COMPLIANCE / ENGINEERING / REMEDIATION

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September 30, 2013

Ms. Karen Spray
Colorado Oil and Gas Conservation Commission
P.O. Box 2651
Durango, Colorado 81302-2651

Mr. Daniel Fauth
BP America Production Company
380 A Airport Road
Durango, Colorado 81303

RE: 4M Operations and Maintenance Report July 2012 through June 2013

Dear Ms. Spray and Mr. Fauth:

LT Environmental, Inc. (LTE) is pleased to submit this Operations and Maintenance (O&M) Report for the 4M Outcrop Mitigation Project in La Plata County, Colorado, to BP America Production Company and the Colorado Department of Natural Resources (DNR) Colorado Oil and Gas Conservation Commission (COGCC). This report includes the period of June 29, 2012, to June 28, 2013.

Background

The objective of the 4M methane mitigation system is to demonstrate the technical viability to recover and use the methane seepage at specific locations where it seeps to the surface along the Fruitland Formation Outcrop. An additional goal of the mitigation system is to help protect the environment, which includes reducing carbon emissions and improving plant growth. To accomplish this objective, LTE designed and installed vapor collection and barrier systems for methane collection at the South Fork Texas Creek (SFTC) site (Figure 1) and Pine River Ranches (PRR) site (Figure 2). At the SFTC site, the recovered methane is being used to fuel a turbine, which is generating electricity to operate the collection system. The turbine is returning the excess generated power to the local electrical grid for credit as a renewable energy resource. Methane concentrations are too low to combust at the PRR site, so recovered methane is vented to the atmosphere. The initial design, installation, and startup of the 4M methane mitigation systems were completed in 2008 and 2009. Prior O&M operations beginning May 2009 are detailed in previous O&M reports completed by LTE.

During June 2010, the SFTC system was expanded in order to increase methane collection. A collection liner designed to direct vapors into the existing collection system was installed beneath the creek, and 32 diagonal well points were installed along the creek and piped into the existing manifold. In addition, gas from a COGCC monitoring well was piped to the collection system. This source was not sustainable and the line was shut-in and the well returned to monitoring status in late 2010.

The Pine River system was changed to a passive venting system on July 6, 2012. The blower was shut down and valves adjusted to allow recovered methane within the subsurface piping to vent. A wind driven turbine ventilator was added to the system stack to assist with methane venting. The vegetation was observed for negative effects from methane seepage. Field instrumentation was used to monitor methane concentrations in the ventilation piping.

Mitigation System Operation and Maintenance

Routine system operations are conducted at both sites. O&M activities included maintaining the equipment per manufacturer instructions, collecting data used to evaluate system performance, and adjusting the operating parameters to optimize system effectiveness. Operational parameters were recorded and included methane and oxygen concentrations in the collected gas, operational hours for the blower and turbine generator, applied vacuum to the subsurface piping, and electrical generation by the turbine.

Activities conducted during the reporting period included:

- Routine O&M activities to monitor and adjust system performance;
- Field screening the inlet gas quality;
- Reviewing gas quality measurements stored in the data loggers and obtaining weather station data;
- Changing oil, oil filters, an oil separator, and a coalescing filter in the gas compressor system;
- Changing the air filter on the turbine; and
- Conducting non-routine O&M services and troubleshooting as described below.

Beginning in the middle of November 2012 the SFTC system operation time decreased, resulting from operational issues reported as fuel faults in the system. Troubleshooting the system showed that the turbine was receiving gas at the correct concentrations and pressure and that the issue was the result of the turbine malfunctioning internally. A technician from the turbine manufacture's representative, Pumps and Service out of Farmington, NM, determined that the fuel faults were caused by a bad igniter and a clogged internal fuel filter. The igniter was replaced and the fuel filter was cleaned and subsequently replaced resulting in continued consistent operation.

Other problems that have decreased system efficiency at SFTC include periodic weather related electrical grid power outages. Also, decreased gas discharge pressure due to a leaking gasket on an inline coalescing filter occurred. This gasket was replaced and no additional shutdowns from lowered discharge pressure occurred.

Operations Summary

During normal operation, gas composition and flow remained fairly consistent at both sites, with better gas quality recorded at the SFTC system. During the reporting period, methane concentrations remained relatively stable (approximately 99 percent [%]) at the SFTC site (Figure 3). At the PRR site, methane concentrations increased to 27% in February 2013, but were back down to 1.45% in June 2013 (Figure 4). O&M data are provided in Table 1 for the SFTC site and in Table 2 for the PRR site.

The percentage of methane gas recovered was measured at both sites. At the SFTC site a methane flow rate was calculated using the methane concentrations and total metered flow. The average flow rate and cumulative recovered methane are plotted over time on Figure 5 for the SFTC site. Typically collected gas flow was approximately 300 cubic feet per hour (cfh).

The SFTC system produces the gas needed to operate the turbine, and excess gas is re-circulated within the compression system. The turbine generator was set at 11 kW output following operational difficulties encountered during 2011. With optimum system operation utilizing approximately 6 kW of electrical power, the remaining 5 kW are distributed back into the electrical grid for a net gain.

The system operation commenced on May 5, 2009 with an electrical meter reading of 51,540 kilowatt-hours (kW-h). From startup to March 2011, the electrical meter reading was reduced to zero then the meter rolled to 99,999 kW-h. On June 28, 2013, the reading was 14,308 kW-h. These readings indicate 137,232 kW-h have been returned to the grid since system operation commenced (Figure 6). The value of the electricity generated to date has been used to offset electrical usage at the Pine River site and to pay for administrative fees associated with the SFTC electrical service. The remainder of the net generation is held as a credit for the electrical service to the two facilities.

Vegetation Observations

Plant growth at both sites has occurred in areas previously devoid of vegetative growth. At the SFTC site, the edges of the liners are evident due to an absence of vegetation where excess methane seeps from beneath the liner. Minimal precipitation in 2013 had led to less plant growth than the prior year. At the Pine River site, the location of the vent piping is not obvious, as an overall decrease in methane seepage has been observed.

A report detailing the progress following the SFTC June 2010 system expansion was provided to the Army Corps of Engineers in December 2012, in accordance with the permit obtained to allow creek disturbance and installation of the methane barrier under the creek. During a site visit on June 13, 2012 LTE observed low flow conditions observed in Texas Creek due to drought. By July 2012, and through December 2012, Texas Creek did not contain any surface flow. The lack of water affected vegetation not only in the area of temporary impact, but also in Texas Creek upstream and downstream of the Site.

LTE believes the 0.021 acres of palustrine emergent wetlands and 0.025 acres of water below the OHWM of the South Fork of Texas Creek have been restored; and upon return of natural moisture, the vegetation at the Site will recover to its pre-impact condition.

During June 2013, the vegetation appears to remain effected by extreme drought conditions in the region. Plant growth in the wetland area shows signs of stress due to drought conditions. The condition of the vegetation in the wetland area is consistent with vegetation all along the South Fork of Texas Creek showing signs of drought related stress. The liner is visible in two small locations adjacent to the creek. The lack of moisture in the area has resulted in wind erosion of a sandy top layer. However, the integrity of the liner does not appear to be compromised.

Weather Data

The weather station currently in use was installed in June 2010. The weather station was installed to monitor conditions that may affect methane recovery and system operation. Currently, the system operation does not appear to be limited by the volume of methane recovered or affected by variable weather conditions. The daily maximum and minimum temperatures (Figure 7), monthly precipitation (Figure 8), and the daily barometric pressure values (Figure 9) are provided.

Planned Activities

The electrical generation results, along with visual observations of vegetation growth, suggest the methane mitigation system is operating successfully. During the next reporting period, the SFTC system will continue operation to optimize electrical generation. Closer monitoring of moisture buildup within the system and monitoring of H_2S concentrations are planned.

Further investigation of ways to improve system performance will be accomplished. The pine River system will continue to be monitored for methane concentrations in the lines and any changes to the vegetation.

LTE appreciates the opportunity to provide these services to the COGCC and BP America. Please call us at 303-433-9788 if you have any questions or comments regarding this report.

Sincerely,

LT ENVIRONMENTAL, INC.

Devin Hencmann
Staff Engineer

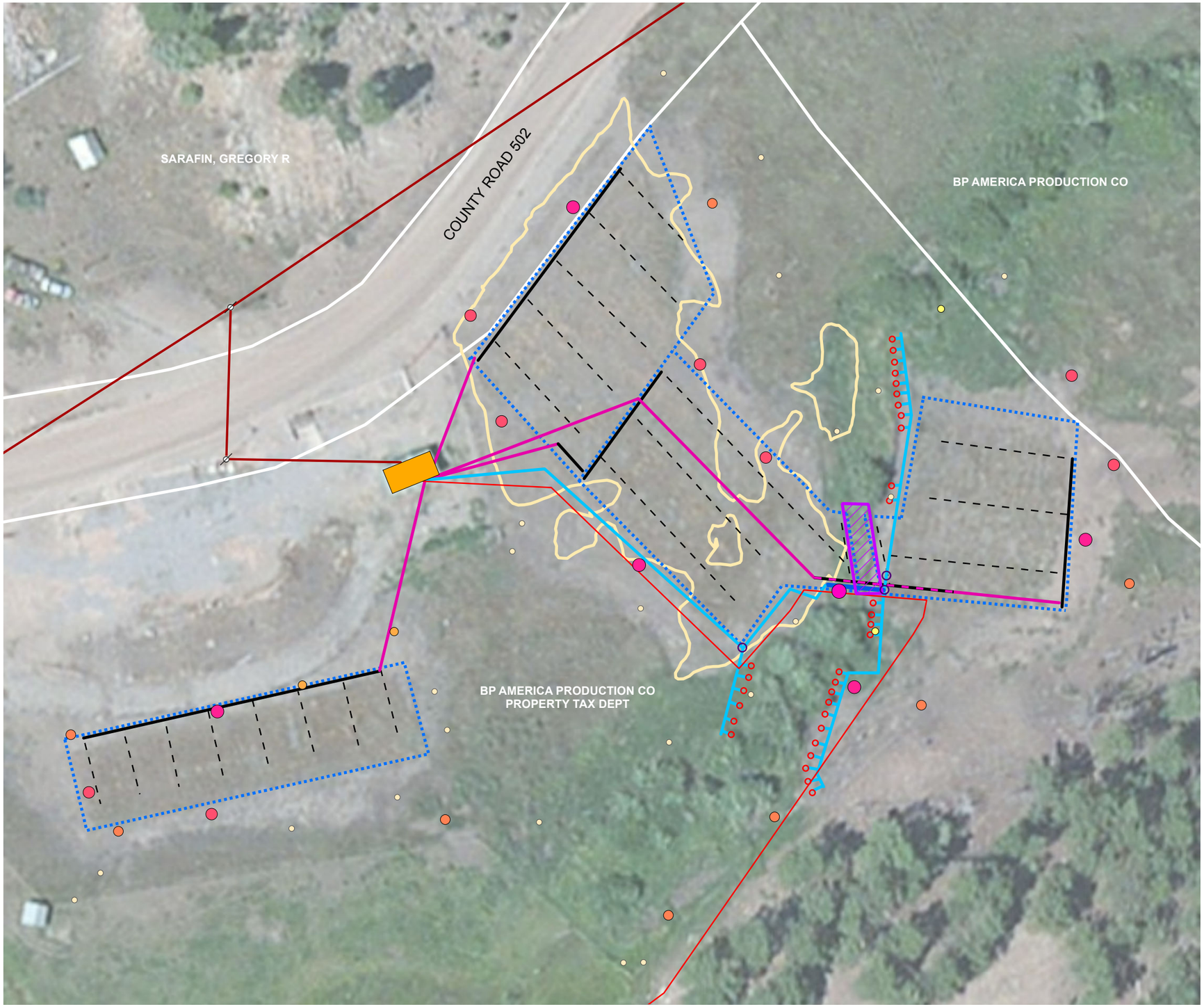
Christopher E. Shephard, P.E.
Project Manager

Attachments:

Figure 1 – Mitigation System Layout South Fork Texas Creek
Figure 2 – Mitigation System Layout Pine River
Figure 3 – South Fork Texas Creek Methane Concentrations
Figure 4 – Pine River Methane Concentrations
Figure 5 – South Fork Texas Creek Methane Gas Flow
Figure 6 – South Fork Texas Creek Surplus Electricity Generated
Figure 7 – Daily Minimum and Maximum Temperature
Figure 8 – Monthly Precipitation
Figure 9 – Daily Barometric Pressure

Table 1 – Operation and Maintenance Data South Fork Texas Creek
Table 2 – Gas Concentrations at Pine River Manifold 2013

FIGURES



LEGEND

- DIAGONAL COLLECTION WELL
- VAULT
- 20 MIL IMPERVIOUS MEMBRANE
- POWER LINE
- EXTENDED METHANE COLLECTION (20 MIL BARRIER)
- PROCESS EQUIPMENT FOOTPRINT
- STRESSED VEGETATION
- PARCEL BOUNDARY & OWNER (WHITE)

2012 METHANE FLUX MEASUREMENT (mol/m ^{2} • day)

- 0.0000 - 0.1999
- 0.2000 - 0.5000
- 0.5001 - 1.0000
- 1.0001 - 10.0000
- 10.0001 - 50.0000
- 50.0001 - 100.0000
- 100.0001 - 5,000.0000

PIPING

- 2" SCH 40 PVC
- 2" SCH 80 PVC
- 3" SCH 40 PVC
- 3" SCH 80 PVC
- 4" ADS CORRUGATED PIPING (SLOTTED)
- 4" ADS CORRUGATED PIPING (SOLID)
- 1" HDPE

0 50 100
Feet

N

FIGURE 1
MITIGATION SYSTEM LAYOUT
SOUTH FORK TEXAS CREEK
4M OUTCROP MITIGATION PROJECT
DURANGO, COLORADO
COLORADO OIL AND GAS CONSERVATION COMMISSION

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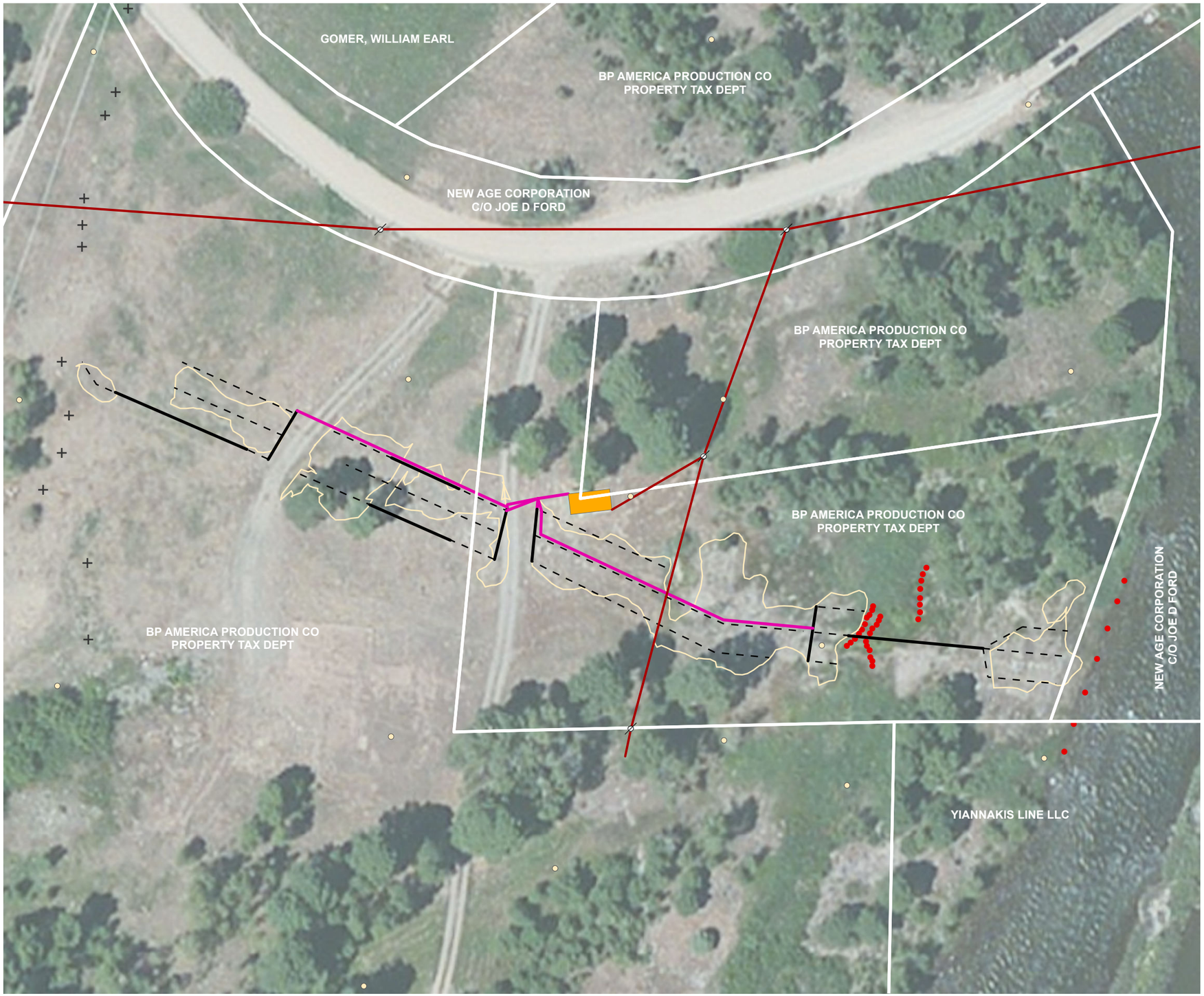

LEGEND

- VISIBLE METHANE SEEPS IN SURFACE WATER
- GAS MONITORING PROBES
- POWER POLE
- PROCESS EQUIPMENT FOOTPRINT
- STRESSED VEGETATION
- PARCEL BOUNDARY & OWNER (WHITE)
- POWER LINE

2012 METHANE FLUX MEASUREMENT (mol/m ^{2} • day)

- 0.0000 - 0.1999
- 0.2000 - 0.5000
- 0.5001 - 1.0000
- 1.0001 - 10.0000
- 10.0001 - 50.0000
- 50.0001 - 100.0000
- 100.0001 - 5,000.0000

PIPING

- 3" SCH 40 PVC
- 4" ADS CORRUGATED PIPING (SLOTTED)
- 4" ADS CORRUGATED PIPING (SOLID)

0 60 120
Feet

N

FIGURE 2
MITIGATION SYSTEM LAYOUT
PINE RIVER
4M OUTCROP MITIGATION PROJECT
DURANGO, COLORADO
COLORADO OIL AND GAS CONSERVATION COMMISSION

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FIGURE 3
SOUTH FORK TEXAS CREEK METHANE CONCENTRATIONS
4M OUTCROP MITIGATION PROJECT
COLORADO OIL AND GAS CONSERVATION COMMISSION

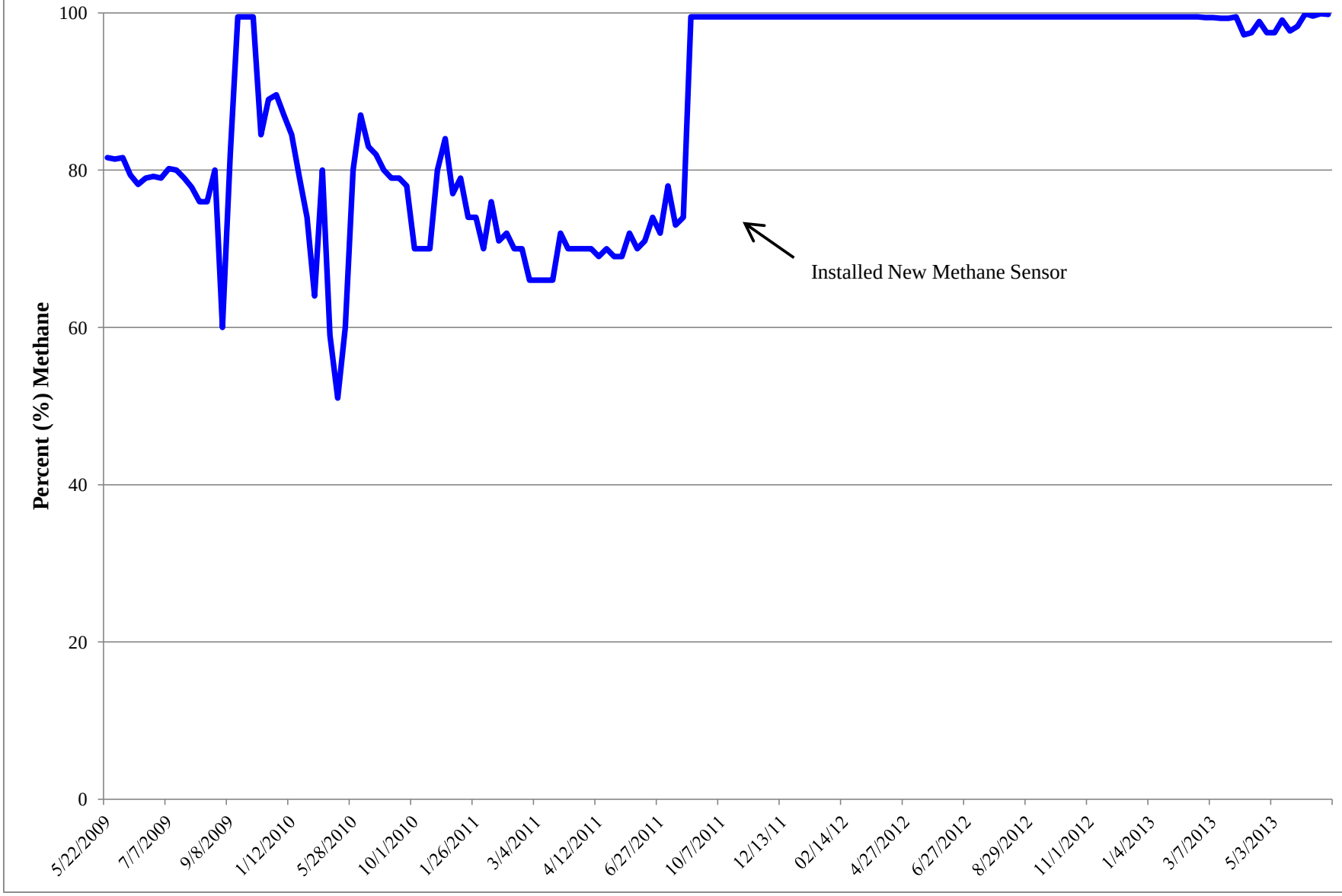


FIGURE 4
PINE RIVER METHANE CONCENTRATIONS
4M OUTCROP MITIGATION PROJECT
COLORADO OIL AND GAS CONSERVATION COMMISSION

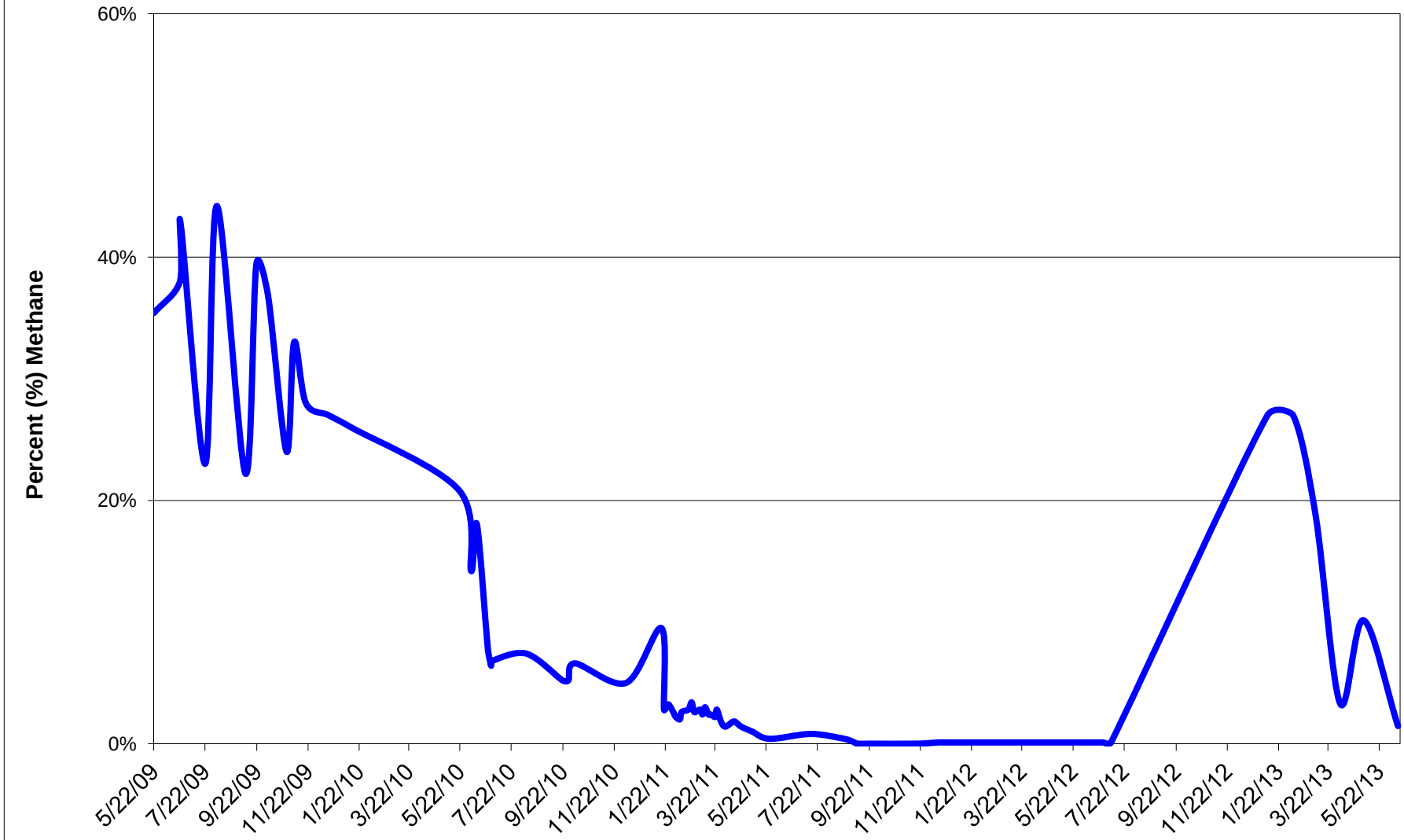


FIGURE 5
SOUTH FORK TEXAS CREEK METHANE GAS FLOW
4M OUTCROP MITIGATION PROJECT
COLORADO OIL AND GAS CONSERVATION COMMISSION

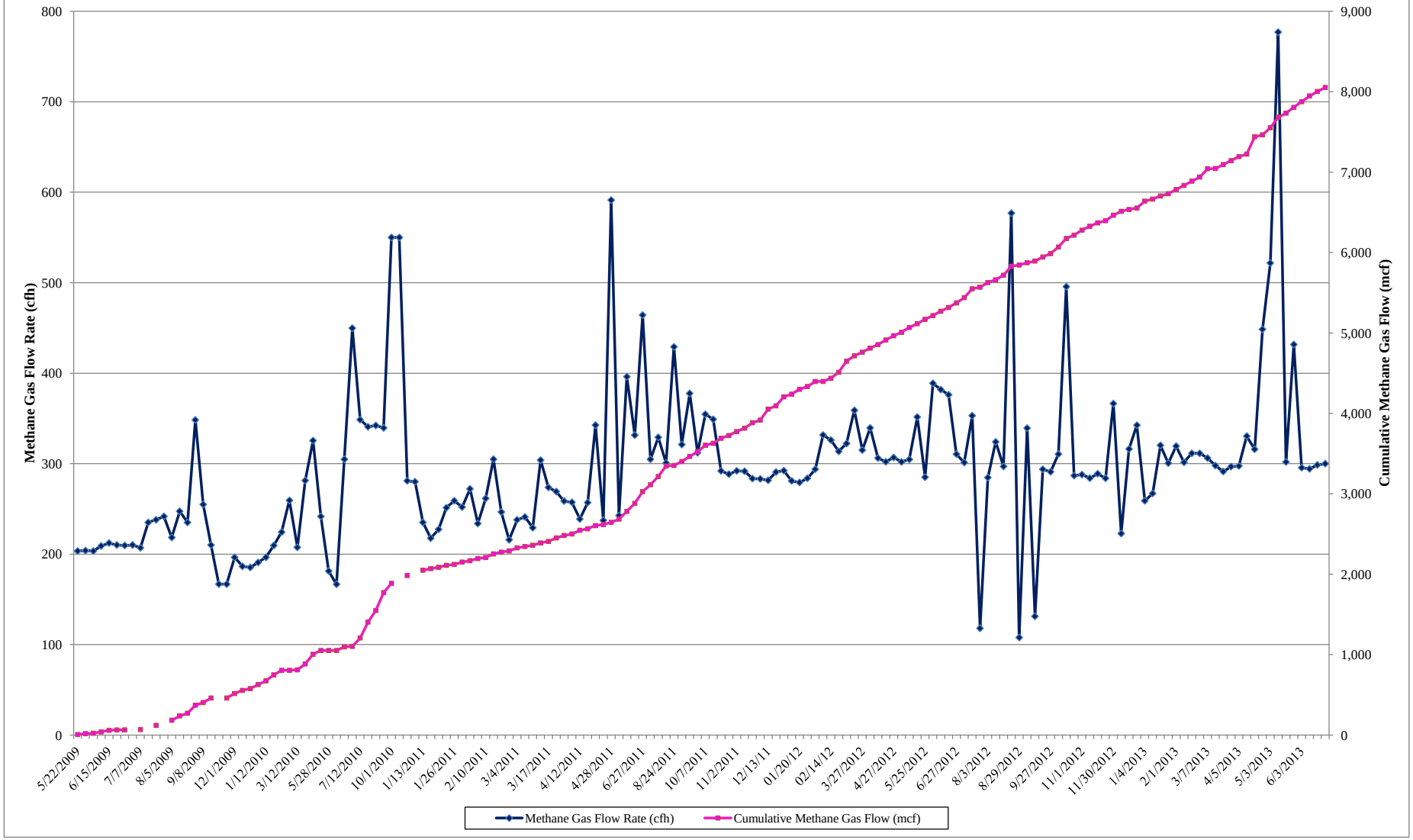


FIGURE 6
SOUTH FORK TEXAS CREEK
SURPLUS ELECTRICITY GENERATED
4M OUTCROP MITIGATION PROJECT
COLORADO OIL AND GAS CONSERVATION COMMISSION

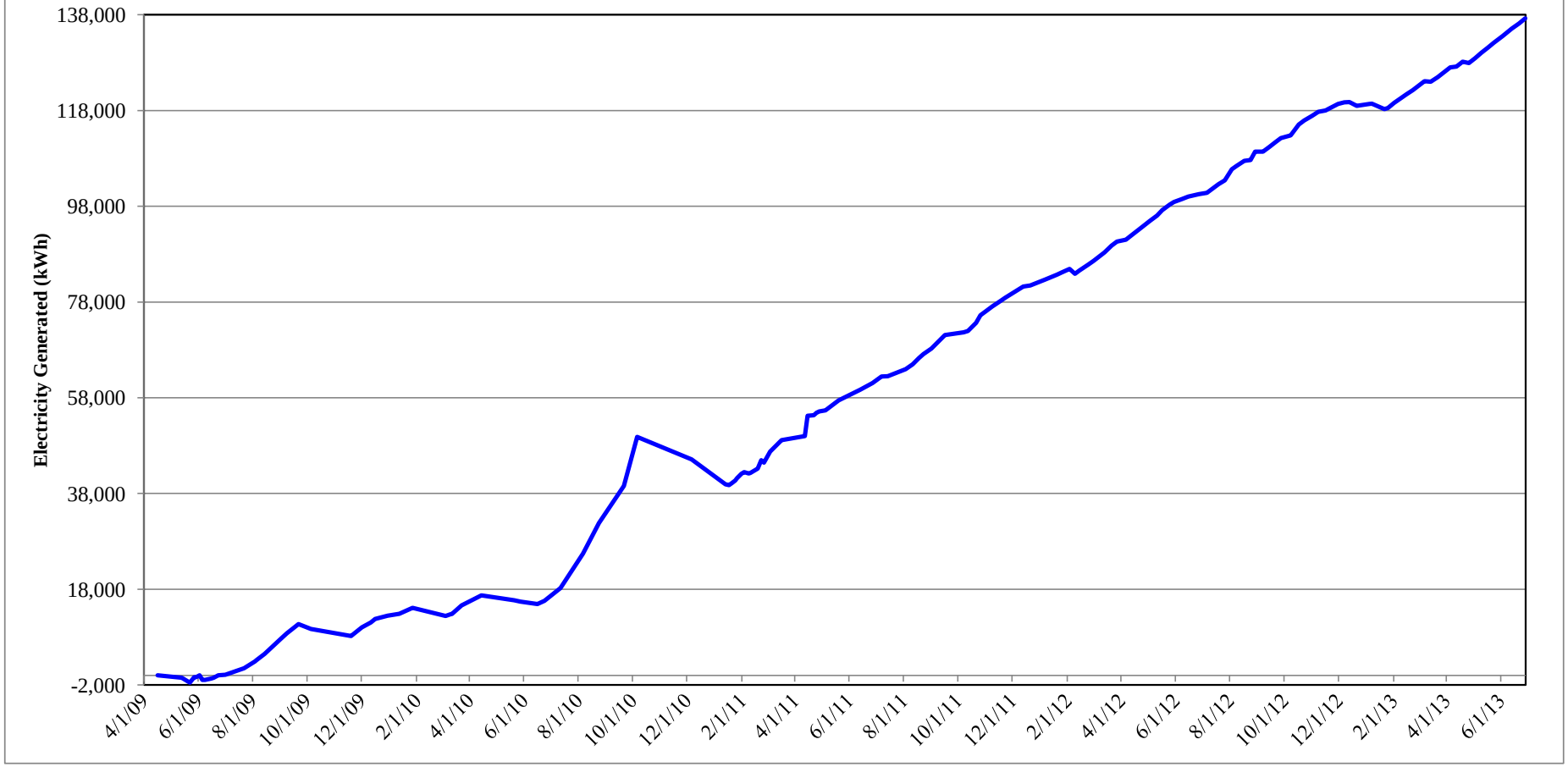


FIGURE 7
DAILY MINIMUM AND MAXIMUM TEMPERATURE
4M OUTCROP MITIGATION PROJECT
COLORADO OIL AND GAS CONSERVATION COMMISSION

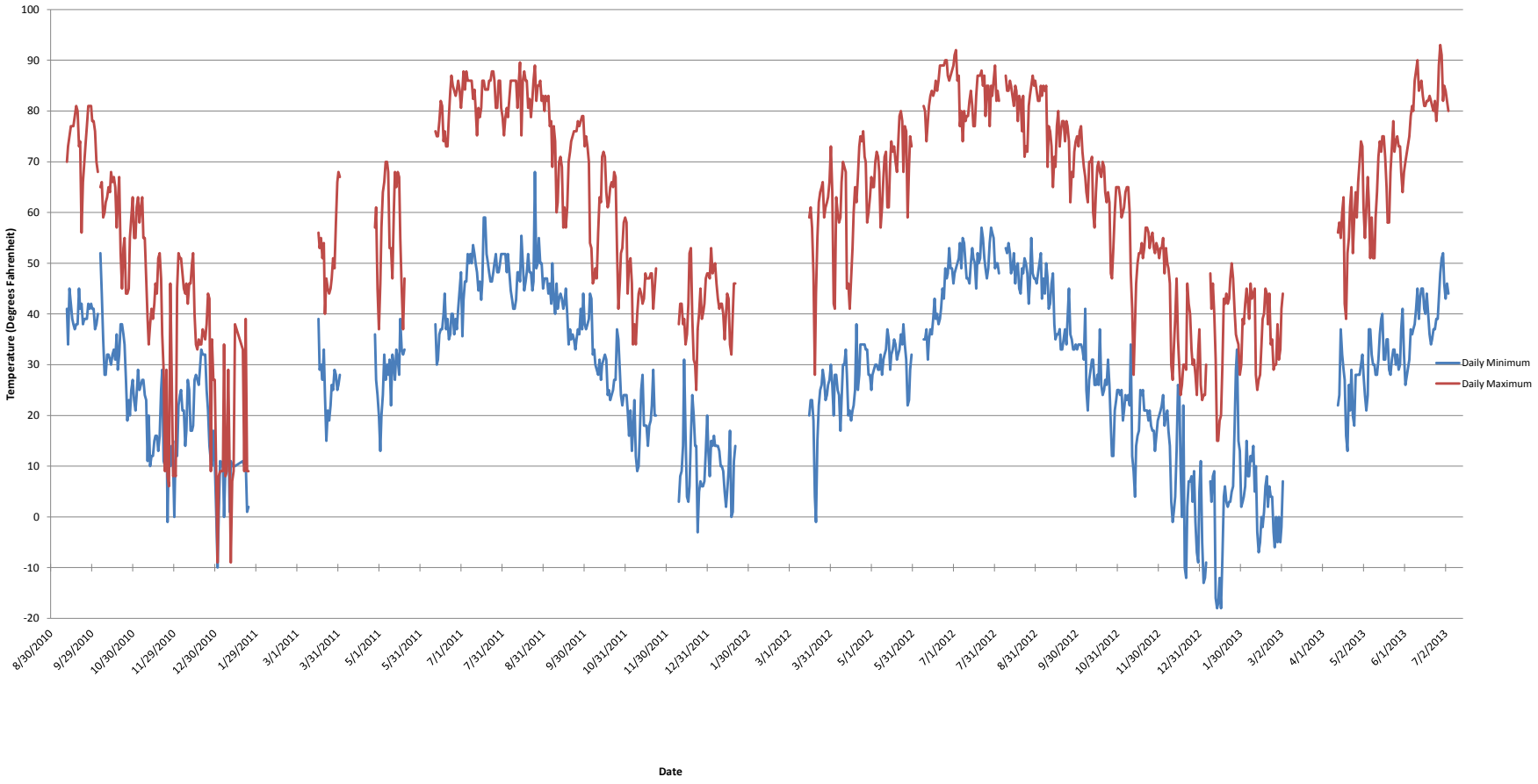


FIGURE 8
MONTHLY PRECIPITATION
4M OUTCROP MITIGATION PROJECT
COLORADO OIL AND GAS CONSERVATION COMMISSION

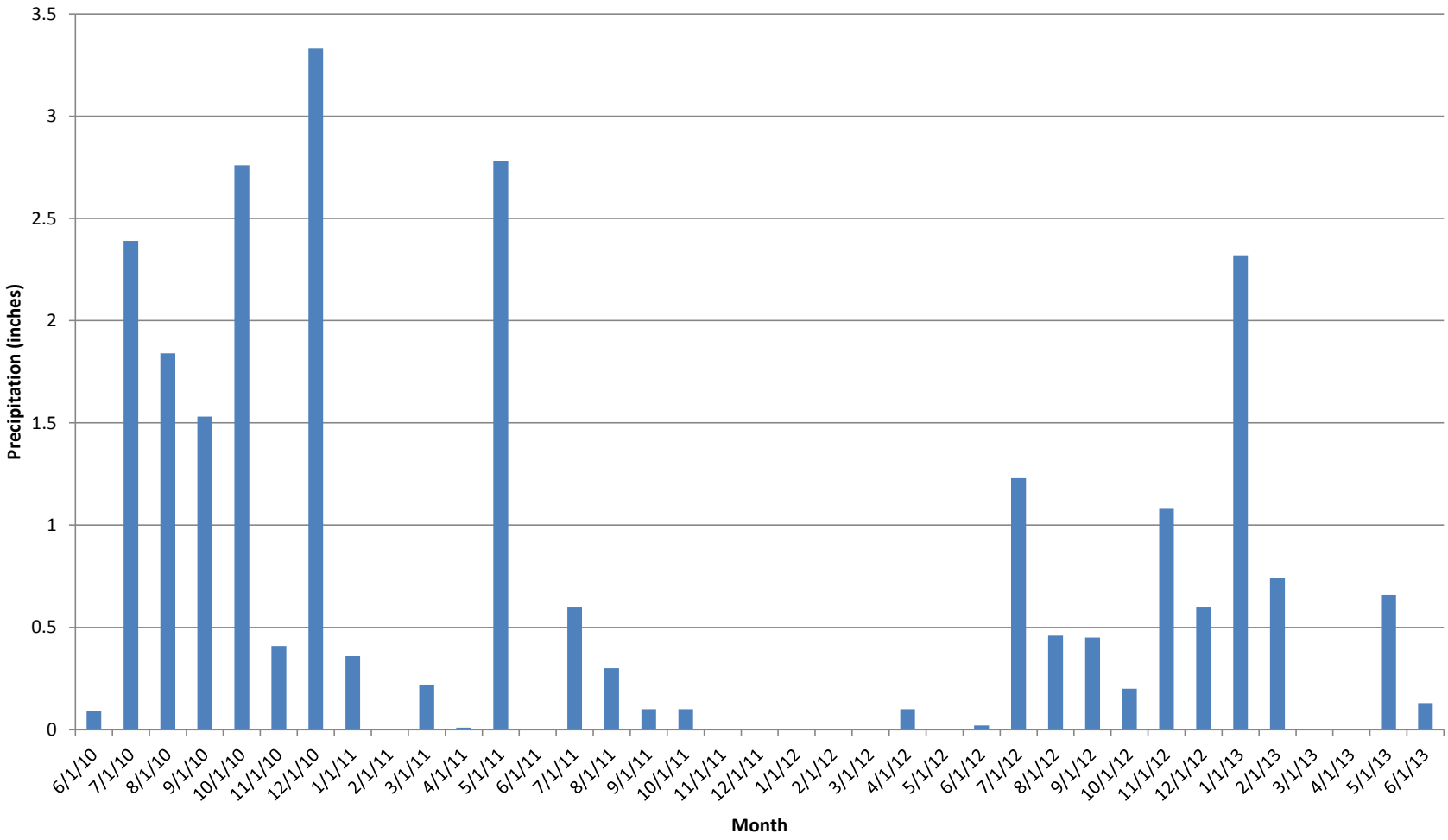
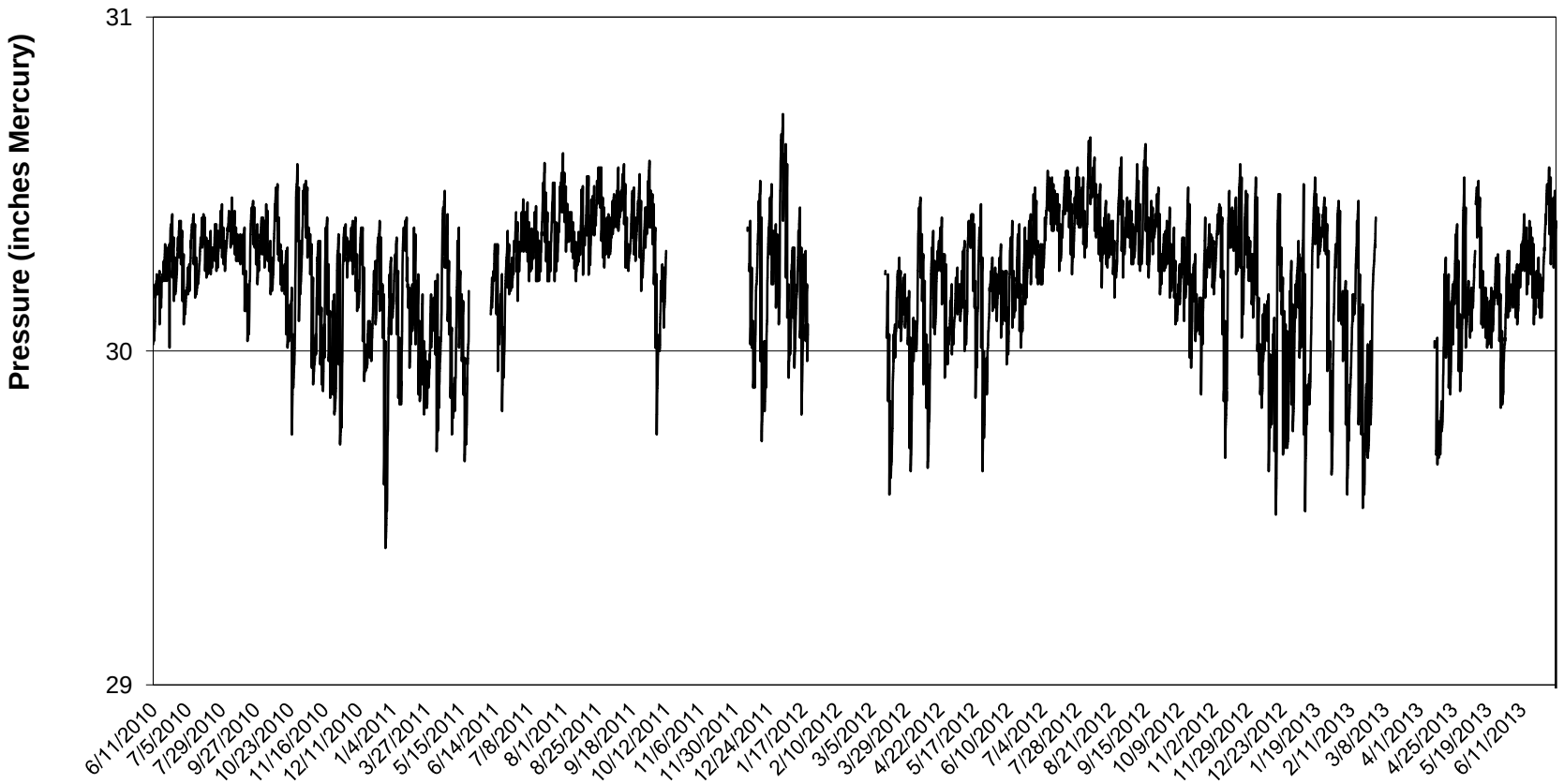


FIGURE 9
DAILY BAROMETRIC PRESSURE
4M OUTCROP MITIGATION PROJECT
COLORADO OIL AND GAS CONSERVATION COMMISSION



TABLES

TABLE 1

OPERATIONS AND MAINTENANCE DATA
SOUTH FORK TEXAS CREEK
4M OUTCROP MITIGATION PROJECT
COLORADO OIL AND GAS CONSERVATION COMMISSION

Date	System Status Upon Arrival	Electric Meter (kW)	Turbine (hours)	Turbine Demand (kW)	From Chart, Btu/hr needed	Compressor (hours)	Methane (%)	Oxygen (% or ppm)	Calculated Methane Flow (scfh)	Cumulative Calculated Methane Recovered (mcf)
5/22/2009	OFF	51,540	34	10	166,000	--	81.6	130	203	7
5/27/2009	OFF	50,355	90	10	166,000	--	81.4	33	204	18
5/29/2009	OFF	50,368	113	10	166,000	--	81.6	15.2	203	23
6/8/2009	OFF	50,967	192	10	166,000	--	79.4	14.9	209	40
6/15/2009	OFF	50,683	286	10	166,000	289	78.2	83	212	59
6/19/2009	OFF	50,510	305	10	166,000	308	79.0	19.8	210	63
6/23/2009	OFF	50,004	310	10	166,000	402	79.2	0.16	210	65
6/25/2009	OFF	--	318	10	166,000	411	79.0	--	--	--
7/7/2009	OFF	50,983	338	10	166,000	431	80.2	51.2	207	69
7/15/2009	ON	--	523	10 to 12	188,000	620	--	--	--	--
7/22/2009	OFF	50,519	558	12	188,000	659	79.0	48	238	121
7/24/2009	OFF	50,365	600	12	188,000	700	--	--	--	--
8/5/2009	ON	46,840	891	10	166,000	993	76.0	5.25	218	185
8/14/2009	ON	45,536	1,106	12	188,000	1,208	76.0	3.25	247	238
8/20/2009	ON	44,501	1,251	12	188,000	1,353	80.0	4.25	235	272
9/2/2009	OFF	42,246	1,538	14	209,000	1,602	60.0	0.39	348	372
9/8/2009	ON	41,236	1,666	14	209,000	1,779	82.0	0.1	255	404
9/21/2009	ON	39,298	1,934	14 to 16	209,000	2,101	99.5	0.1	210	461
10/5/2009	OFF For Repairs	40,322	2,009	OFF	166,000	2,332	--	2.75	--	--
11/19/2009	ON	41,776	1	12	166,000	--	99.5	93 ppm	167	461
12/1/2009	ON	39,960	286	12	166,000	2,623	84.5	1.9 ppm	196	517
12/11/2009	OFF	38,941	495	12	166,000	2,866	89.0	2.0 ppm	187	556
12/16/2009	ON	38,235	615	12	166,000	2,986	89.6	1.8 ppm	185	578
12/29/2009	OFF	37,548	876	12	166,000	3,321	87.0	3.0 ppm	191	628
1/12/2010	OFF	37,127	1,109	12	166,000	3,632	84.5	3.25 ppm	196	674
1/27/2010	ON	35,875	1,469	12	166,000	3,993	79.2	0.1	210	749
3/5/2010	OFF	37,586	1,722	12	166,000	4,246	74.0	0.16	224	806
3/11/2010	OFF	37,217	1,723	12	166,000	4,247	64.0	130 ppm	259	806
3/12/2010	ON	37,172	1,747	12	166,000	4,271	80.0	23.2 ppm	208	811
3/23/2010	ON	35,364	2,009	12	166,000	4,533	59.0	0.1	281	885

TABLE 1

OPERATIONS AND MAINTENANCE DATA
SOUTH FORK TEXAS CREEK
4M OUTCROP MITIGATION PROJECT
COLORADO OIL AND GAS CONSERVATION COMMISSION

Date	System Status Upon Arrival	Electric Meter (kW)	Turbine (hours)	Turbine Demand (kW)	From Chart, Btu/hr needed	Compressor (hours)	Methane (%)	Oxygen (% or ppm)	Calculated Methane Flow (scfh)	Cumulative Calculated Methane Recovered (mcf)
4/14/2010	--	33,275	2,379	12	166,000	4,900	51.0	52 ppm	325	1,005
5/21/2010	OFF	34,290	2,573	8	145,000	5,099	60.0	--	242	1,052
5/28/2010	OFF	34,589	2,573	8	145,000	5,099	80.0	--	181	1,052
6/16/2010	ON	35,119	2,574	8	145,000	5,101	87.0	0.1	167	1,052
6/24/2010	OFF *	34,436	2,720	18	253,000	5,249	83.0	0.1	305	1,097
6/29/2010	ON	34,412	2,733	20	274,000	5,262	82.0	0.1	450	1,102
7/12/2010	ON	31,780	3,035	20	274,000	5,576	80.0	0.1	349	1,208
8/6/2010	ON	24,587	3,613	19.2	265,000	6,171	79.0	0.1	341	1,405
8/24/2010	ON	18,172	4,035	19	265,000	6,605	79.0	0.1	342	1,549
9/21/2010	ON	10,437	4,690	18.1	253,000	7,279	78.0	0.1	340	1,771
10/1/2010	ON	8,260	4,900	18.0	253,000	8,154	70.0	0.1	1251	2,034
12/2/2010	--	3,290	--	--	--	--	--	--	--	--
12/17/2010	OFF	4,901	5,246	12.0	166,000	8,364	70.0	0.1	281	2,131
1/3/2011	--	7,820	--	--	--	--	--	--	--	--
1/13/2011	OFF	10,209	5,592	8.0	145,000	8,574	84.0	0.1	235	2,197
1/17/2011	ON	10,102	5,684	8.0	145,000	8,668	77.0	0.1	218	2,217
1/20/2011	ON	9,869	5,758	9.9	166,000	8,741	79.0	0.1	227	2,234
1/24/2011	ON	9,269	5,854	13.0	199,000	8,838	74.0	0.1	251	2,258
1/26/2011	ON	8,856	5,898	14.9	220,000	8,884	74.0	0.1	259	2,269
1/31/2011	ON	7,872	6,013	14.5	209,000	9,000	70.0	0.1	252	2,298
2/3/2011	OFF	7,549	6,075	12.9	199,000	9,079	76.0	0.1	272	2,315
2/8/2011	ON	6,846	6,191	12.9	199,000	9,194	71.0	0.1	234	2,342
2/10/2011	OFF	6,694	6,240	13.9	209,000	9,247	72.0	0.1	262	2,355
2/18/2011	OFF	5,712	6,386	13.9	209,000	9,412	70.0	0.1	305	2,400
2/22/2011	ON	5,157	6,476	14.0	209,000	9,506	70.0	0.1	247	2,422
2/25/2011	ON	4,581	6,550	13.0	199,000	9,580	66.0	0.1	216	2,438
3/4/2011	ON	3,243	6,707	13.0	199,000	9,747	66.0	0.1	238	2,475
3/7/2011	ON	--	6,776	13.0	199,000	9,817	66.0	0.1	241	2,492
3/10/2011	ON	2,138	6,846	12.3	188,000	9,888	66.0	0.1	229	2,508
3/14/2011	ON	1,397	6,941	13.0	199,000	9,984	72.0	0.1	304	2,537
3/17/2011	ON	873	7,008	12.9	199,000	10,051	70.0	0.1	274	2,555

TABLE 1

OPERATIONS AND MAINTENANCE DATA
SOUTH FORK TEXAS CREEK
4M OUTCROP MITIGATION PROJECT
COLORADO OIL AND GAS CONSERVATION COMMISSION

Date	System Status Upon Arrival	Electric Meter (kW)	Turbine (hours)	Turbine Demand (kW)	From Chart, Btu/hr needed	Compressor (hours)	Methane (%)	Oxygen (% or ppm)	Calculated Methane Flow (scfh)	Cumulative Calculated Methane Recovered (mcf)
3/24/2011	ON	99,288	7,170	12.9	199,000	10,218	70.0	0.1	269	2,599
3/29/2011	ON	98,294	7,288	12.9	199,000	10,338	70.0	0.1	259	2,629
4/1/2011	ON	97,517	7,362	9.9	166,000	10,414	70.0	0.1	257	2,648
4/12/2011	ON	96,305	7,553	10.9	177,000	10,674	69.0	0.1	239	2,694
4/15/2011	ON	95,767	7,626	10.9	177,000	10,747	70.0	0.1	257	2,713
4/22/2011	ON	95,629	7,740	8.0	145,000	10,915	69.0	0.1	343	2,752
4/25/2011	ON	95,164	7,797	8.0	145,000	11,012	69.0	0.1	237	2,765
4/28/2011	ON	94,834	7,844	10.9	177,000	11,058	72.0	0.1	591	2,793
5/5/2011	ON	94,642	8,009	11.0	177,000	11,224	70.0	0.1	243	2,833
5/20/2011	ON	92,515	8,251	10.9	177,000	11,577	71.0	0.1	396	2,929
6/13/2011	ON	90,313	8,551	20.0	209,000	11,889	74.0	0.1	332	3,028
6/27/2011	ON	88,943	8,864	11.9	188,000	12,459	72.0	0.1	464	3,174
7/14/2011	ON	87502	9,148	13.0	199,000	12,866	78.0	0.1	305	3,260
8/3/2011	ON	86014	9,459	12.9	199,000	13,347	73.0	0.1	329	3,362
8/23/2011	ON	82,879	9,892	13.0	199,000	13,824	74.0	0.1	301	3,493
8/24/2011	ON	82753	9,908	12.9	199,000	13,831	99.5	0.1	429	3,500
9/1/2011	OFF	81745	10,062	13.0	199,000	14,036	99.5	0.1	321	3,549
9/8/2011	ON	80440	10,228	13.0	199,000	14,204	99.5	0.1	378	3,612
9/16/2011	ON	78926	10,419	13.0	199,000	14,396	99.5	0.1	312	3,671
10/7/2011	OFF	78343	10,646	13.0	199,000	14,893	99.5	0.1	355	3,752
10/12/2011	OFF	78065	10,713	10.0	166,000	15,012	99.5	0.1	349	3,775
10/21/2011	ON	77901	10,927	10.0	166,000	15,227	99.5	0.1	292	3,838
10/26/2011	ON	76,338	11,045	20.0	274,000	15,346	99.5	0.1	288	3,872
11/2/2011	ON	75,330	11,215	11.0	177,000	15,517	99.5	0.1	292	3,921
11/8/2011	ON	74,515	11,359	11.0	177,000	15,660	99.5	0.1	292	3,963
11/18/2011	ON	73,275	11,598	11.0	177,000	15,899	99.5	0.1	284	4,031
11/23/2011	ON	72,623	11,715	11.0	177,000	16,016	99.5	0.1	283	4,064

TABLE 1

OPERATIONS AND MAINTENANCE DATA
SOUTH FORK TEXAS CREEK
4M OUTCROP MITIGATION PROJECT
COLORADO OIL AND GAS CONSERVATION COMMISSION

Date	System Status Upon Arrival	Electric Meter (kW)	Turbine (hours)	Turbine Demand (kW)	From Chart, Btu/hr needed	Compressor (hours)	Methane (%)	Oxygen (% or ppm)	Calculated Methane Flow (scfh)	Cumulative Calculated Methane Recovered (mcf)
12/13/11	ON	70,334	12,198	11.0	177,000	16,499	99.5	0.1	282	4,200
12/21/11	OFF	70,062	12,338	11.0	177,000	16,691	99.5	0.1	291	4,241
01/06/12	ON	68,872	12,721	11.0	177,000	17,075	99.5	0.1	292	4,353
01/11/12	ON	68,481	12,840	11.0	177,000	17,193	99.5	0.1	281	4,386
01/20/12	ON	67,814	13,057	11.0	177,000	17,410	99.5	0.1	279	4,447
01/25/12	ON	67,382	13,179	11.0	177,000	17,532	99.5	0.1	284	4,482
02/03/12	ON	66,646	13,391	11.0	177,000	17,744	99.5	0.1	294	4,544
02/09/12	OFF	67,672	13,394	11.0	177,000	17,749	99.5	0.1	332	4,545
02/14/12	ON	66,993	13,513	11.0	177,000	17,868	99.5	0.1	326	4,584
02/24/12	ON	65,738	13,751	11.0	177,000	18,106	99.5	0.1	314	4,658
3/13/2012	ON	63,190	14,178	12.0	166,000	18,537	99.5	0.1	322	4,796
3/21/2012	ON	61,775	14,364	20.0	274,000	18,729	99.5	0.1	359	4,863
3/27/2012	ON	60,912	14,509	12.0	166,000	18,874	99.5	0.1	315	4,908
4/6/2012	OFF	60,519	14,657	11.0	177,000	19,111	99.5	0.1	340	4,959
4/12/2012	ON	59,661	14,800	11.0	177,000	19,254	99.5	0.1	306	5,002
4/20/2012	ON	58,486	14,993	11.0	177,000	19,447	99.5	0.1	302	5,061
4/27/2012	ON	57,475	15,161	11.0	177,000	19,615	99.5	0.1	307	5,112
5/3/2012	ON	56,611	15,306	11.0	177,000	19,760	99.5	0.1	302	5,156
5/11/2012	ON	55,460	15,499	11.0	177,000	19,953	99.5	0.1	305	5,215
5/17/2012	ON	54,358	15,634	11.0	177,000	20,094	99.5	0.1	352	5,262
5/25/2012	ON	53,228	15,826	11.0	177,000	20,287	99.5	0.1	285	5,317
5/30/2012	ON	52,627	15,945	11.0	177,000	20,405	99.5	0.1	389	5,363
6/8/2012	OFF	52,020	16,087	11.0	177,000	20,620	99.5	0.1	382	5,417
6/15/2012	OFF	51,512	16,210	11.0	177,000	20,789	99.5	0.1	376	5,464
6/27/2012	ON	51,039	16,392	10.0	166,000	21,070	99.5	0.1	311	5,520
7/6/2012	ON	50,712	16,611	11.0	177,000	21,289	99.5	0.1	301	5,586
7/19/2012	ON	48,930	16,923	11.0	177,000	21,601	99.5	0.1	453	5,727
7/26/2012	ON	48,136	17,092	11.0	177,000	21,770	99.5	0.1	18	5,730
8/3/2012	ON	45,832	17,293	11.0	177,000	21,961	99.5	0.1	285	5,788
8/8/2012	ON	45,132	17,402	11.0	177,000	22,080	99.5	0.1	324	5,823
8/17/2012	ON	44,033	17,592	11.0	177,000	22,270	99.5	0.1	297	5,879
8/24/2012	ON	43,879	17,785	11.0	177,000	22,463	99.5	0.1	577	5,991
8/29/2012	ON	42,152	17,928	11.0	177,000	22,606	99.5	0.1	108	6,006
9/7/2012	OFF	42,124	18,011	11.0	177,000	22,800	99.5	0.1	339	6,034

TABLE 1

OPERATIONS AND MAINTENANCE DATA
SOUTH FORK TEXAS CREEK
4M OUTCROP MITIGATION PROJECT
COLORADO OIL AND GAS CONSERVATION COMMISSION

Date	System Status Upon Arrival	Electric Meter (kW)	Turbine (hours)	Turbine Demand (kW)	From Chart, Btu/hr needed	Compressor (hours)	Methane (%)	Oxygen (% or ppm)	Calculated Methane Flow (scfh)	Cumulative Calculated Methane Recovered (mcf)
9/14/2012	ON	41,166	18,174	11.0	177,000	22,963	99.5	0.1	131	6,056
9/21/2012	ON	40,158	18,343	11.0	177,000	23,133	99.5	0.1	294	6,105
9/27/2012	ON	39,307	18,489	11.0	177,000	23,279	99.5	0.1	291	6,148
10/8/2012	ON	38,739	18,753	11.0	177,000	23,543	99.5	0.1	311	6,230
10/17/2012	ON	36,454	18,968	11.0	177,000	23,758	99.5	0.1	496	6,336
10/23/2012	ON	35,608	19,112	11.0	177,000	23,902	99.5	0.1	287	6,378
11/1/2012	ON	34,651	19,328	11.0	177,000	24,118	99.5	0.1	288	6,440
11/8/2012	ON	33,827	19,499	11.0	177,000	24,289	99.5	0.1	284	6,488
11/16/2012	OFF	33,502	19,644	11.0	177,000	24,481	99.5	0.1	289	6,530
11/20/2012	ON	33,142	19,739	11.0	177,000	24,576	99.5	0.1	284	6,557
11/30/2012	OFF	32,139	19,925	11.0	177,000	24,814	99.5	0.1	366	6,625
12/7/2012	ON	31,826	20,143	11.0	177,000	24,982	99.5	0.1	223	6,674
12/13/2012	OFF	31,763	20,216	11.0	177,000	25,126	99.5	0.1	316	6,697
12/21/2012	OFF	32,550	20,268	9.0	155,500	25,318	99.5	0.1	343	6,715
1/4/2013	ON	32,154	20,600	9.0	155,500	25,651	99.5	0.1	259	6,801
1/7/2013	ON	32,084	20,695	10.0	166,000	25,746	99.5	0.1	267	6,826
1/21/2013	OFF	33,216	20,814	11.0	177,000	25,993	99.5	0.1	320	6,864
1/25/2013	ON	33,024	20,911	11.0	177,000	26,089	99.5	0.1	301	6,894
2/1/2013	ON	31,930	21,073	11.5	177,000	26,255	99.5	0.1	319	6,945
2/8/2013	ON	31,044	21,241	11.5	177,000	26,423	99.5	0.1	301	6,996
2/15/2013	ON	30,155	21,411	12.0	188,000	26,593	99.5	0.1	311	7,049
2/22/2013	ON	29,261	21,577	12.0	188,000	26,759	99.4	0.1	311	7,101
3/7/2013	ON	27,392	21,914	12.0	188,000	27,096	99.4	0.1	306	7,204
3/14/2013	ON	27,502	21,923	11.0	177,000	27,105	99.3	0.1	298	7,206
3/22/2013	OFF	26,548	22,089	11.0	177,000	27,271	99.3	0.1	291	7,255
3/29/2013	ON	25,567	22,257	11.0	177,000	27,439	99.5	0.3	297	7,305
4/5/2013	ON	24,541	22,423	11.0	177,000	27,605	97.2	0.23	297	7,354
4/12/2013	OFF	24,374	22,518	11.1	177,000	27,775	97.5	0.31	330	7,385
4/19/2013	ON	23,359	22,688	11.1	177,000	27,944	98.9	0.3	316	7,439
4/26/2013	OFF	23,629	22,743	11.1	177,000	28,112	97.5	0.32	449	7,464
5/3/2013	ON	22,574	22,911	11.1	177,000	28,280	97.5	0.3	522	7,551
5/10/2013	ON	21,491	23,080	11.1	177,000	28,448	99.1	0.28	777	7,683
5/17/2013	ON	20,426	23,247	11.1	177,000	28,616	97.7	0.26	302	7,733
5/24/2013	ON	19,384	23,413	11.1	177,000	28,782	98.3	0.3	432	7,805

TABLE 1

OPERATIONS AND MAINTENANCE DATA
SOUTH FORK TEXAS CREEK
4M OUTCROP MITIGATION PROJECT
COLORADO OIL AND GAS CONSERVATION COMMISSION

Date	System Status Upon Arrival	Electric Meter (kW)	Turbine (hours)	Turbine Demand (kW)	From Chart, Btu/hr needed	Compressor (hours)	Methane (%)	Oxygen (% or ppm)	Calculated Methane Flow (scfh)	Cumulative Calculated Methane Recovered (mcf)
6/3/2013	ON	17,944	23,653	11.1	177,000	29,023	99.9	0.29	296	7,876
6/13/2013	ON	16,453	23,895	11.1	177,000	29,264	99.6	0.28	294	7,947
6/21/2013	ON	15,331	24,081	11.1	177,000	29,450	99.9	0.3	299	8,002
6/28/2013	ON	14,308	24,250	11.1	177,000	29,620	99.8	0.17	300	8,053

Notes:
kW - kilowatts
Btu/hr - British thermal units per hour
% - percent
mcf - 1,000 cubic feet
ppm - parts per million
scfh - standard cubic feet per hour
-- reading not collected/not applicable
* - new flow meter was installed
some kwh readings 1st qtr 2011 adjusted to correct meter readings compared to LPEA readings

TABLE 2

GAS CONCENTRATIONS AT MANIFOLD 2013
PINE RIVER
4M OUTCROP MITIGATION PROJECT
COLORADO OIL AND GAS CONSERVATION COMMISSION

	Line 1			Line 2			Line 3			Line 4			Combined		
Date	CH_4 (%)	H_2S (%)	O_2 (%)	CH_4 (%)	H_2S (%)	O_2 (%)	CH_4 (%)	H_2S (%)	O_2 (%)	CH_4 (%)	H_2S (%)	O_2 (%)	CH_4 (%)	H_2S (%)	O_2 (%)
1/8/2013	5.0	0.0	14.5	19.0	0.0	13.4	80.0	0.0	7.6	3.8	0.0	18.3	NM	NM	NM
2/8/2013	4.0	0.0	14.0	22.0	0.0	12.6	78.0	0.0	8.0	4.0	0.0	20.0	NM	NM	NM
3/7/2013	25.0	0.0	14.0	15.0	0.0	12.9	31.0	0.0	7.7	3.8	0.0	19.0	25.0	0.0	19.0
4/5/2013	1.0	0.0	17.0	0.4	0.0	19.2	10.0	0.0	13.4	1.9	0.0	16.4	2.6	0.0	14.5
5/3/2013	1.1	0.0	16.8	0.5	0.0	19.0	21.0	0.0	12.4	18.0	0.0	14.1	3.6	0.0	15.0
6/13/2013	0.4	0.0	18.0	1.3	0.0	16.3	3.2	0.0	9.7	1.1	0.0	15.6	1.1	0.0	0.0

Notes:
% - percent
CH_4 - Methane
H_2S - Hydrogen Sulfide
NM - Not Measured
O_2 - Oxygen