> <li>At the wellhead:</li> <li>% LEL remained unchanged</li> <li>CH4% volume increased from on 8/7/10</li> <li>O2% decreased from 13.4 tropped from 7/21/10</li> <li>CO remained unchanged attornamed attornamed from 0 to 2 cropped from 0 to 2 c</li></ul>

#### on of results from this period to last period

nd cistern no change from previous e methane with 0% LEL and CH4, O2% volume at

out gate was locked.

ed at >100 from 41 to 42 on 7/22/10 and increased again to

ed at 0 o 202 on 7/22/10 and decreased again to 163 on

at 6.5 on 7/22/10 and then increased to 15.5 on

easurements at the wellhead with 0% LEL, no t 20.9 and no CO or H2S. Cistern was not

ged at >100 from 7 to 17 rom 18.3 to 16.9 on 8/2/10 with a low of 14.9 on

nchanged at 0 ppm, with a light H2S odor detected

om previous measurements with 0% LEL, no olume at 20.9 and CO and H2S at 0 ppm.

ged at >100 from 34 to 97 on 7/12/10, 98 on 7/21/10, and 100

to 0.3 on 8/2/10 with a low of 0 measured on

at 0 ppm 2 on 8/2/10 om previous measurements with 0% LEL, no olume at 20.9 and CO and H2S at 0 ppm.

					Table 3Water Well Measurements for the July 2010 Monthly Report	
Permit Number	Name	Sampling Start Date	Last Sample	Samples Since Last Monthly Report	History (Last Updated with May 2010 Monthly Report)	If sampled, comparison
35292	Kerman/Hanson	7/6/07	8/7/10	7/12/10, 7/22/10, 8/7/10	Values at this wellhead have been at or near 0 with two readings of >100% LEL and greater than 5% by volume CH4 on 12/2/08 and 12/22/08 and detectable methane readings in July, August and December 2009. No methane has ever been detected at the cistern.	<ul> <li>At the wellhead:</li> <li>% LEL increased from 0 to 5 and remained at 0 on 8/7/10</li> <li>CH4% volume increased from 0 to 7/22/10 and remained at</li> <li>O2% decreased from 20.9 to 7/22/10 and remained at 20.</li> <li>CO and H2S remained unch At the cistern: no changes from detectable methane, O2% volu</li> </ul>
	Lively 10-02	12/22/2008	8/2/10	7/12/10, 7/22/10, 8/2/10	Readings from this well started with mostly 0 to low levels of methane but have been moving upward with late 2009 readings showing detectable levels more consistently with some readings as high as >100 % LEL. CH4% volume remains below 5%. Some non detectable readings still also occur with early 2010 showing lower overall readings and many non detect readings.	<ul> <li>At the wellhead:</li> <li>% LEL increased from 0 to 5 then increased to &gt;100 on 8</li> <li>CH4% increased from 0 to 2 increased to 5 on 8/2/10</li> <li>O2% decreased from 20.9 to and decreased to 15.5 on 8/</li> <li>CO increased from 0 to 500 increased to 476 on 8/2/10</li> <li>H2S increased from 0 to 100 increased to 30 on 8/2/10</li> </ul>
222539	Lively	7/6/07	8/6/10	8/6/10	No methane has ever been detected at this wellhead.	No change from last measuren at 20.9 and no CO2 or H2S.
16861-F	Masters #1	8/13/07	8/7/10	7/12/10, 7/22/10, 8/2/10	No methane has ever been detected at this wellhead.	No change from previous meas methane, O2% volume at 20.9
271136	Мау	7/12/07	8/2/10	8/2/10	No methane has ever been detected at this wellhead.	No change from last measuren at 20.9 and no CO2 or H2S.
84108-A	McPherson	7/6/07	8/2/10	8/2/10	No methane has ever been detected at this wellhead.	No change from last measuren at 20.9 and no CO2 or H2S.
84106	Rohr	7/06/07	6/22/10	None	No methane has ever been detected at this wellhead.	Sampling attempted 8/7/10 but
123144	Searle	7/11/07	8/2/10	8/2/10	No methane has ever been detected at this wellhead.	No change from last measuren at 20.9 and no CO2 or H2S.
239657	Smith	7/5/07	8/7/10	7/12/10, 7/20/10, 8/7/10	Detectable methane in early readings with % LEL at 100 or greater and % by volume of CH4 at up to 100. Began showing some variability in readings on 9/9/07 eventually decreasing until levels at 0 beginning 5/5/08. Three readings since that time on 5/21/08, 10/27/08 and 7/13/09 have shown >100% LEL and CH4 % by volume at or above 5. October 2009 reading showed low levels (18% LEL and 0.9% CH4 by volume).	<ul> <li>At the well head no change from detectable methane, O2% volue</li> <li>At the well vent:</li> <li>% LEL remained unchanged</li> <li>CH4% volume remained the increased to 39.0 on 8/7/10</li> <li>O2% volume decreased from 7/20/10, and then decreased</li> <li>CO and H2S remained unch At the cistern all values remain methane, O2% volume at 20.9</li> </ul>
	BLM 15-12	6/1/09	8/7/10	8/7/10	Detectable methane with >100% LEL and CH4 % volume of greater than 70 and limited O2% volume.	<ul> <li>% LEL remained unchange</li> <li>CH4% volume decreased free</li> <li>O2% volume decreased free</li> <li>CO and H2S remained un</li> </ul>

#### n of results from this period to last period

o 5 on 7/12/10, decreased back to 0 on 7/22/10 /10 from 0 to 0.25 on 7/12/10, decreased back to 0 at 0 on 8/7/10 9 to 17.3 on 7/12/10, decreased back to 20.9 on 20.9 on 8/7/10

changed at 0 ppm

om previous measurements with 0% LEL, no oblume at 20.9 and CO and H2S at 0 ppm.

55 on 7/12/10, decreased to 0 on 7/22/10, and 8/2/10

2.75 on 7/12/10, decreased to 0 on 7/22/10, and

9 to 11.3 on 7/12/10, increased to 20.9 on 7/22/10, 8/2/10

00 on 7/12/10, decreased to 0 on 7/22/10, and 0

100 on 7/12/10, decreased to 0 on 7/22/10, and

ement with 0% LEL, no detectable methane, O2%

easurements with 0% LEL, no detectable .9 and CO and H2S at 0 ppm.

ement with 0% LEL, no detectable methane, O2%

ement with 0% LEL, no detectable methane, O2%

ut well house full of rodents. ement with 0% LEL, no detectable methane, O2%

rom previous measurements with 0% LEL, no lume at 20.9 and CO and H2S at 0 ppm.

ged at >100 the same at 22.0 through 7/20/10 and then 10 rom 15 to 14.1 on 7/12/10, increased to 14.4 on sed to 14 on 8/7/10 inchanged at 0 ppm ained unchanged with 0 %LEL, no detectable 0.9 and CO and H2S at 0 ppm.

nged at >100 d from 60 to 50

from 6.4 to 0

unchanged at 0

				Table 3 Water Well Measurements for the July 2010 Monthly Report							
Permit Number	Name	Sampling Start Date	Last Sample	Samples Since Last Monthly Report	History (Last Updated with May 2010 Monthly Report)	If sampled, comparison					
Wells Within	or in Close Proxim	ity to River Ri	dge Ranch		•	•					
249362	Andexler	9/9/07	8/7/10	8/7/10	Several readings (3/25/09, 7/30/09 and October 2009) have shown less the 0.25% CH4 methane, otherwise no detectable methane.	No change from previous meas at 0. O2 % volume decreased f					
215706	Brice	7/12/07	8/2/10	8/2/10	No methane has ever been detected at this wellhead.	No change from last measuren at 20.9 and no CO2 or H2S.					
248680	Campbell	8/14/07	8/7/10	8/7/10	No methane has ever been detected at this wellhead.	No change from last measurem at 20.9 and no CO2 or H2S.					
20783	Goemmer Cattle	7/12/07	6/11/10	None	No methane has ever been detected at this wellhead.	Not measured during this repor					
258815	Goodwin	7/12/07	8/2/10	8/2/10	Readings have shown methane levels at or near 0 with no readings above 0 from late January 2009 through October 2009. November 2009 through February showed 2010 showed low levels of methane.	No change from last measurem detectable methane, O2% at 20					
249181	Hentschel	9/9/07	8/7/10	8/7/10	No methane has ever been detected at this wellhead.	No change from last measuren at 20.9 and no CO2 or H2S.					
259122	Higgins	9/26/07	8/7/10	8/7/10	No methane has ever been detected at this wellhead	No change from last measuren at 20.9 and no CO2 or H2S.					
269435	Hoppe (formerly Goacher)	7/11/07	8/7/10	8/7/10	No methane has ever been detected at this wellhead	No change from last measuren at 20.9 and no CO2 or H2S.					
264581	Ireland	7/12/07	8/2/10	8/2/10	Typically no methane, but methane has been detected on 12/2/08, 12/22/08, and 1/6/09 with 100% or greater LEL and 5% by volume CH4.	No change from last measurem at 20.9 and no CO2 or H2S.					
	Lang	10/29/07	7/28/08	None	No methane has ever been detected at this wellhead.	Sampling attempted 8/2//10 bu					
93386	Lowry	7/12/07	6/11/10	None	No methane has ever been detected at this wellhead.	Not measured during this repor					
250369	Martin	7/12/07	6/21/10	None	No methane has ever been detected at this wellhead.	Sampling attempted 8/2/10 but					
248862	Meyer	8/14/07	8/7/10	8/7/10	Methane levels generally at >100% LEL and CH4 % by volume of greater than 5. Readings were a bit variable with some lower methane levels until 5/22/08 and then became consistently >100% LEL and CH4% by volume greater than 5.	<ul> <li>% LEL remained unchange</li> <li>CH4 % volume decreased</li> <li>O2% volume increased fro</li> <li>CO and H2S remained unchange</li> </ul>					
192203	Rankins	7/12/07	6/21/10	None	No methane has ever been detected at this wellhead.	Not measured during this repor					
276994	Rhodes	9/9/08	8/7/10	8/7/10	Slight LEL (5%) reported 7/30/09, but no methane detected. No methane has been detected previously or since at this wellhead.	No change from last measurem at 20.9 and no CO2 or H2S.					
274468	Roloff	9/9/07	8/7/10	8/7/10	No methane had ever been detected at this wellhead except for low levels detected in the 8/25/09 measurement.	No change from last measurem at 20.9 and no CO2 or H2S.					
254577	Ryerson	9/9/07	8/7/10	8/7/10	No methane has ever been detected at this wellhead.	No change from last measurer O2% at 20.9 and no CO2 or H2					
246775	Sharp	9/9/07	8/7/10	8/7/10	No methane has ever been detected at this wellhead.	No change from last measurem at 20.9 and no CO2 or H2S.					
267695	Speh	9/4/07	8/7/10	8/7/10	No methane has ever been detected at this wellhead.	No change from last measurem at 20.9 and no CO2 or H2S.					
230572	Willis	7/11/07	8/7/10	8/7/10	No methane has ever been detected at this wellhead.	No change from last measurem at 20.9 and no CO2 or H2S.					
240947	Wolahan	7/12/07	8/2/10	8/2/10	No detectable methane except 5/21/08, 1/27/09 and 2/9/09 with levels at 5% LEL and 0.25% by volume CH4.	No change from last measurem detectable methane, O2% at 20					
<b>City Ranch</b> a	and Other Properties										
	Andreatta/Carsella	8/14/07	3/17/10	None	No methane has ever been detected at this wellhead.	Not measured during this repor					

#### n of results from this period to last period

easurements for % LEL, CH4% volume, and CO ed from 20.9 to 14.7. H2S increased from 0 to 2.5.

ement with 0% LEL, no detectable methane, O2%

ement with 0% LEL, no detectable methane, O2%

porting period.

ement at the wellhead or cistern with 0% LEL, no 20.9 and no CO2 or H2S.

ement with 0% LEL, no detectable methane, O2%

out gate was locked. orting period. ut gate was locked.

ged at >100

ed from 45 to 10

rom 15.3 to 20.5

nchanged at 0 ppm

orting period.

ement with 0% LEL, no detectable methane, O2%

ement with 0% LEL, no detectable methane, O2%

ement with 0% LEL, no detectable methane, H2S.

ement with 0% LEL, no detectable methane, O2%

ement with 0% LEL, no detectable methane, O2%

ement with 0% LEL, no detectable methane, O2%

ement at wellhead or cistern with 0% LEL, no 20.9 and no CO2 or H2S.

orting period.

					Table 3           Water Well Measurements for the July 2010 Monthly Report	
Permit Number			Last Sample	Samples Since Last Monthly Report	History (Last Updated with May 2010 Monthly Report)	If sampled, comparison
197472	Bartlett	8/15/07	6/22/10	None	No methane has ever been detected at this wellhead.	Not measured during this repo
210526	Bruington	8/7/07	8/3/10	7/22/10, 8/3/10	From start of reading to November 2009 wellhead readings have shown consistent levels of methane at >100% LEL and CH4 % by volume at greater than 50. Since November 2009 overall %LEL and CH4% volume have decreased. With no detectable methane in March 16, 2010 reading. Some CO and H2S readings in mid to late 2008 but current readings have shown little to no CO and H2S. No methane has ever been detected at the cistern.	At the wellhead: • % LEL increased from 16 to • CH4% volume remained un • O2% volume decreased fro • CO remained unchanged at • H2S decreased from 4 to 0 There were no changes at the LEL, no detectable methane, 0
220100	Cordova	10/30/07	8/3/10	8/3/10	Initial readings were variable with readings as low as 0 and as high as >100% LEL and greater the 5% CH4 by volume. After 3/14/08 mostly readings at 0 with some readings at levels slightly above 0. Since March 2009 no detectable methane.	No changes from previous means O2% volume at 20.9 and CO a
191079	Brian Dale	8/15/07	8/6/10	8/3/10	Variability between 0 and >100% LEL and 5% or greater CH4 by volume until 11/14/08 and since that time no methane has been detected.	No change from last measurer detectable methane, O2% at 2
193092	Degan	8/25/08	8/3/10	8/3/10	Initial readings were variable between 0 and >100% LEL and 5% by volume CH4. From 2/17/09 to March 2010 there was no detectable methane.	No change from last measurer at 20.9 and no CO2 or H2S.
	Dernell	8/15/07	8/3/10	8/3/10	No methane has ever been detected at this wellhead.	No change from last measurer at 20.9 and no CO2 or H2S.
258651	Gonzalez	5/22/08	8/6/10	8/6/10	Methane readings were >100% LEL and CH4 % by volume mostly above 20. From 4/9/09 to 7/13/09 values were reduced with % LEL below 50 and CH4 % by volume below 3. From 7/30/09 reading to present values are variable with >100 for one or more readings and then reduced to as low as 0 for one or more readings. There has been no detectable methane at the cistern.	At the wellhead: • % LEL decreased from 5 to • CH4% decreased from 0.25 • O2% remained unchanged • CO and H2S remained unch There were no changes at the LEL, no detectable methane, C
	Haupt #1	6/1/09	8/7/10	8/7/10	Until December 2009 all readings but one have shown % LEL at >100 with CH4 % by volume at 11 or less. Beginning with December 2009 reading there have been several large variations in readings ranging from >100 to 0 %LEL and 5 to 0 %CH4 by volume.	<ul> <li>% LEL increased from 0 to CH4% volume increased f</li> <li>O2% volume decreased fr</li> <li>CO and H2S remained units</li> </ul>
203536	Hurley	8/2/07	8/7/10	8/7/10	Readings have fairly consistently shown >100% LEL and CH4 % by volume between 10 and 50 with several much lower readings, most recently in July and October 2009 and March 2010. H2S has also been measured, but starting around 9/08 values have been reduced to at or near 0 ppm.	At the wellhead: % LEL remained unchange CH4% volume remained un O2% volume remained un CO remained unchanged a H2S decreased from 2.5 to At the cistern: no changes from detectable methane, O2% volu

#### on of results from this period to last period

porting period.

to 21 on 7/22/10 and 26 on 8/3/10 unchanged at 1 from 20.7 to 18 on 7/22/10 and 16.9 on 8/3/10 at 0 ppm 0 on 7/22/10 and remained unchanged on 8/3/10 he cistern from previous measurement with 0% <u>, O2% volume at 20.9 and CO and H2S at 0 ppm.</u> heasurements with % LEL and CH4% volume at 0, 0 and H2S at 0 ppm

ement at wellhead or Well #2 with 0% LEL, no t 20.9 and no CO2 or H2S.

ement with 0% LEL, no detectable methane, O2%

rement with 0% LEL, no detectable methane, O2%

to 0 .25 to 0 ed at 20.9 inchanged at 0 he cistern from previous measurement with 0% e, O2% volume at 20.9 and CO and H2S at 0 ppm. 0 to >100 d from 0 to 5 d from 20.9 to 0 unchanged at 0 ppm

nged at 0 I unchanged at 0 unchanged at 20.9 d at 0 5 to 0 om previous measurement with 0% LEL, no olume at 20.9 and CO and H2S at 0 ppm.

					Table 3Water Well Measurements for the July 2010 Monthly Report	
Permit Number	Name	Sampling Start Date	Last Sample	Samples Since Last Monthly Report	History (Last Updated with May 2010 Monthly Report)	If sampled, comparison
205195	Johnson	8/15/07	8/6/10	8/6/10	Readings have shown mostly low values of methane (% LEL less than 20 and CH4 % by volume less than 1) with 0 values. The number of non detectable methane reading has shown a general increase since late 2008.	No change from last measurer detectable methane, O2% at 2 At the 2 <sup>nd</sup> Well: % LEL decreased from CH4% volume decrea O2% volume increase CO remained unchang H2S decreased from 1
193520X	McEntee	8/2/07	8/6/10	8/6/10	Initially methane was detected at this wellhead at values of >100% LEL and greater than 10% by volume CH4. Starting 1/28/08 values dropped to at or near 0 with only one higher value on 2/17/09 (>100% LEL and 5% By volume CH4). Mostly no detectable methane since that time with two low level detections; one on 4/22/09 and one on 10/20/09.	There were no changes at eith 0% LEL, no detectable methar ppm.
191345	Pennington	8/7/09	8/7/10	8/7/10	Four readings have occurred at this well; showing detectable methane at levels of >100% LEL and CH4% by volume at 15 or less except for 10/20/09 reading which showed lower methane levels (25% LEL and 1.25% CH4 by volume)	No changes from previous mea methane, O2% volume at 20.9
121013	Schafer	8/15/07	8/3/10	8/3/10	No methane has ever been detected at this wellhead	No change from last measurer at 20.9 and no CO2 or H2S.
248983	Tobyas	8/3/07	8/7/10	8/7/10	Historically this wellhead has shown wide variance between 0 and higher methane values of >100% LEL and greater than 5% by volume CH4 with no discernable long term trends.	<ul> <li>% LEL decreased from 90 to</li> <li>CH4% volume decreased from</li> <li>O2% volume decreased from</li> <li>CO decreased from 143 to 0</li> <li>H2S decreased from 4 to 0</li> </ul>
Silver Spurs	s Ranch		<u>I</u>		I	
268180	Billstrand	8/12/08	8/7/10	8/7/10	No methane has been detected at this wellhead except for low readings on 5/6/09 and 1/10/10.	No change from last measurer volume at 20.9, and no CO2 o
215807	Brown	12/8/08	8/7/10	8/7/10	No methane has ever been detected at this wellhead.	No change from last measurer at 20.9 and no CO2 or H2S.
222294	Cramer	8/3/07	8/7/10	8/7/10	Most methane readings have been at or near 0 with periodic higher readings.	No change from last measurer detectable methane, O2% at 2
192509	Eddleman, Paul	1/17/08	8/4/41	8/4/10	Readings mostly above >100% LEL and 5% by volume CH4 until 9/23/08 and then levels dropped to mostly 0 until 1/26/09. Since 1/26/09 readings have shown wide variability between low to 0 methane and >100% LEL and greater than 5% by volume methane. Since 6/9/09 methane levels have been more consistently higher.	The first well is now sealed and % LEL decreased from 36 CH4% volume decreased 02% volume increased from CO decreased from 51 to H2S decreased from 1.5 to
226536	Eddleman, Todd	1/17/08	8/4/10	8/4/10	Methane readings have been widely variable from 0 to >100% LEL and 5% by volume CH4.	<ul> <li>% LEL decreased from 5 t</li> <li>CH4% volume decreased</li> <li>O2% volume increased from</li> <li>CO remained unchanged a</li> <li>H2S decreased from 6 to 6</li> </ul>
221465	Evenden	8/2/07	8/7/10	8/7/10	Methane readings have generally been at or near 0 with no detectable methane since 3/24/09 and one higher reading on 1/12/09 (>100% LEL and 5% by volume methane).	No change from last measurer at 20.9 and no CO2 or H2S

#### on of results from this period to last period

ement at wellhead or cistern with 0% LEL, no t 20.9 and no CO2 or H2S.

om 18 to 0 eased from 0.9 to 0 sed from15.5 to 20.9 inged at 0 in 1.5 to 0

ither wellhead from previous measurement with ane, O2% volume at 20.9 and CO and H2S at 0

neasurement with 0% LEL, no detectable 0.9 and CO and H2S at 0 ppm.

ement with 0% LEL, no detectable methane, O2%

0 to 87 I from 4.5 to 4.35 rom 18.6 to 18.3 o 0 0

rement with 0% LEL, no detectable methane, O2 or H2S

rement with 0% LEL, no detectable methane, O2%

rement at the wellhead or cistern with 0% LEL, no t 20.9 and no CO2 or H2S. and abandoned. At the 2<sup>nd</sup> Well:

36 to 0

ed from 1.80 to 0

from 4.2 to 20.9

to 0

5 to 0 5 to 0

ed from 0.25 to 0

from 18.7 to 20.9

l at 0

0

ement with 0% LEL, no detectable methane, O2%

					Table 3Water Well Measurements for the July 2010 Monthly Report	
Permit Number	Name	Sampling Start Date	Last Sample	Samples Since Last Monthly Report	History (Last Updated with May 2010 Monthly Report)	If sampled, comparison
	Fischer	1/26/09	6/21/10	None	Only two readings have detected low levels of methane (2/17/09 and 2/18/10), other readings have not detected methane.	Not measured during this report
214145A	Fitzner	11/18/08	8/7/10	8/7/10	Methane levels have been generally at 0 but occasionally shows wide swings to >100 % LEL and 5 % CH4 by volume.	No change from last measuren detectable methane, O2% at 20
31935	Garza-Vela	1/30/08	8/6/10	8/6/10	Generally there is 0 to low methane levels except for an occasional low level reading.	<ul> <li>% LEL increased from 10 t</li> <li>CH4% volume decreased from 20% volume increased from CO and H2S remained uncompared to the context of the contex</li></ul>
196372	Geiselbrecht	8/12/08	8/7/10	8/7/10	No methane has ever been detected at this wellhead.	No change from last measuren at 20.9 and no CO2 or H2S.
246350	Gumpert	7/29/08	8/4/10	8/4/10	Methane readings have been widely variable with most readings either 0 or >100% LEL and 5% by volume CH4.	<ul> <li>% LEL decreased from 6 to</li> <li>CH4% volume decreased for</li> <li>O2% volume increased fro</li> <li>CO remains unchanged to</li> <li>H2S decreased from 1 to 0</li> </ul>
196371	Lyon	8/15/07	8/7/10	8/7/10	Between 2007 and mid-2009 most methane readings have been at or near 0 with higher values of >100% LEL and 5% by volume CH4 on 5/22/08 and 4/22/09. Beginning in June of 2009 methane has been more regularly detected.	<ul> <li>% LEL decreased from 6 to</li> <li>CH4% volume decreased fo</li> <li>O2% volume increased fro</li> <li>CO remains unchanged at</li> <li>H2S decreased from 1 to 0</li> </ul>
271524-A	Modlish	1/30/08	8/4/10	8/4/10	Most methane readings have been at or near 0 with higher values of >100% LEL and 5% by volume CH4 on 10/21/08 and 5/20/09.	No change from last measurer no CO2 or H2S, with a increas
28093MH	Morine	9/10/08	8/7/10	8/7/10	Only on reading above 0 has been detected at this wellhead. This reading occurred 1/12/09 and showed 5% LEL and 0.25% by volume CH4.	No change from last measuren at 20.9 and no CO2 or H2S.
35227MH	Morris	10/8/08	6/21/10	None	Methane readings swing widely between 0 and 100 % LEL and 0.00 and 5.00 % CH\$ by volume.	Not measured during this report
190327	Palmer	8/12/08	8/7/10	8/7/10	No methane was ever been detected at this wellhead until low levels were detected in 10/19/09 and 11/6/09 readings and again on 1/19/2010.	<ul> <li>% LEL decreased from 7 to</li> <li>CH4% volume decreased for</li> <li>O2% volume increased fro</li> <li>CO and H2S remained uncompared for</li> </ul>
197128	Roberts	4/08/08	8/7/10	8/7/10	Methane readings have historically been widely variable from 0 to >100% LEL and 5% by volume CH4.	<ul> <li>% LEL increased from 3 to</li> <li>CH4% volume increased fr</li> <li>O2% volume decreased from CO and H2S remained uncompared fro</li></ul>
271748	Sample	3/10/08	8/4/10	8/4/10	Until July 2009 most of the readings from this wellhead have been no or low levels of detectable methane with higher readings on 5/22/08, 6/3/08, and 5/20/09. More consistent methane readings have occurred beginning in July 2009.	No changes from previous means of the second
192144	Snow	8/2/07	8/7/10	8/7/10	No measurable methane until 10/4/07, then widely variable levels ranging from 0 to >100% LEL and 5% by volume CH4 with no discernable trends.	No changes from previous mea methane, and CO and H2S at ( 19.4 to 20.9

# n of results from this period to last period orting period. ement at wellhead and cistern with 0% LEL, no 20.9 and no CO2 or H2S. ) to 0 ed from 0.50 to 0 rom 4.2 to 20.9 nchanged at 0 ement with 0% LEL, no detectable methane, O2% 6 to 0 ed from 0.30 to 0 from 19.2 to 20.9 to 0 ppm 0 6 to 0 ed from 0.30 to 0 from 14 to 18.8 at 0 ppm 0 ement with 0% LEL, no detectable methane, and ase in 02 from 0 to 20.9 ement with 0% LEL, no detectable methane, O2% porting period. 7 to 0 d from 0.45 to 0 rom 9.9 to 20.9 nchanged at 0 ppm to 19 from 0.15 to 0.95 from 20.6 to 16.5 nchanged at 0 ppm neasurement at wellhead or cistern with 0% LEL, volume at 20.9 and CO and H2S at 0 ppm. neasurement with 0% LEL, no detectable

at 0 ppm, except an increase in O2 volume from

				Table 3           Water Well Measurements for the July 2010 Monthly Report						
Permit Number	Name	Sampling Start Date	Last Sample	Samples Since Last Monthly Report	History (Last Updated with May 2010 Monthly Report)	If sampled, comparison				
213070	Stephens	8/12/08	8/7/10	8/7/10	No methane had ever been detected at this wellhead except for low levels detected on 10/19/09.	<ul> <li>% LEL decreased from 9 to</li> <li>CH4% volume decreased from 02% volume decreased from 02% volume decreased from CO and H2S remained uncompared uncompared to the compared to the co</li></ul>				
261753	Wahl	8/5/09	8/7/10	8/7/10	No methane has ever been detected at this wellhead.	No changes from previous mea methane, O2% volume at 20.9				
234839	Waltz	8/12/08	6/21/10	None	No methane has ever been detected at this wellhead.	Not measured during this repor				
234836	White, Jim	1/4/08	8/4/10	8/4/10	Methane levels have been widely variable between no detectable methane and methane levels at >100% LEL and 5% by volume CH4 with no discernable trends. No methane has ever been detected at the cistern.	No changes from previous mea LEL, no detectable methane, C				
219376	White, Orlie	8/2/07	6/21/10	None	Methane values historically at low to 0 with higher values on 5/22/08 and from 9/10/08 to 10/29/08. Four detectable methane readings in 2009; on 3/26, 9/29, 10/19 and 12/17. In 2010 detectable methane appears to be increasing.	Sampling attempted 8/7/10 but				
Black Hawk	Ranch		•		•	-				
218719	Goza	1/14/09	8/4/10	8/4/10	No methane has ever been detected at this wellhead except for 1/19/10 and 3/1710 readings.	No changes from previous mea methane, O2% volume at 20.9				
206745	Harbecke	6/11/10	8/4/10	8/4/10		No changes from previous mea methane, O2% volume at 20.9				

#### on of results from this period to last period

9 to 5 ed from 0.45 to 0.25 I from 14.4 to 9.1 unchanged at 0 ppm neasurement with 0% LEL, no detectable 0.9 and CO and H2S at 0 ppm. porting period.

heasurement at the wellhead or cistern with 0%, 02% volume at 20.9 and CO and H2S at 0 ppm.

out gate was locked.

neasurement with 0% LEL, no detectable 0.9 and CO and H2S at 0 ppm. neasurement with 0% LEL, no detectable 0.9 and CO and H2S at 0 ppm.

	Table 4         Methane Readings Schedule         (5 March 2010)									
Landowner	Subdivision	<u>Water</u> Level	<u>Cistern</u>	<u>Bi-</u> Monthly	<u>Monthly</u>	Quarterly	<u>Bi-</u> Weekly			
Monitoring Within 1 Mile Radi	us or of Special Interes	t								
Kathy Dee	River Ridge						Х			
R. Gonzalez	River Ridge						Х			
McPherson	River Ridge						Х			
Rohr	River Ridge						Х			
Houghtling	River Ridge		Х				Х			
Kent Smith	River Ridge		Х				Х			
Bergman	River Ridge						Х			
Lively	River Ridge						Х			
Kerman	River Ridge		Х				Х			
Conley	River Ridge						Х			
Searle	River Ridge						Х			
Derowitsch	River Ridge		Х				Х			
Colorado-Switzer	River Ridge						Х			
English	River Ridge		Х				Х			
Golden Cycle Land (Goemmer)	River Ridge						х			
Burge	La Veta Pines						Х			
Barrett	River Ridge						Х			
Hopke	River Ridge		Х				Х			
Masters #1	River Ridge						Х			
Coleman	River Ridge						Х			
BLM 15-12	La Veta Pines				Х					
Lively 10-02	River Ridge			Х						

	Table 4         Methane Readings Schedule         (5 March 2010)									
Landowner	Subdivision	Water Level	Cistern	<u>Bi-</u> Monthly	Monthly	Quarterly	<u>Bi-</u> Weekly			
River Ridge Ranch				· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · ·				
Wolahan	River Ridge		Х		Х					
Martin	River Ridge				Х					
Speh	River Ridge				Х					
Lang	River Ridge		Х			Х				
Roloff	River Ridge	Х			Х					
Hoppe (Goacher)	River Ridge				Х					
Мау	River Ridge						Х			
Brice	River Ridge				Х					
Goodwin	River Ridge		Х		Х					
Ireland	River Ridge				Х					
Andexler	River Ridge		Х		Х					
Sharp	River Ridge		Х		Х					
Ryerson	River Ridge	Х			Х					
Meyers	River Ridge			Х						
Hentschel	River Ridge				Х					
Rankins	River Ridge					Х				
Lowry	River Ridge					Х				
Goemmer Cattle	River Ridge					Х				
Higgins	River Ridge	Х			Х					
Campbell	River Ridge				Х					
Rhodes	River Ridge				Х					
City Ranch										
T. Gonzalez	City Ranch	Х	Х	Х						
Hurley	City Ranch	Х	Х		Х					
Tobyas	City Ranch			Х						

	Table 4         Methane Readings Schedule         (5 March 2010)										
Landowner	<u>Subdivision</u>	<u>Water</u> Level	<u>Cistern</u>	<u>Bi-</u> Monthly	Monthly	Quarterly	<u>Bi-</u> Weekly				
Dale	City Ranch				Х						
McEntee	City Ranch				Х						
Johnson	City Ranch		Х		Х						
Cordova	City Ranch			Х							
Dernell	City Ranch				Х						
Schaefer	City Ranch					Х					
Bruington	City Ranch		Х	Х							
Bartlett	City Ranch					Х					
Pennington – Birkman	City Ranch				Х						
HAUPT #1	City Ranch				Х						
Deagan	City Ranch					Х					
Bear Creek/Silver Spurs											
Andreatta/Carsella	Bear Creek				Х						
Orlie White	Silver Spurs	Х			Х						
Evenden	Silver Spurs				Х						
Roberts	Silver Spurs				Х						
Snow	Silver Spurs	Х			Х						
Cramer	Silver Spurs	Х	Х		Х						
Lyon	Silver Spurs				Х						
Jim White	Silver Spurs		Х		Х						
Garza-Vela	Silver Spurs				Х						
Modlish	Silver Spurs				Х						
Todd Eddleman	Silver Spurs				Х						
Paul Eddleman	Silver Spurs				Х						
Sample	Silver Spurs		Х		Х						
Billstrand	Silver Spurs				Х						

	Table 4         Methane Readings Schedule         (5 March 2010)										
Landowner	Subdivision	<u>Water</u> Level	<u>Cistern</u>	<u>Bi-</u> Monthly	<u>Monthly</u>	Quarterly	<u>Bi-</u> Weekly				
Waltz	Silver Spurs				Х						
Stephens	Silver Spurs				Х						
Palmer (G/S)	Silver Spurs				Х						
Geoselbrecht	Silver Spurs				Х						
Morine	Silver Spurs				Х						
Morris	Silver Spurs					Х					
Brown	Silver Spurs	Х			Х						
Fitzner	Silver Spurs				Х						
Fischer	Silver Spurs					Х					
Wahl	Silver Spurs				Х						
Black Hawk Ranch											
Goza	Black Hawk				Х						

Rohr will be checked Quarterly with Rankin, Lowry, and Goemmer Cattle. John Fischer location is a mine vent. If possible vent will be monitored with RMLD quarterly.

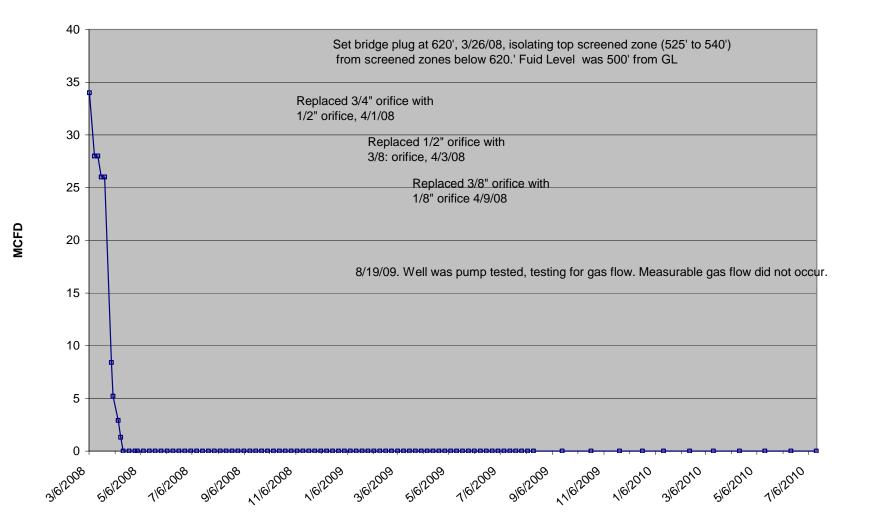
Table 5 Residences Receiving Water	
Jerry Angely	Has received water provided by PEI
Kent Smith	Has received water provided by PEI
Alan Cramer	Has received water provided by PEI
Tom Gonzales	Has received water provided by PEI
Spencer/Carol Snow	Has received water provided by PEI
Bruington	Has received water provided by PEI
Todd Eddleman	Has received water provided by PEI
Paul Eddleman	Has received water provided by PEI
Jim White	Has received water provided by PEI
Edward Lyon	Has received water provided by PEI
Donald Sharp	Has received water provided by PEI
Edward Johnson	Has received water provided by PEI
Richard McEntee	Has received water provided by PEI
P.C. Roberts	Has received water provided by PEI
Ireland-Murphy	Has received water provided by PEI
Keith Lightcap	Has received water provided by PEI
Bounds	To date has not received water provided by PEI
Houghtling	Added to the list in January 2010

No new residences have been added during this reporting period.

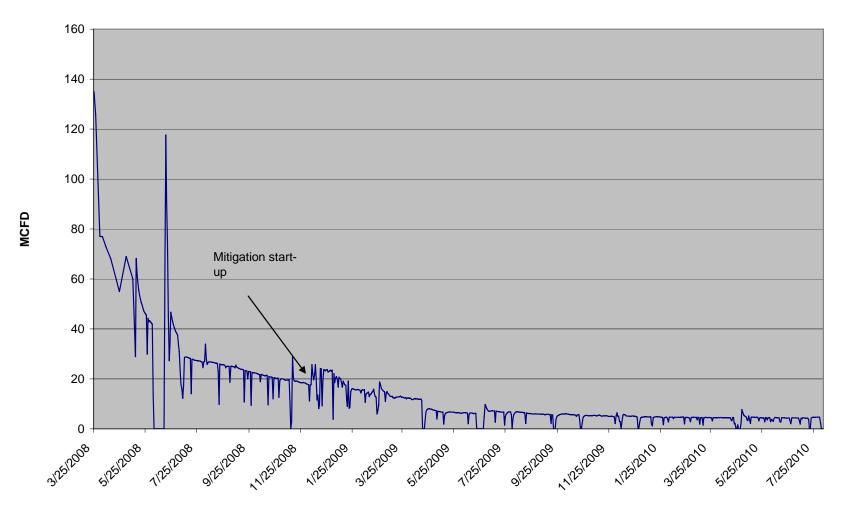
Attachment 1 Gas Flow in Monitoring Well POCI 55, Recovery 1 Kittleson, Recovery 3 PEI and Recovery 4 Barrett

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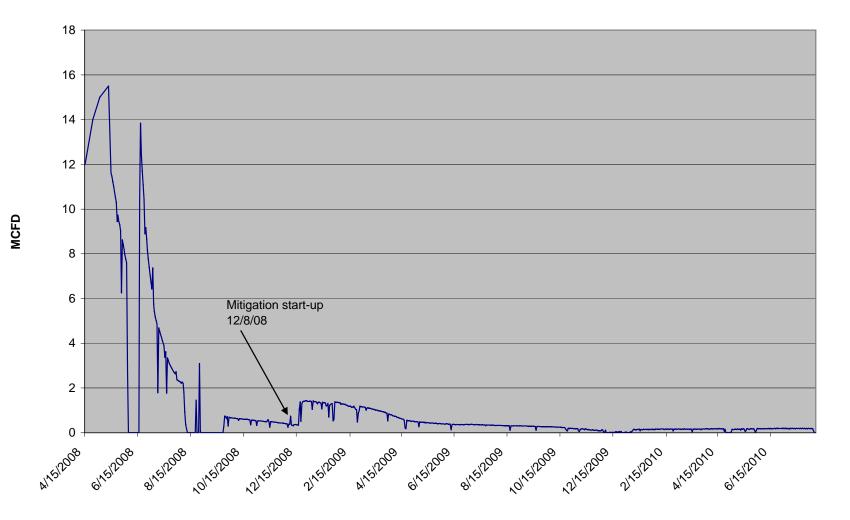
#### POCI 55 MW Gas Flow from 3/6/08 to 7/15/10



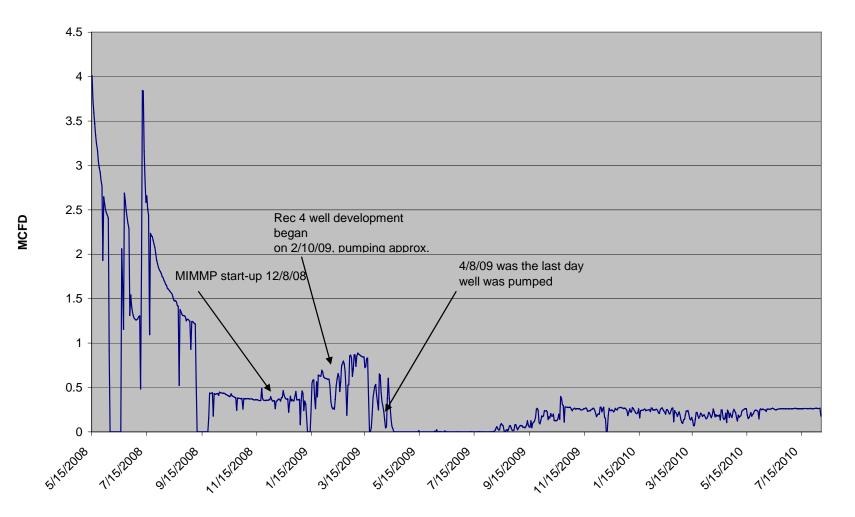
#### Recovery 1 Kittleson Gas Flow from 3/25/08 to 8/5/10



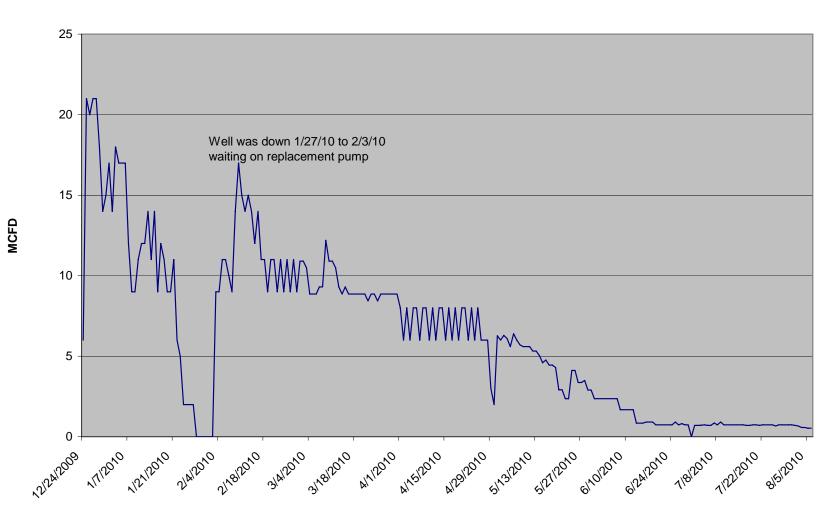
Recovery 3 PEI Gas Flow from 4/15/08 to 8/5/10



#### Recovery 4 Barrett Gas Flow from 5/15/08 to 8/5/10

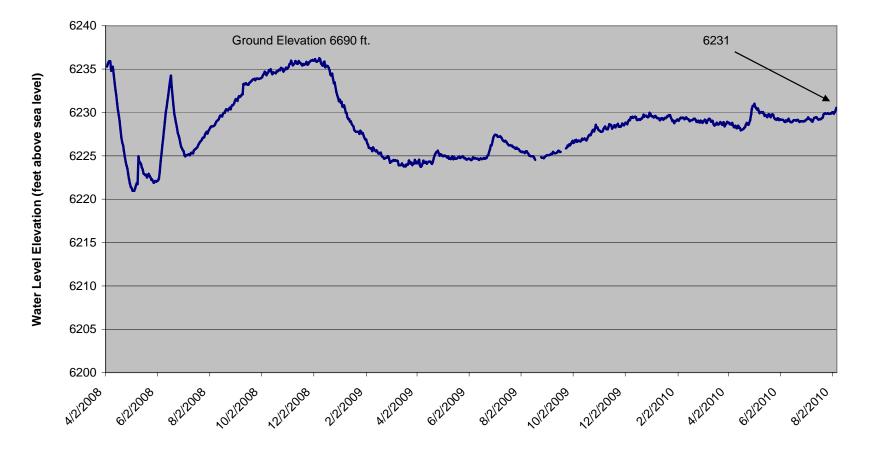


# Recovery 5 Masters Gas Flow (Masters WW 257113) from 12/24/09 to 8/6/10

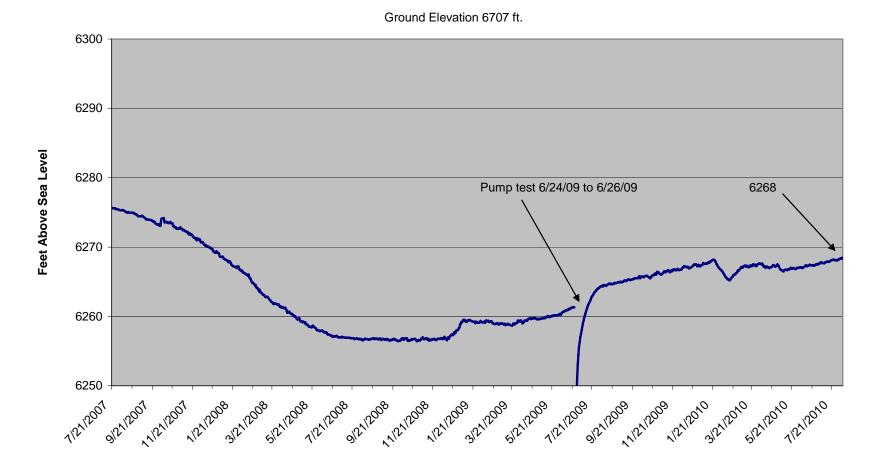


Attachment 2 Graphs of Pressure and Fluid Level Data From POCI 55, Barrett, Bergman, Bruington, Coleman, Evenden, Garza-Vela and Meyer

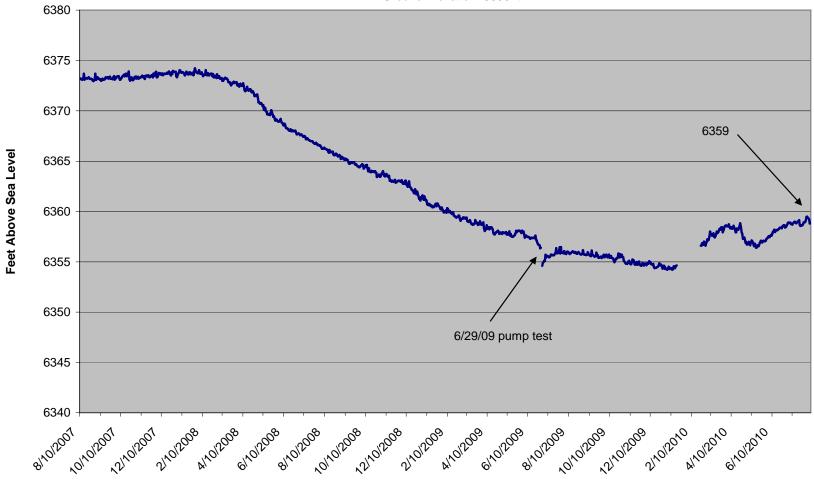
#### POCI 55 Monitor Well, Static Water Level Elevation from 4/2/08 to 8/6/10 Permit # 275819 Lot 55 RRR, SE SW Sec 3 29S 67W, GL elev. 6690'



Barrett WW Static Water Level from 7/21/07 to 8/6/10 Permit # 257994 Lot 57 RRR

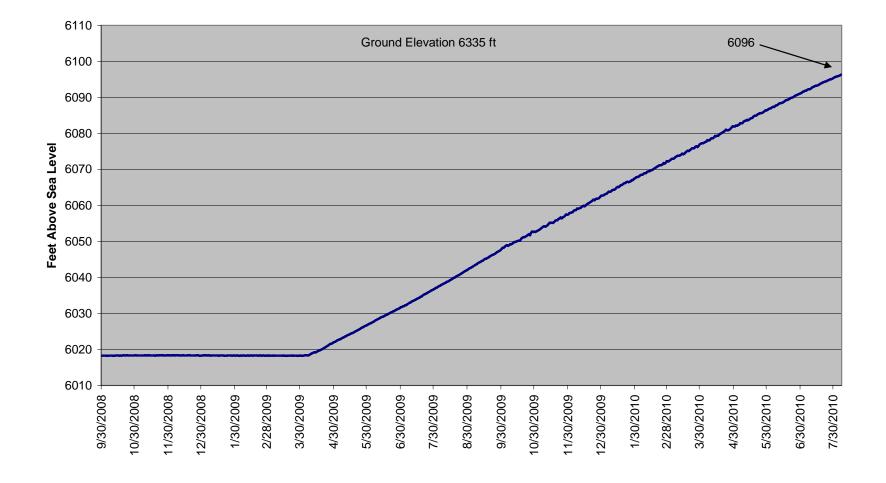


#### Bergman WW, Static Water Level from 8/10/07 to 8/6/10 Permit # 244403, Lot 48 RRR

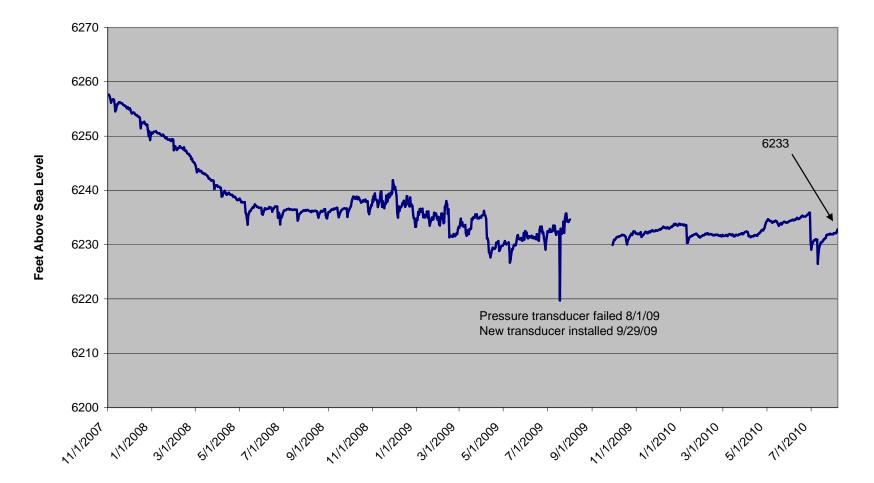


Ground Elevation: 6690 ft.

#### Bruington WW, Permit # 210526, City Ranches Lot 15 Static Water Level from 9/30/08 to 8/06/10



#### Coleman WW, Water Level from 11/1/07 to 8/6/10 Permit # 267694 Lot 70 RRR G.L. elev. 6848'



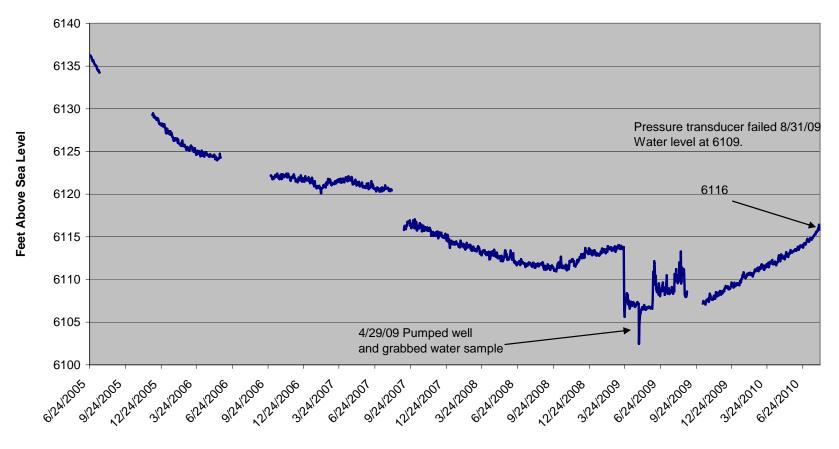
#### Garza WW, Water Level from 10/3/08 to 8/06/10 Permit # 206886, Lot 60 Silver Spurs Ranch

6300 6295 Feet Above Sea Level 6290 how when the second No data due to failed transducer 6285 6280 6275 ×21412008 101412008 ANIA12008 11412009 , 101A12009 1<sup>2</sup>, 1<sup>1420</sup>, 2<sup>1420</sup>, 1<sup>14201</sup>, 2<sup>14201</sup>, 2<sup>14201</sup>, 4<sup>14201</sup>, 6<sup>14201</sup>, 6<sup>14201</sup>, 7<sup>14201</sup>, 8<sup>14201</sup>, 8 0<sup>3</sup>214120<sup>3</sup>314120<sup>3</sup>41420<sup>3</sup> 09 51412009 61412009 11412009 61412009 61412009 61412009

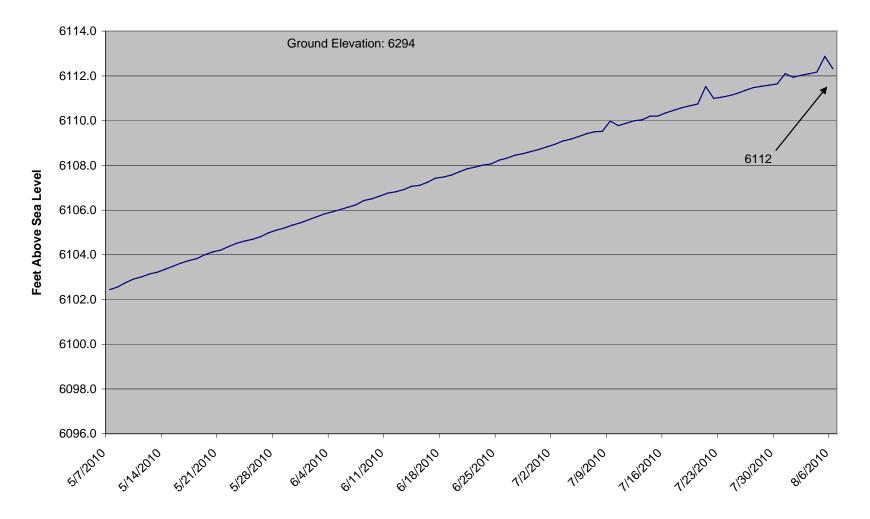
Ground Elevation: 6536 ft.

#### Meyer WW Permit # 248862 Static Water Level from 6/24/05 to 8/6/10

Ground Elevation: 6575 ft.

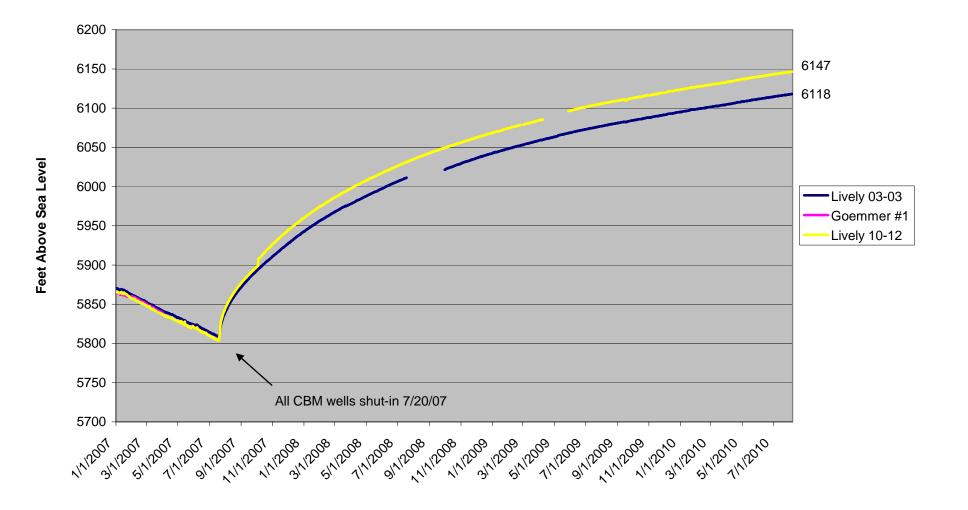


#### T. Gonzales WW, Permit #285651, City Ranches Lot 79A Static Water Level from 5/7/10 to 8/06/10

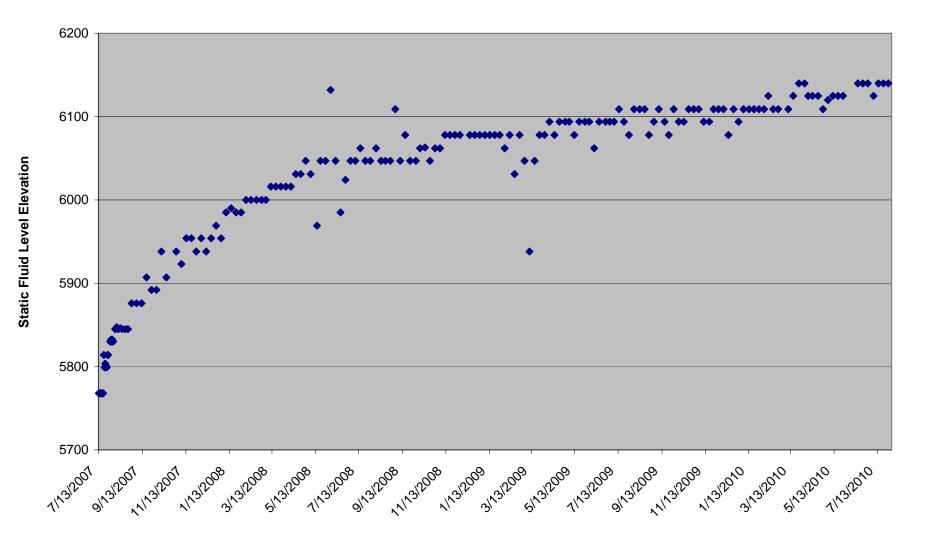


Attachment 3 Fluid Levels in Petroglyph Production Wells

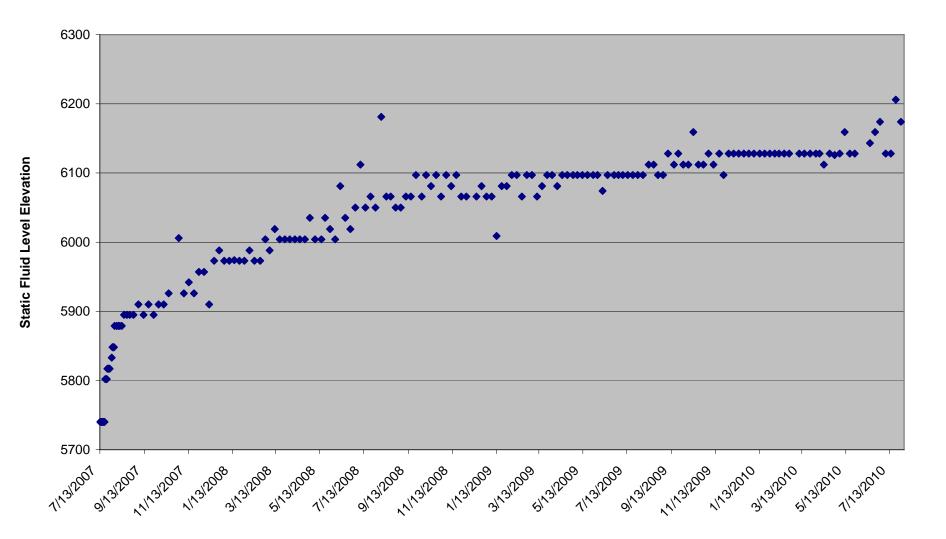
# Vermejo/Trinidad Monitor Wells Static Water Level from 1/1/07 to 8/6/10

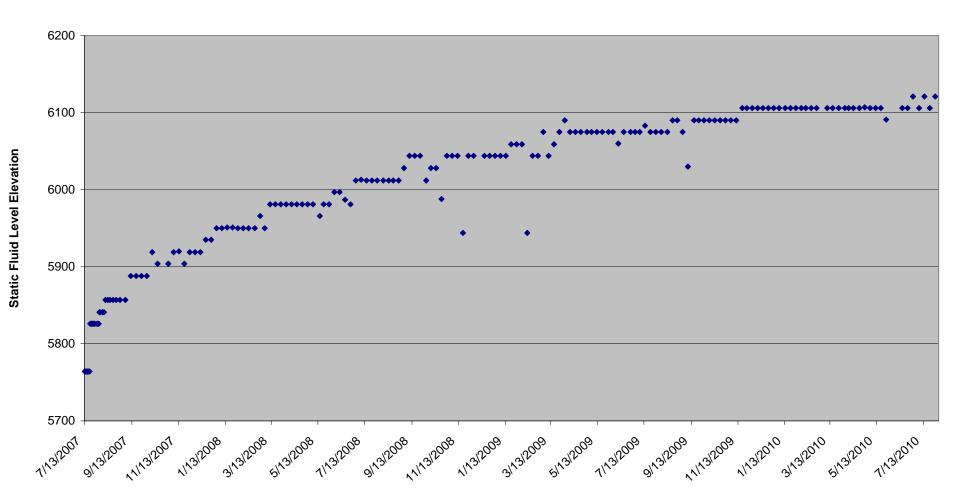


# Lively 02-02 7/13/07 thru 7/28/10 Wells shut down 7/20/07



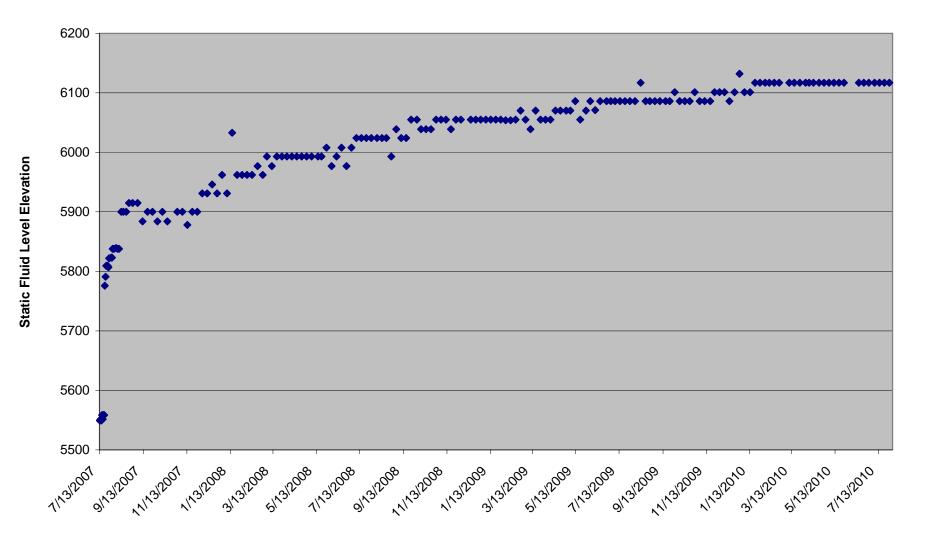
## Lively 02-12 7/13/07 thru 7/28/10 Wells shut down 7/20/07



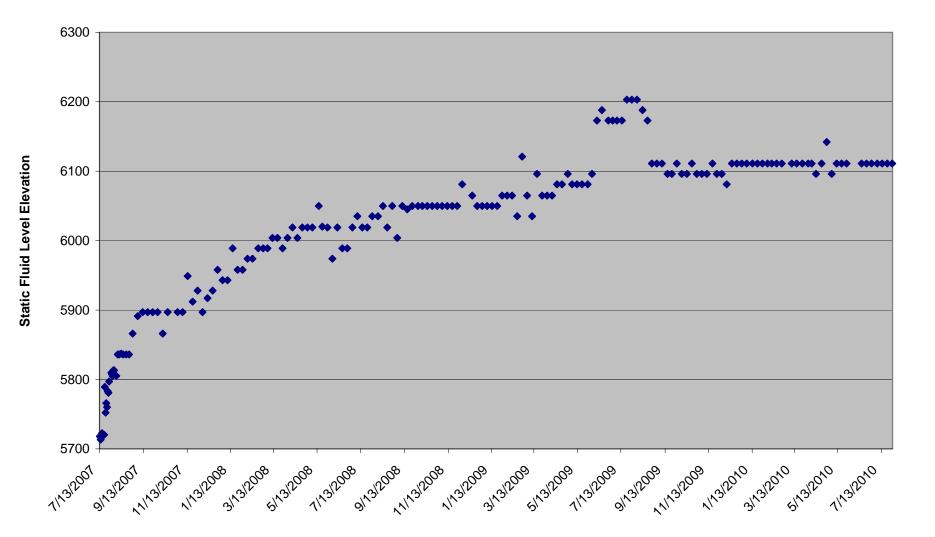


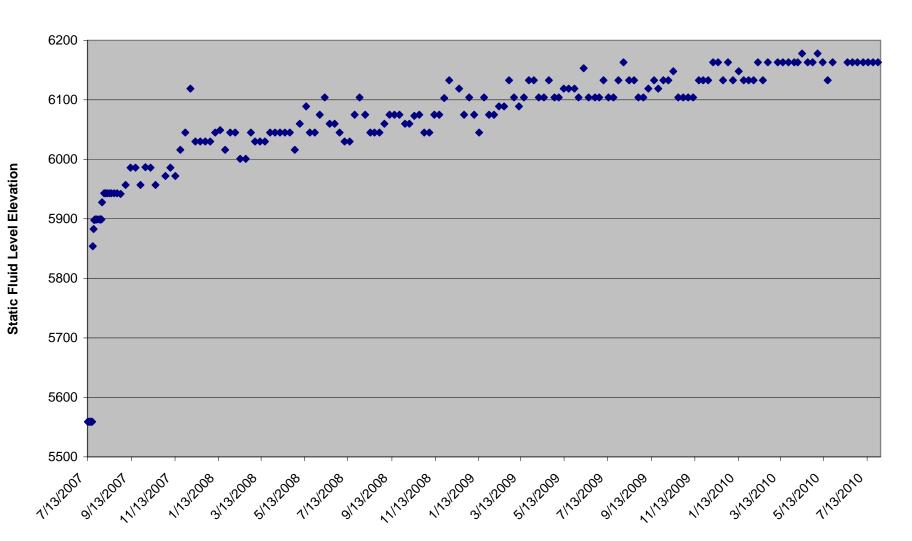
#### Lively 03-01 7/13/07 thru 07/28/10 Wells shut down 7/20/07

#### Lively 03-10 7/13/07 thru 7/28/10 Wells shut down 7/20/07



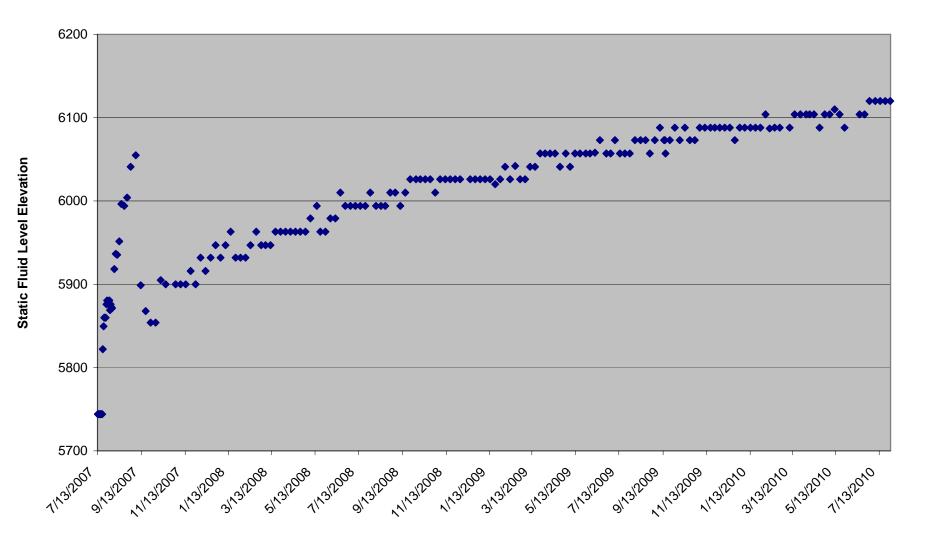
# Lively 03-12 7/13/07 thru 7/28/10 Wells shut down 7/20/07



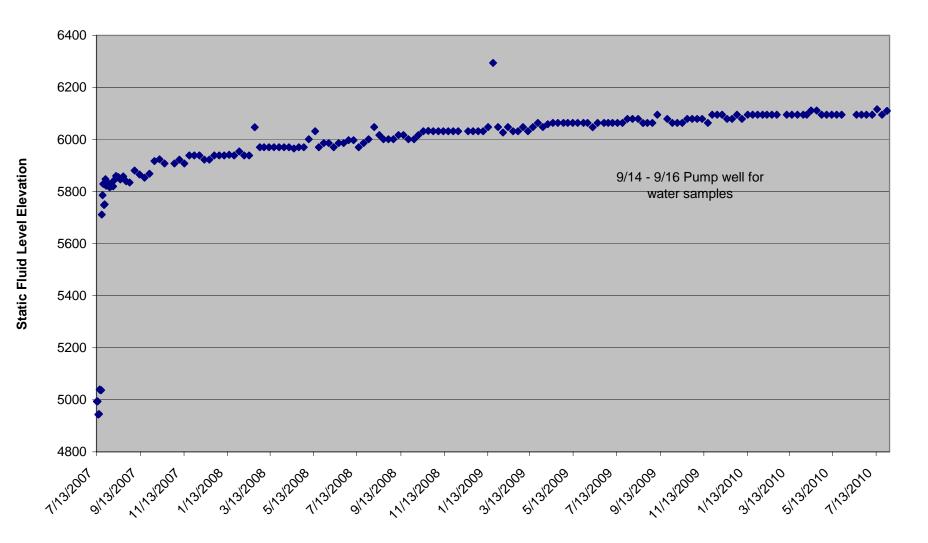


# Lively 10-04 7/13/07 thru 7/28/10 Wells shut down 7/20/07

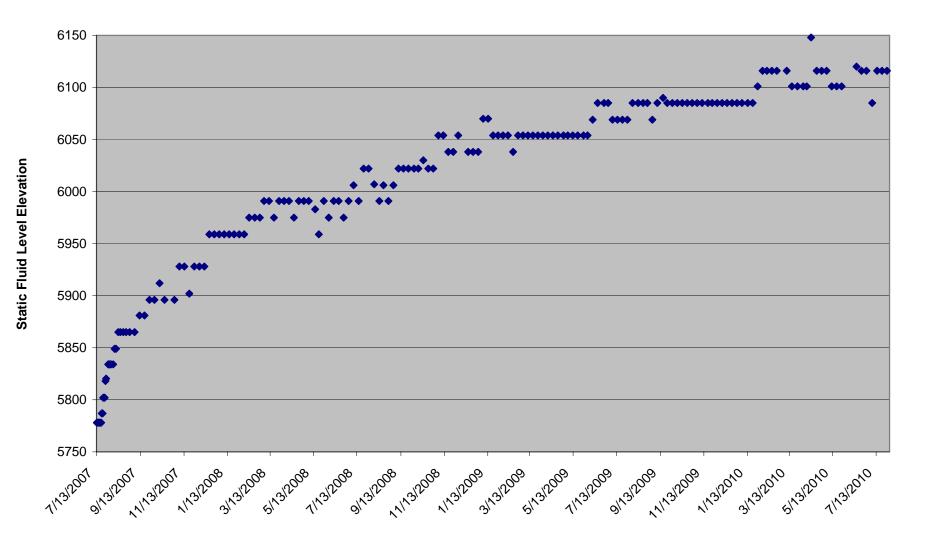
### Rohr 04-10 7/13/07 thru 7/28/10 Wells shut down 7/20/07



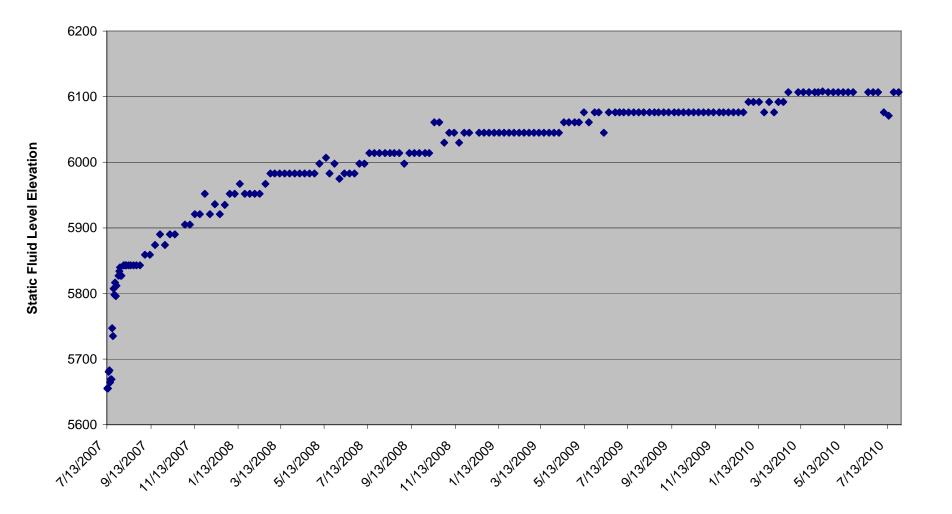
#### Rohr 09-10 7/13/07 thru 7/28/10 Wells shut down 7/20/07



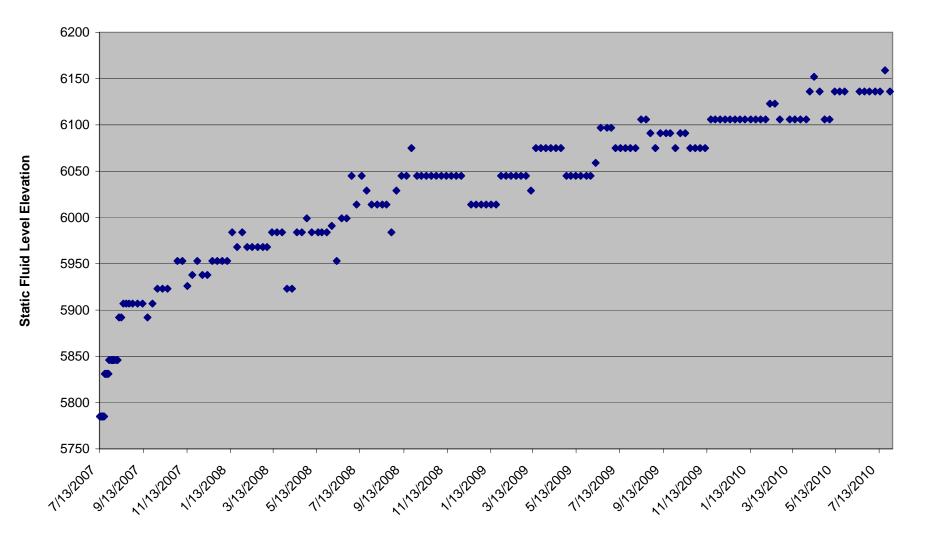
#### State 36-02 7/13/07 thru 7/28/10 Wells shut down 7/20/07



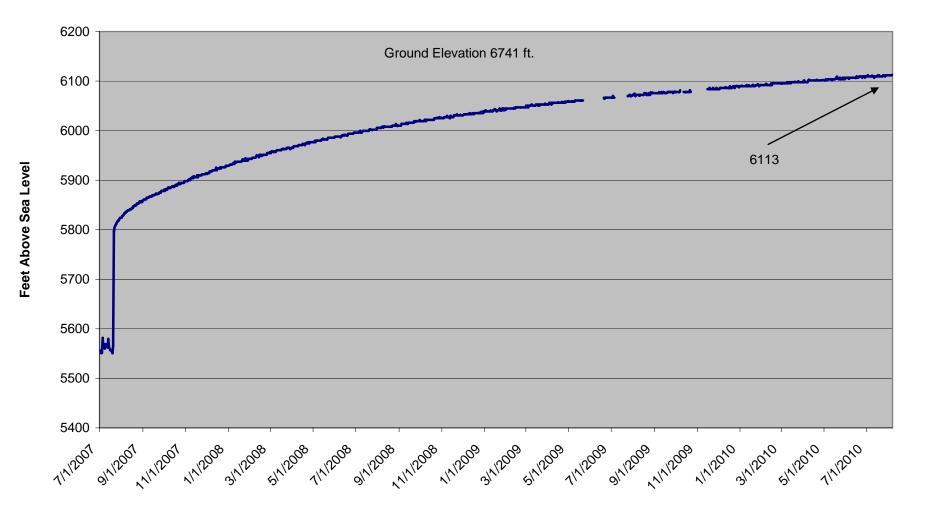
# State 36-05 7/13/07 thru 7/28/10 Wells shut down 7/20/07



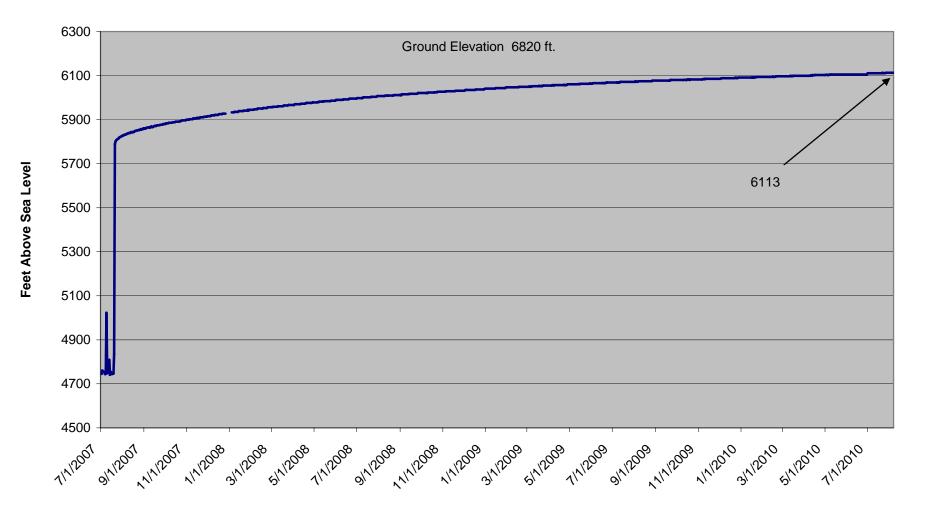
### State 36-11 7/13/07 thru 7/28/10 Wells shut down 7/20/07



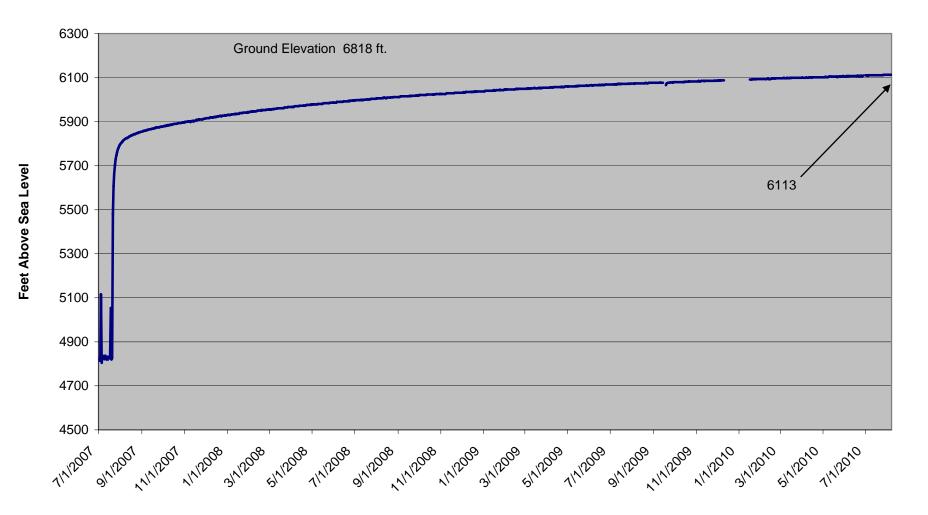
Rohr 04-14 CBM Well Static Water Level from 7/1/07 to 8/6/10 Well shut-in 8/6/07



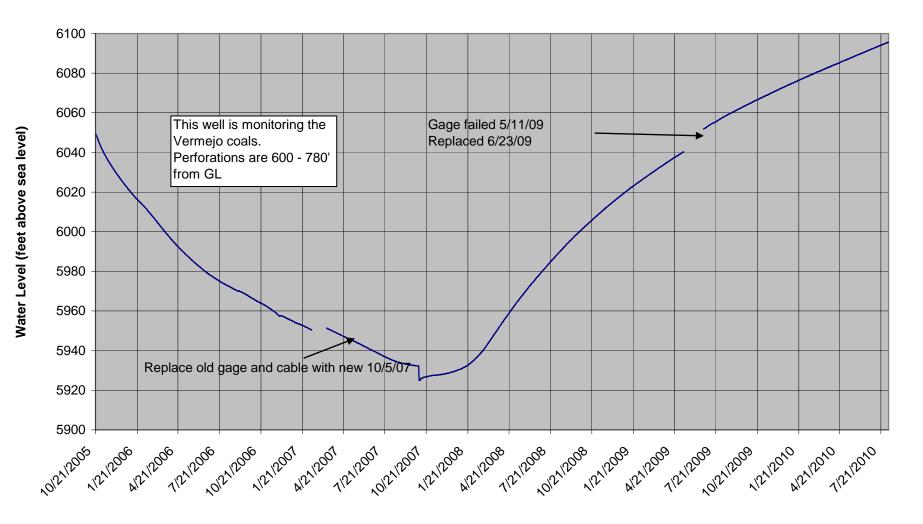
Rohr 08-01 CBM Well Static Water Level from 7/1/07 to 8/6/10 Well shut-in 7/20/07



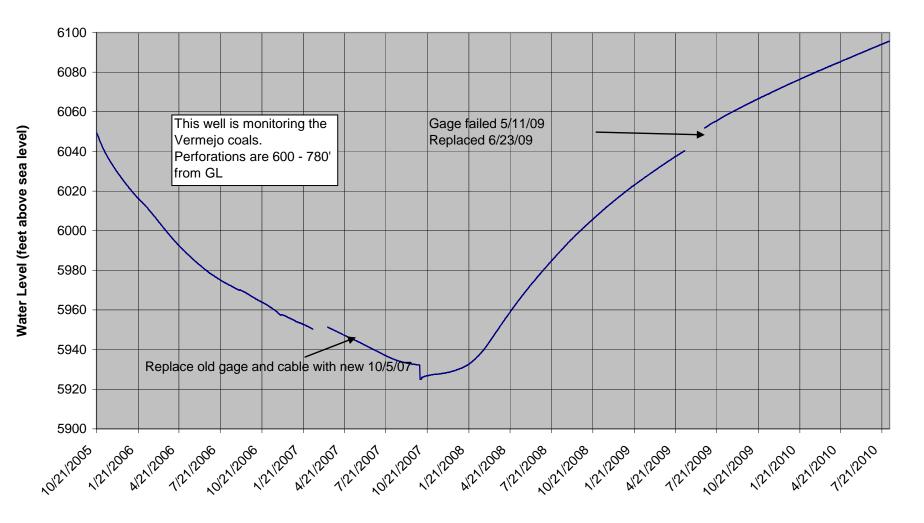
Rohr 09-04 CBM Well Static Water Level from 7/1/07 to 8/6/10 Well shut-in 7/20/07



# Pearson 19-16 Monitor Well API # 05 055 6293 00 SE SE Sec 31 T27S R66W FL from 10/21/05 to 8/6/10

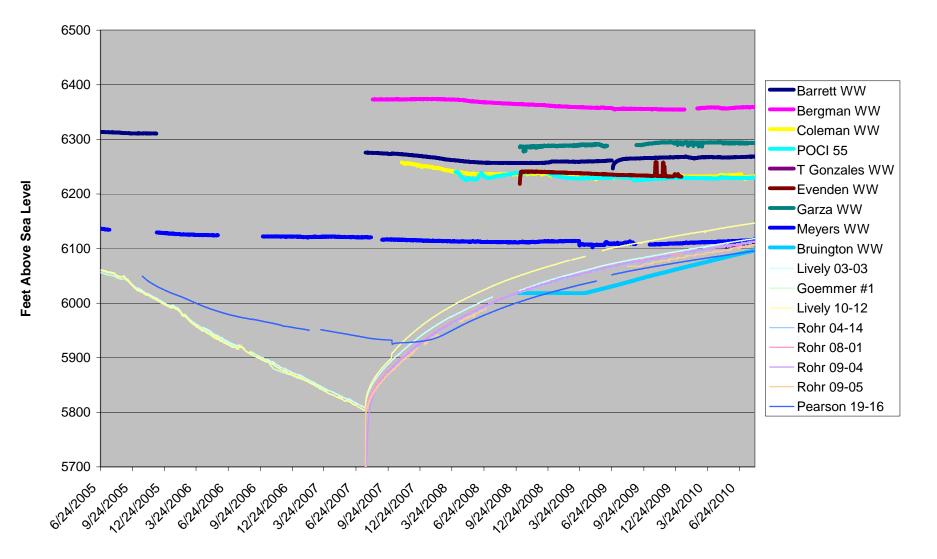


# Pearson 19-16 Monitor Well API # 05 055 6293 00 SE SE Sec 31 T27S R66W FL from 10/21/05 to 8/6/10

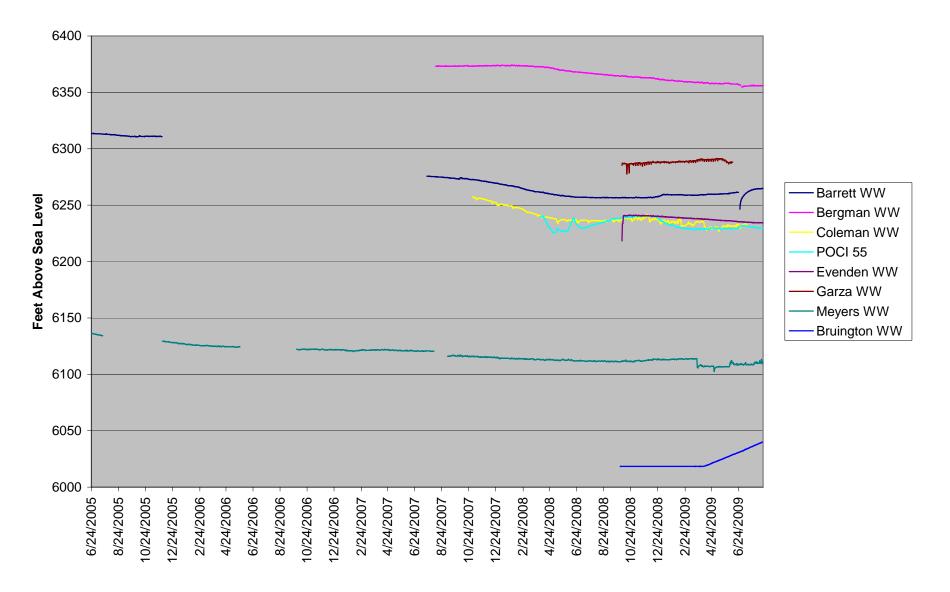


# Attachment 4 Comparison of Fluid Levels in Production Wells and Private Wells

# CBM and Domestic WW, Water Levels from 6/24/05 to 8/6/10



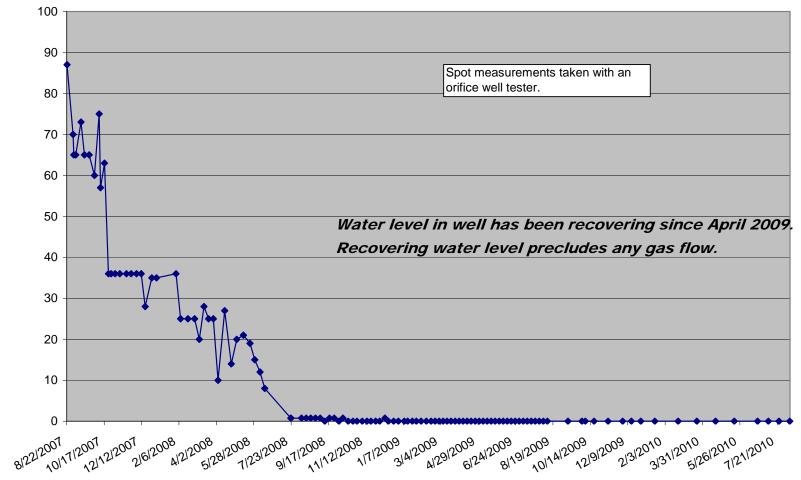
# **Domestic Water Wells Water Levels**



Summary of Production Well Water Levels and Private Well Water Levels						
Well Name	Permit or API #	Ground Elevation ( ft above mean sea level)	Depth of Pressure Sensor (ft)	Formation	General Location	Well Status
Barrett	257994	6707	750	Poison Canyon	In mitigation ring	non-active domestic well
Bergman	244403	6690	400	Poison Canyon	In mitigation ring	non-active domestic well
Coleman	267694	6848	823	Poison Canyon	In mitigation ring	active domestic well
Meyers	248862	6575	600	Raton	Outside 1 mile radius of mitigation ring	non-active domestic well
POCI 55	275819	6690	595	Poison Canyon	In mitigation ring	monitor well
Bruington	210526	6335	320	Vermejo	City Ranch near outcrop	non-active domestic well
Evenden	221465	6712	514	Vermejo-Trinidad	Silver Spurs Ranch near outcrop	active domestic well
Garza	206886	6536	288	Trinidad	Silver Spurs Ranch near outcrop	active domestic well
Lively 03-03	222539	6647	995	Trinidad	Within 1 mile radius of mitigation ring	Exploratory O&G well converted to water well (non-active)
Lively 10-12	55-06150	6825	1480	Vermejo	In mitigation ring	CBM monitor well
Goemmer #1	16861-F	6826	995	Trinidad	In mitigation ring	Exploratory O&G well converted to water well (non-active)
Rohr 04-14	55-06291	6741	2186	Vermejo-Trinidad	Within 1 mile radius of mitigation ring	Shut-in CBM well
Rohr 08-01	55-06292	6820	2365	Vermejo-Trinidad	Within 1 mile radius of mitigation ring	Shut-in CBM well
Rohr 09-04	55-06290	6818	2273	Vermejo-Trinidad	Within 1 mile radius of mitigation ring	Shut-in CBM well
Rohr 09-05	55-06289	6851	2285	Vermejo-Trinidad	Within 1 mile radius of mitigation ring	Shut-in CBM well
Pearson 19-16	55-06293	6557	1000	Vermejo	Outside 1 mile radius of mitigation ring	CBM monitor well

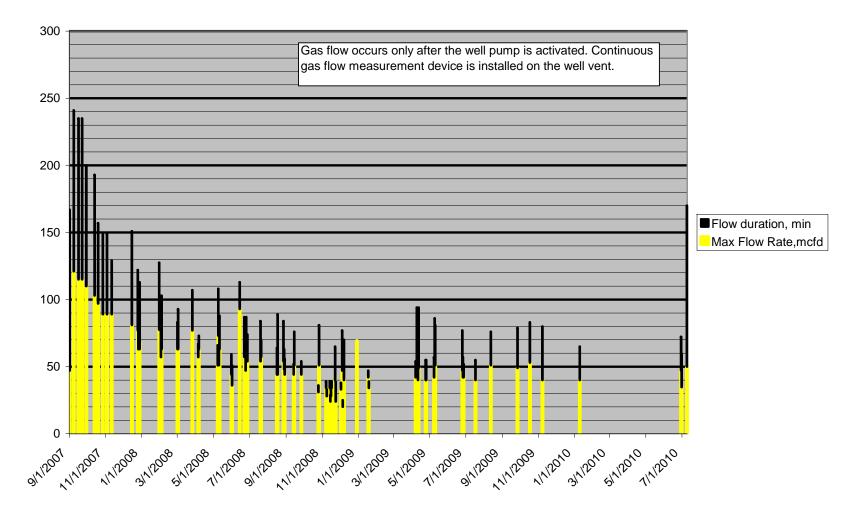
Attachment 5 Gas Flow Measurements at Bruington, Coleman, Angely, Bounds, and Smith

# Bruington WW # 210526 Measured Gas Flow from 8/22/07 to 8/8/10

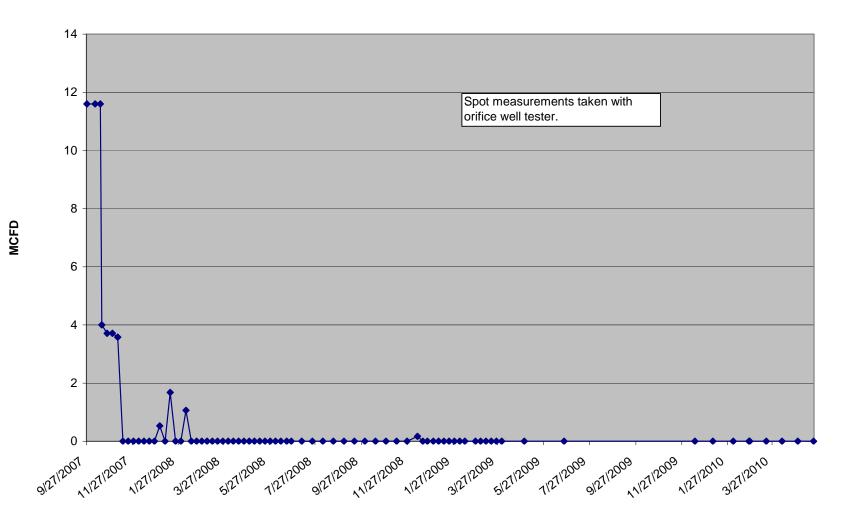


MCFD

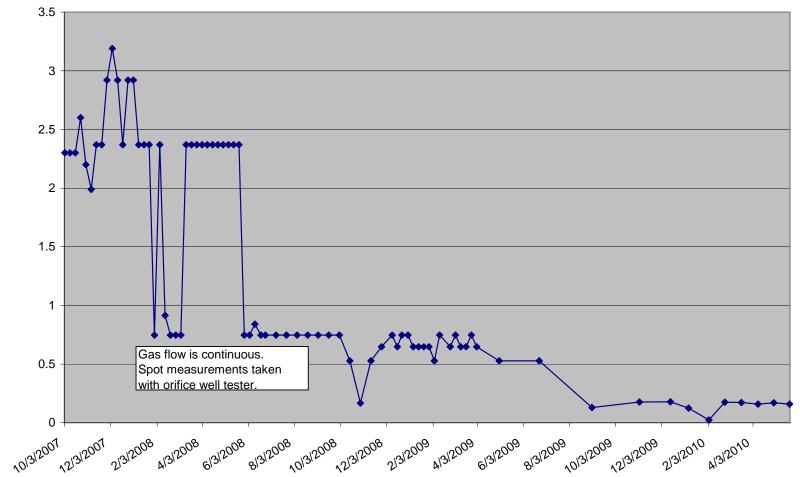
### Coleman WW #267294 Measured Gas Flow from 9/1/07 to 7/9/10



# Angely WW # 238689 Measured Gas Flow from 9/27/07 to 5/21/10

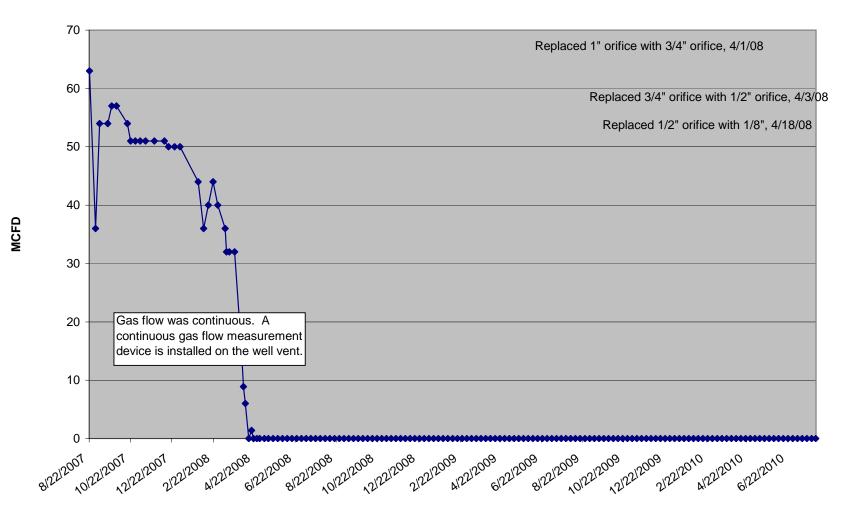


# Bounds WW #181278 Measured Gas Flow from 10/3/07 to 5/21/10



MCFD

#### Smith WW # 239657 Measured Gas Flow from 8/22/07 to 8/2/10



Attachment 6 Gas Concentrations in Private Water Wells near the Mitigation Project

