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**LANDFILL GAS CORRECTIVE ACTION UPDATE**

**BRIDGETON LANDFILL**

**BRIDGETON, ST. LOUIS COUNTY, MISSOURI**

Submitted Pursuant to Section 23 of Agreed Order  
Case No. 13SL-CC01088, Effective May 13, 2013

Prepared For:  
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10/15/14

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- Appendix B: Gas Monitoring Probe Methane Level Graphs (09/20/2013 - 09/25/2014)
- Appendix C: Infrastructure Site Plan, Gas Monitoring Probes

## 1.0 INTRODUCTION

On May 13, 2013, Bridgeton Landfill entered into an Agreed Order with the State of Missouri which requires actions to address what was called a subsurface smoldering event (SSE). Section 23 of the Agreed Order requires the preparation of an updated “Landfill Gas Corrective Action Plan” (CAP) and requests that the update consider SSE control measures. Bridgeton Landfill subsequently submitted such an updated CAP on July 26, 2013.

Section 5.0 of the July 2013 CAP proposed that weekly monitoring data would be summarized and reviewed in a quarterly report. The Missouri Department of Natural Resources (MDNR) accepted this proposal with a letter dated October 18, 2013. Bridgeton Landfill subsequently submitted updated Corrective Action Plans for the third quarter 2013 (November 15, 2013), fourth quarter 2013 (January 15, 2014), first quarter 2014 (April 15, 2014) and second quarter 2014 (July 15, 2014). The purpose of this document is to provide monitoring data subsequent to the July 2014 CAP Update, and to review the current status of gas migration control measures.

The text of the July 2013 CAP is included in **Appendix A** for reference. This document will refer to the July 2013 CAP and will provide updates where appropriate.

## 2.0 REVIEW OF CURRENT GAS MIGRATION CONTROL STATUS

The Bridgeton Landfill continues an aggressive monitoring program and significant infrastructure investment with respect to landfill gas migration control at the facility.

Detailed graphs showing approximately one year of methane concentrations from September 20, 2013 to September 25, 2014 are included in this document as **Appendix B**.

**Table 1** lists the gas monitoring probes and their corresponding abbreviations, as presented in the July 2013 CAP, to clarify the historical graphs and the tabulated data for this monitoring period. The monitoring period is determined as June 21, 2014 through September 25, 2014.

**Tables 2** through **5** present tabulated gas monitoring probe data for the monitoring period. Weekly water level readings were proposed by the July 2013 CAP and approved in the October 18, 2013 MDNR letter and are provided as depth to water (from top of well). Weekly water level readings for the monitoring period are contained in **Table 6**.

The following discussion highlights observations regarding methane which can be made from the data from this monitoring period. A site plan that includes the locations of the gas monitoring probes can be found in **Appendix C**.

### Newly elevated Compliance Probes

No new Compliance Probes exhibited a methane reading above the 2.5% regulatory limit this quarter. Compliance probe GMP-6S exhibited a methane reading of 7.6% on April 17, 2014. Then the probe was remonitored on April 21, 2014 and it returned to below the regulatory limit of 2.5% for methane until September 25, 2014. On September 25, 2014 GMP-6S exhibited a methane reading of 31.4%. The facility has completed the 1,000 ft notification pursuant to Missouri Regulations 10 CSR 80-3.010(14) and Missouri DNR Solid Waste Management Program Methane Gas Policy (June 2012) relative to Compliance probe GMP-6S.

### Probes with greater than 2.5% Methane: Quarterly Review

The following probes exhibited elevated concentrations of methane for the monitoring quarter. Weekly sampling show methane percentages above 2.5% in these probes: GMP-01, GMP-02, GMP-14S, GMP-14D, GMP-03, GMP-05, GMP-09, GMP-4S, GMP-5S, GMP-6S, TMP-1S, TMP-2D, TMP-2M and TMP-2S.

Investigative Probes TMP-3S, -3M and -3D exhibited elevated concentrations of methane in previous quarters. However, due to excessive pressure at these probes no methane readings have been obtained since June 20, 2014 at this probe cluster.

GMP-09 measured a methane reading of 36.8% by volume on 9/25/14. Pursuant to this reading and elevated pressures realized at the TMP-3 cluster, the Bridgeton Landfill has initiated several mitigation efforts as outlined in Section 4 below.

#### Probes below 2.5% methane

Many of the weekly measurements of probes continue to be below 2.5% methane. These include GMP-13D, GMP-13S, GMP15D, GMP-15S, GMP-16D, GMP-16S, GMP-06, GMP-07, GMP-08, GMP-10, GMP-11, GMP-12, GMP-4D, GMP-5D, GMP-6D, GMP-7D, GMP-7S, TMP-1D, TMP-1M, PZ-204-SS and PZ-204-ASS.

#### Quarterly-read probes

Sentry probes currently being monitored on a quarterly basis are GMP-05, GMP-06, and GMP-07. In the most recent monitoring event (September 25, 2014), GMP-05 continued to show elevated methane, while GMP-06 and GMP-07 were below 2.5% methane. Sentry probe GMP-04 was decommissioned in March 2014. Although Compliance probe GMP-08 was listed as a quarterly-read probe, it was monitored more frequently during this monitoring period. It is exhibiting percentages below 2.5%.

### 3.0 RECENT GAS MIGRATION CONTROL EFFORTS

The July 2013 CAP and subsequent quarterly updates provided an overview of several ongoing and planned measures that should ultimately reduce gas migration.

The following measures include updates on major improvements and items that have been completed since the July 2014 CAP Update.

1. Section 4.0 of the July 2013 CAP discussed the pending installation of two utility flares:

*3. The Bridgeton Landfill has submitted a Permit to Construct application to the St. Louis County Department of Health for the installation of two 4,000 scfm utility flares. These utility flares would replace the existing enclosed flares with a design flow of 3,500 scfm each. The replacement of the enclosed flares with the two 4,000 scfm utility flares coupled with the existing 3,500 scfm John Zink utility flare and the 2,500 scfm LFG Specialties utility flare will provide a combined design flow of the four utility flares of 14,000 scfm. Authorization to Construct is anticipated to be issued by the end of July 2013. The installation of the 4,000 scfm utility flares is anticipated to be completed shortly after permit issuance with operations of each unit by the end of third quarter 2013. Utility flares are better suited to handle the lower heating value gas at the Bridgeton Landfill resulting in less downtime of the control devices.*

Information regarding the two 4,000 scfm utility landfill gas flares, installed September 2013, has been provided in the Monthly Data Submittals. In total the site has 4 utility flares with the following capacity:

- 2 – 4,000 scfm
- 1 – 3,500 scfm
- 1 – 2,500 scfm

The site also has a single enclosed flare with a capacity of 3,500 scfm. The enclosed flare and the 2,500 scfm capacity utility flare are proposed to be utilized as back-up capacity only.

Pursuant to previous enhancement of the Landfill Gas (LFG) headers and lateral lines, LFG currently collected is directed to the three utility flares in the flare compound as part of normal operations. The Bridgeton Landfill continues daily evaluation of the system.

2. Section 4.0 of the July 2013 CAP discussed a proposed additional liquid force main:

*1. The SSE has resulted in an increase in condensate generation. In order to improve liquid removal at the site a third party consultant has been contracted*

*to evaluate the effectiveness of the existing force main. Due to the increased liquid movement within the force main pressure has built up within the system resulting in back pressure and reduced pump functionality. Pressure relief valves have been installed on numerous pneumatic pumps to address this issue. However, due to the increased liquid generation additional capacity within the force main is needed. As such, the preliminary design proposes utilizing the existing force main for management of liquid removed from the LCSs and a second separate force main for liquids removed from the remaining extraction points. The additional liquid force main will allow optimum operations of the pumps while providing increased available vacuum on the landfill gas collection system. This corrective action measure will be submitted to the MDNR in third quarter 2013 sealed by a Missouri Professional Engineer.*

The upgraded force-main has been fully constructed and is operating a significantly improved back pressure. Three lift stations have been installed and are fully operational. These lift stations have significantly improved the function of the force main upstream of wells under higher pressure. A grit chamber has been installed adjacent to the east lift station. A third grit chamber and lift station has been installed and is fully functioning on the southwest side of south quarry. The installation of grit chambers and lift stations have enhanced the collection of LFG connected to gas extraction wells under high pressure.

3. Section 4.0 of the July 2013 CAP also listed proposed upgraded landfill gas coolers:

*5. The Bridgeton Landfill will be upgrading the landfill gas coolers at the east utility flare (2,500 scfm LFG Specialties) and at the flare compound in the near future. This improvement will result in additional vacuum available to the well field.*

On November 25, 2013, a Heat Exchanger installation was completed at the Bridgeton Landfill. The Heat Exchanger is an ambient-air cooled, single pass Heat Exchanger designed to handle 11,500 scfm of gas and designed to cool the gas from a maximum of 150F to 100F. The Heat Exchanger was designed to be installed in the upstream portion of the blower/flare station with the primary purpose of cooling the incoming gas to assist the blowers in performance. A secondary purpose of the Heat Exchanger is to lower the gas temperature to remove some of the saturation within the incoming gas stream. The installation of the Heat Exchanger incorporated bypass piping to allow for cleaning or maintenance of the unit while still allowing the flare station to operate.

No substantial modifications have been introduced to the Heat Exchanger since the initial start-up process. The Heat Exchanger is functioning as designed and has significantly increased the efficiency of the LFG collection system at the facility.

4. General LFG System Modifications and Improvements:

The following improvements have been completed in the south portion of the South Quarry at the Bridgeton Landfill:

- Completion of modifications to enhance vacuum on the Interceptor Trench located on the east side of the South Quarry. The completion of this project has been combined with increased monitoring to ensure dewatering of the Interceptor Trench.
- Installation of a 12" HDPE jumper line from CT-5 to CT-6 to increase the distribution of vacuum in this area.
- Installation of a vacuum distribution sump connecting Gas Extraction Wells adjacent to GEW-69R.

The following planning and design modifications and improvements have been initiated and are currently in progress:

- Survey of alignment of an 18" Dia. HPDE LFG Collection Header.
- Design of construction level plans of an 18" Dia. HDPE LFG Collection Header. (Pursuant to SCS Engineers Attachment A included in letter submitted to MDNR on September 3, 2014)
- Installation of one (1) new and four (4) re-drills of LFG Extraction Wells on the southwest portion of the south quarry. (Pursuant to SCS Engineers Attachment A included in letter submitted to MDNR on September 3, 2014)
- Design and planning of grit chamber and lift station on the southeast side of the south quarry.
- Evaluation of existing LFG infrastructure on the northeast portion of the south quarry to maximize landfill gas collection efficiency in this area.

#### **4.0 PROPOSED AND ONGOING GAS MIGRATION CONTROL EFFORTS**

In addition to the recently-implemented measures discussed above, the following on-going efforts are in progress.

5. Section 4.0 of the July 2013 CAP also discussed construction of liquid storage and pretreatment capabilities:

*2. In order to improve liquid management once the liquids are removed from the disposal area the Bridgeton Landfill has contracted with a third party consulting firm for additional storage and pretreatment of the extracted liquid. During the second quarter 2013 the landfill installed a 316,000 gallon above ground liquid storage and treatment tank. The preliminary treatment plant design includes incorporation of the existing 96,000 gallon tank located near Boenker Road, the newly installed 316,000 gallon tank, four-1,000,000 gallon tanks and a pretreatment facility. This will provide the landfill additional*

*capacity to remove the liquid from the disposal area at a design capacity of 300,000 gallons per day. The treatment plant design will be submitted to the MDNR in third quarter 2013 sealed by a Missouri Professional Engineer.*

The leachate pretreatment plant has completed construction and is fully operational.

6. Section 4.0 of the April 2014 CAP Update discussed an enhanced Gas Control and Collection System:

*Beginning in November 2013, the facility team began the expansion and enhancement of the Gas Control and Collection System in the North Quarry, which will involve the installation or replacement of 30 wells. Additionally, Bridgeton Landfill is completing installation of a 200-hp compressor. This will improve the pressure to improve efficiency of the large number of gas collection points.*

Bridgeton Landfill completed the installation of a 200-hp air compressor in October 2013 (Monthly Data Submittal, December 20, 2013). As of the end of December 2013, 21 of the 30 North Quarry wells were drilled. Since that time, the installation of the remaining gas extraction wells has been delayed pursuant to multiple construction activities currently underway in the North Quarry.

To enhance the collection of landfill gas around the southwest corner of the south quarry, a number of initiatives will be undertaken at the Bridgeton Landfill. As submitted in a letter to the MDNR dated September 3, 2014, the Bridgeton Landfill is continuing the design of improvements on the south side of the south quarry. These improvements include a new 18" LFG Collection Header, replacement of four (4) Gas Extraction Wells (GEWs) and installation of one (1) GEW on the south side of the south quarry.

The Bridgeton Landfill is also planning an additional grit chamber and lift station to be installed in the southeast corner of the south quarry. The installation of these structures will be used to enhance the collection landfill gas in within collection systems exhibiting high pressure.

The Bridgeton Landfill will be constructing a gravel drain with piping to be included on two sides of the lift station being constructed for the new liquid force-main. The location of the lift station is just west of TMP-1 and -3 clusters on the Bridgeton Landfill property. This will include connection of the buried piping to a LFG collection header line to apply vacuum to this area. Liquids collected in the sump, connected to the gravel and buried piping, will be directed to the leachate pretreatment plant. The as-built drawings for this construction will be submitted to MDNR post completion.

The site has proposed the use of flowable fill at gas extraction points in the south quarry where local settlement is evident. The flowable fill will serve as an enhanced seal around the point to increase the efficiency of gas extraction.

The Bridgeton Landfill is currently evaluating the LFG System infrastructure and operation in the northeast portion of the south quarry. The findings of this evaluation will be included in the next quarterly update.

## **5.0 CONTINUED MONITORING AND REPORTING**

Bridgeton Landfill will continue with gas probe monitoring and reporting as specified in Section 5.0 of the July 2013 CAP. Therefore, the next update is proposed to be included in the January 15<sup>th</sup>, 2015 quarterly report update.

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**TABLE 1**

**LIST OF LANDFILL GAS MONITORING PROBES**

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**Bridgeton Landfill  
Landfill Gas Monitoring Probes  
July 2013**

ID	CSV ID	POINT NAME	Ref Boring/installation Record	Type	Current Monitoring Frequency
GMP-01	BRIGMP01	MP01	GMP-01	Compliance probe	weekly
GMP-02	BRIGMP02	MP02	GMP-02	Compliance probe	weekly
GMP-03	BRIGMP03	MP03	GMP-03	Compliance probe	weekly
GMP-04	BRIGMP04	MP04	GMP-04	Sentry probe	quarterly
GMP-05	BRIGMP05	MP05	GMP-05	Sentry probe	quarterly
GMP-06	BRIGMP06	MP06	PZ-201-SS	Sentry probe	quarterly
GMP-07	BRIGMP07	MP07	PZ-200-SS	Sentry probe	quarterly
GMP-08	BRIGMP08	MP08	GMP-08	Compliance probe	quarterly
GMP-09	BRIGMP09	MP09	GMP-09	Public Safety Probe	weekly
GMP-10	BRIGMP10	MP10	GMP-10	Public Safety Probe	weekly
GMP-11	BRIGMP11	MP11	GMP-11	Public Safety Probe	weekly
GMP-12	BRIGMP12	MP12	GMP-12	Public Safety Probe	weekly
GMP-4S	BRIGMP4S	BRIGMP4S	GMP-04	Compliance nested probe	weekly
GMP-4D	BRIGMP4D	BRIGMP4D	GMP-04	Compliance nested probe	weekly
GMP-5S	BRIGMP5S	BRIGMP5S	GMP-05	Compliance nested probe	weekly
GMP-5D	BRIGMP5D	BRIGMP5D	GMP-05	Compliance nested probe	weekly
GMP-6S	BRIGMP6S	BRIGMP6S	GMP-06	Compliance nested probe	weekly
GMP-6D	BRIGMP6D	BRIGMP6D	GMP-06	Compliance nested probe	weekly
GMP-7S	BRIGMP7S	BRIGMP7S	GMP-07	Compliance nested probe	weekly
GMP-7D	BRIGMP7D	BRIGMP7D	GMP-07	Compliance nested probe	weekly
GMP-13S	BRGMP13S	BRGMP13S	GMP-13	Compliance nested probe	weekly
GMP-13D	BRGMP13D	BRGMP13D	GMP-13	Compliance nested probe	weekly
GMP-14S	BRGMP14S	BRGMP14S	GMP-14	Compliance nested probe	weekly
GMP-14D	BRGMP14D	BRGMP14D	GMP-14	Compliance nested probe	weekly
GMP-15S	BRGMP15S	BRGMP15S	GMP-15	Compliance nested probe	weekly
GMP-15D	BRGMP15D	BRGMP15D	GMP-15	Compliance nested probe	weekly
GMP-16S	BRGMP16S	BRGMP16S	GMP-16	Compliance nested probe	weekly
GMP-16D	BRGMP16D	BRGMP16D	GMP-16	Compliance nested probe	weekly
TMP-1S	BRITMP1S	BRITMP1S	TMP-01	Investigative nested probe	weekly
TMP-1M	BRITMP1M	BRITMP1M	TMP-01	Investigative nested probe	weekly
TMP-1D	BRITMP1D	BRITMP1D	TMP-01	Investigative nested probe	weekly
TMP-2S	BRITMP2S	BRITMP2S	TMP-02	Investigative nested probe	weekly
TMP-2M	BRITMP2M	BRITMP2M	TMP-02	Investigative nested probe	weekly
TMP-2D	BRITMP2D	BRITMP2D	TMP-02	Investigative nested probe	weekly
TMP-3S	BRITMP3S	BRITMP3S	TMP-03	Investigative nested probe	weekly
TMP-3M	BRITMP3M	BRITMP3M	TMP-03	Investigative nested probe	weekly
TMP-3D	BRITMP3D	BRITMP3D	TMP-03	Investigative nested probe	weekly
PZ-204-SS	PZ2040SS	4OSS	PZ-204-SS	Public Safety Probe	weekly
PZ-204-ASS	PZ204ASS	4ASS	PZ-204-ASS	Public Safety Probe	weekly

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**TABLE 2**

**COMPLIANCE GAS MONITORING PROBE DATA**

**JUNE 21, 2014 – SEPTEMBER 25, 2014**

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Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-16D	Weekly	1	6/25/2014	0	4.9	13.8	81.3	29.52	0.01
GMP-16D	Weekly	1	7/3/2014	0	0.1	19.6	80.3	29.69	-0.01
GMP-16D	Weekly	1	7/10/2014	0	1.6	15.4	83	29.65	0
GMP-16D	Weekly	1	7/17/2014	0	0.3	20.1	79.6	29.58	0
GMP-16D	Weekly	1	7/24/2014	0	0.9	18.9	80.2	29.64	0
GMP-16D	Weekly	1	7/31/2014	0	1.2	19.9	78.9	29.57	0
GMP-16D	Weekly	1	8/7/2014	0	0.4	21.2	78.4	29.48	-0.01
GMP-16D	Weekly	1	8/15/2014	0	0.9	15.1	84	29.47	-0.02
GMP-16D	Weekly	1	8/22/2014	0	0.6	18.2	81.2	29.44	-0.04
GMP-16D	Weekly	1	8/29/2014	0	0.8	19.2	80	29.39	0.06
GMP-16D	Weekly	1	9/3/2014	0	1.5	15.5	83	29.46	-0.23
GMP-16D	Weekly	1	9/12/2014	0	3	10.1	86.9	29.67	0.33
GMP-16D	Weekly	1	9/18/2014	0	3	8.9	88.1	29.47	-1.42
GMP-16D	Weekly	1	9/25/2014	0	2.6	9.8	87.6	29.63	0
GMP-16S	Weekly	1	6/25/2014	0	5.2	14	80.8	29.52	0
GMP-16S	Weekly	1	7/3/2014	0	0.2	19.7	80.1	29.69	-0.01
GMP-16S	Weekly	1	7/10/2014	0	1.1	19.5	79.4	29.65	0.01
GMP-16S	Weekly	1	7/17/2014	0	0.2	19.8	80	29.58	0
GMP-16S	Weekly	1	7/24/2014	0	2.1	16.6	81.3	29.64	0
GMP-16S	Weekly	1	7/31/2014	0	0.6	18.7	80.7	29.57	0
GMP-16S	Weekly	1	8/7/2014	0	0.5	21.2	78.3	29.48	-0.01
GMP-16S	Weekly	1	8/15/2014	0	0.5	19.1	80.4	29.47	-0.01
GMP-16S	Weekly	1	8/22/2014	0	0.7	19	80.3	29.44	-0.02
GMP-16S	Weekly	1	8/29/2014	0	0.6	19.8	79.6	29.39	0
GMP-16S	Weekly	1	9/3/2014	0	0.5	20.2	79.3	29.46	-0.34
GMP-16S	Weekly	1	9/12/2014	0	0.8	21.4	77.8	29.67	0
GMP-16S	Weekly	1	9/18/2014	0	0.9	18.8	80.3	29.46	0.03
GMP-16S	Weekly	1	9/25/2014	0	1.4	17.3	81.3	29.63	0.01
GMP-08	Quarterly	1	6/25/2014	0	3.4	11.9	84.7	29.51	0.01
GMP-08	Quarterly	1	7/3/2014	0	0.1	20.1	79.8	29.67	0
GMP-08	Quarterly	1	7/10/2014	0	0.5	17.5	82	29.65	0
GMP-08	Quarterly	1	7/17/2014	0	0.1	20.2	79.7	29.57	-0.01
GMP-08	Quarterly	1	7/24/2014	0	0.3	19.9	79.8	29.62	0
GMP-08	Quarterly	1	7/31/2014	0	0.3	19.3	80.4	29.56	0

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-08	Quarterly	1	8/7/2014	0	1	18.1	80.9	29.47	0.01
GMP-08	Quarterly	1	8/15/2014	0	0.4	17.6	82	29.45	0
GMP-08	Quarterly	1	8/22/2014	0	2.9	15.9	81.2	29.43	0
GMP-08	Quarterly	1	8/29/2014	0	0.8	18	81.2	29.38	0
GMP-08	Quarterly	1	9/3/2014	0	0.4	19.7	79.9	29.45	0
GMP-08	Quarterly	1	9/12/2014	0	0.4	20.9	78.7	29.66	0
GMP-08	Quarterly	1	9/18/2014	0	0.8	17.8	81.4	29.46	0
GMP-08	Quarterly	1	9/25/2014	0	0.5	18.3	81.2	29.62	0.01
GMP-7D	Weekly	1	6/25/2014	0	0.9	18.6	80.5	29.51	0.01
GMP-7D	Weekly	1	7/3/2014	0	0.1	19.4	80.5	29.68	-0.01
GMP-7D	Weekly	1	7/10/2014	0	0.9	19.2	79.9	29.64	0.01
GMP-7D	Weekly	1	7/17/2014	0	0.2	19.9	79.9	29.58	0
GMP-7D	Weekly	1	7/24/2014	0	0.7	20.9	78.4	29.63	0
GMP-7D	Weekly	1	7/31/2014	0	0.6	19.7	79.7	29.56	0
GMP-7D	Weekly	1	8/7/2014	0	1.2	13.8	85	29.47	-0.03
GMP-7D	Weekly	1	8/15/2014	0	0.6	19.7	79.7	29.46	0
GMP-7D	Weekly	1	8/22/2014	0	0.8	17.3	81.9	29.43	-0.01
GMP-7D	Weekly	1	8/29/2014	0	1.1	13.3	85.6	29.34	0
GMP-7D	Weekly	1	9/3/2014	0	1.8	18.7	79.5	29.46	0
GMP-7D	Weekly	1	9/12/2014	0	1.9	6.3	91.8	29.66	0.02
GMP-7D	Weekly	1	9/18/2014	0	3.8	18.3	77.9	29.46	-0.01
GMP-7D	Weekly	1	9/25/2014	0	5.4	5.6	89	29.61	-0.03
GMP-7S	Weekly	1	6/25/2014	0	1	14.9	84.1	29.51	0.07
GMP-7S	Weekly	1	7/3/2014	0	0.1	19.1	80.8	29.68	0
GMP-7S	Weekly	1	7/10/2014	0	1.1	19.2	79.7	29.64	0.01
GMP-7S	Weekly	1	7/17/2014	0	0.3	20	79.7	29.58	0
GMP-7S	Weekly	1	7/24/2014	0	1	20.4	78.6	29.63	-0.03
GMP-7S	Weekly	1	7/31/2014	0	0.7	19.6	79.7	29.56	0
GMP-7S	Weekly	1	8/7/2014	0	1.5	13.7	84.8	29.47	0.04
GMP-7S	Weekly	1	8/15/2014	0	1.4	19.4	79.2	29.46	0
GMP-7S	Weekly	1	8/22/2014	0	0.6	17.3	82.1	29.43	0
GMP-7S	Weekly	1	8/29/2014	0	1.3	12.1	86.6	29.33	0
GMP-7S	Weekly	1	9/3/2014	0	1.8	12.1	86.1	29.46	-0.02
GMP-7S	Weekly	1	9/12/2014	0	1.5	16.3	82.2	29.66	0

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-7S	Weekly	1	9/18/2014	0	4.2	3.8	92	29.46	0
GMP-7S	Weekly	1	9/25/2014	0	5.4	4.8	89.8	29.61	-0.03
GMP-15D	Weekly	2	6/25/2014	0	1.7	19.2	79.1	29.52	0.1
GMP-15D	Weekly	2	7/3/2014	0	0.1	20.7	79.2	29.68	0
GMP-15D	Weekly	2	7/10/2014	0	1.4	20	78.6	29.64	0.03
GMP-15D	Weekly	2	7/17/2014	0	0.1	20.6	79.3	29.58	0
GMP-15D	Weekly	2	7/24/2014	0	0.2	20.7	79.1	29.64	0
GMP-15D	Weekly	2	7/31/2014	0	0.4	20.5	79.1	29.57	0.01
GMP-15D	Weekly	2	8/7/2014	0	1.2	20.9	77.9	29.48	0
GMP-15D	Weekly	2	8/15/2014	0	0.6	19.3	80.1	29.46	0.01
GMP-15D	Weekly	2	8/22/2014	0	0.9	19	80.1	29.45	0
GMP-15D	Weekly	2	8/29/2014	0	0.6	19.8	79.6	29.39	0.02
GMP-15D	Weekly	2	9/3/2014	0	0.5	20.3	79.2	29.46	0.04
GMP-15D	Weekly	2	9/12/2014	0	0.4	21.9	77.7	29.67	0.04
GMP-15D	Weekly	2	9/18/2014	0	1	19.8	79.2	29.47	0.06
GMP-15D	Weekly	2	9/25/2014	0	0.6	19.5	79.9	29.63	-0.01
GMP-15S	Weekly	2	6/25/2014	0	3.5	19	77.5	29.52	0.02
GMP-15S	Weekly	2	7/3/2014	0	0.1	20.8	79.1	29.68	0.06
GMP-15S	Weekly	2	7/10/2014	0	1.7	19.1	79.2	29.65	0
GMP-15S	Weekly	2	7/17/2014	0	0.1	19.8	80.1	29.58	-0.01
GMP-15S	Weekly	2	7/24/2014	0	0.2	20.6	79.2	29.63	-0.02
GMP-15S	Weekly	2	7/31/2014	0	0.9	20.2	78.9	29.57	0
GMP-15S	Weekly	2	8/7/2014	0	1.3	19.9	78.8	29.48	0
GMP-15S	Weekly	2	8/15/2014	0	0.8	19.1	80.1	29.46	0
GMP-15S	Weekly	2	8/22/2014	0	1.6	18.7	79.7	29.44	0
GMP-15S	Weekly	2	8/29/2014	0	0.7	19.8	79.5	29.39	0
GMP-15S	Weekly	2	9/3/2014	0	0.4	19.4	80.2	29.46	0.02
GMP-15S	Weekly	2	9/12/2014	0	0.4	20.6	79	29.67	0.04
GMP-15S	Weekly	2	9/18/2014	0	1.3	19.8	78.9	29.47	0.01
GMP-15S	Weekly	2	9/25/2014	0	0.7	19.5	79.8	29.63	0
GMP-14D	Weekly	3	6/25/2014	62.1	12.8	3.2	21.9	29.48	0.54
GMP-14D	Weekly	3	7/3/2014	26.5	5.8	13.7	54	29.66	0.15
GMP-14D	Weekly	3	7/10/2014	0	0.5	20.7	78.8	29.61	0
GMP-14D	Weekly	3	7/17/2014	27.9	7.4	12.1	52.6	29.56	0.56

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-14D	Weekly	3	7/24/2014	18.5	5.3	14.2	62	29.58	0.1
GMP-14D	Weekly	3	7/31/2014	15.2	3.8	16.2	64.8	29.53	0.04
GMP-14D	Weekly	3	8/7/2014	4.2	2.6	16.3	76.9	29.35	0.04
GMP-14D	Weekly	3	8/15/2014	14.7	3.9	14.3	67.1	29.46	0
GMP-14D	Weekly	3	8/22/2014	0.5	0.9	15.5	83.1	29.43	0
GMP-14D	Weekly	3	8/29/2014	38.1	7.2	7.7	47	29.26	0.03
GMP-14D	Weekly	3	9/3/2014	59.5	19.7	0.9	19.9	29.47	1.02
GMP-14D	Weekly	3	9/12/2014	57.5	25	0.9	16.6	29.65	1.46
GMP-14D	Weekly	3	9/18/2014	64.5	18.5	3.1	13.9	29.43	1.62
GMP-14D	Weekly	3	9/25/2014	56	20.3	1.1	22.6	29.58	2
GMP-14S	Weekly	3	6/25/2014	3.7	2.4	18.4	75.5	29.48	0
GMP-14S	Weekly	3	7/3/2014	3.7	2.5	19.2	74.6	29.66	0.01
GMP-14S	Weekly	3	7/10/2014	0	1	20.1	78.9	29.61	0
GMP-14S	Weekly	3	7/17/2014	6.7	3.6	17	72.7	29.56	-0.01
GMP-14S	Weekly	3	7/24/2014	10.3	4.4	15.5	69.8	29.58	-0.01
GMP-14S	Weekly	3	7/31/2014	7.6	1.5	18.2	72.7	29.53	0
GMP-14S	Weekly	3	8/7/2014	0.2	2.2	18.3	79.3	29.33	0
GMP-14S	Weekly	3	8/15/2014	8.3	1.6	16.1	74	29.46	-0.03
GMP-14S	Weekly	3	8/22/2014	1.1	0.5	17.1	81.3	29.43	0
GMP-14S	Weekly	3	8/29/2014	21.2	12.3	9.2	57.3	29.26	0
GMP-14S	Weekly	3	9/3/2014	16.7	17	10.6	55.7	29.47	-0.02
GMP-14S	Weekly	3	9/12/2014	25.4	19.4	9.3	45.9	29.64	0.03
GMP-14S	Weekly	3	9/18/2014	23.4	6.9	14.1	55.6	29.43	0
GMP-14S	Weekly	3	9/25/2014	4.2	4	16.7	75.1	29.58	0.1
GMP-4D	Weekly	3	6/25/2014	0	2	19.8	78.2	29.48	0.49
GMP-4D	Weekly	3	7/3/2014	0.1	0.5	21.3	78.1	29.66	-0.01
GMP-4D	Weekly	3	7/10/2014	0	1.6	20.1	78.3	29.6	0
GMP-4D	Weekly	3	7/17/2014	0.1	0.5	20.4	79	29.56	0
GMP-4D	Weekly	3	7/24/2014	0	0.6	20	79.4	14.76	0
GMP-4D	Weekly	3	7/31/2014	0	0.5	20.7	78.8	29.53	0
GMP-4D	Weekly	3	8/7/2014	0	0.8	19.5	79.7	29.33	0
GMP-4D	Weekly	3	8/15/2014	0	0.6	18.6	80.8	29.45	-0.01
GMP-4D	Weekly	3	8/22/2014	0	1.5	16	82.5	29.43	-0.01
GMP-4D	Weekly	3	8/29/2014	0	0.7	15.6	83.7	29.27	0.01

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-4D	Weekly	3	9/3/2014	0	4.3	17.7	78	29.47	-0.01
GMP-4D	Weekly	3	9/12/2014	0	4.5	19.6	75.9	29.64	0.02
GMP-4D	Weekly	3	9/18/2014	0.4	1.6	19.9	78.1	29.43	0.01
GMP-4D	Weekly	3	9/25/2014	0	2.1	18.5	79.4	29.58	0.03
GMP-4S	Weekly	3	6/25/2014	41.6	6.7	8.7	43	29.48	0.09
GMP-4S	Weekly	3	7/3/2014	9.6	1.7	18.7	70	29.66	0
GMP-4S	Weekly	3	7/10/2014	3.5	2.3	18.7	75.5	29.6	0
GMP-4S	Weekly	3	7/17/2014	3.2	1.2	19.3	76.3	29.56	0.01
GMP-4S	Weekly	3	7/24/2014	2	0.9	19.3	77.8	29.58	0.01
GMP-4S	Weekly	3	7/31/2014	0	1.3	20.5	78.2	29.53	0
GMP-4S	Weekly	3	8/7/2014	0	1.1	18.7	80.2	29.33	0.01
GMP-4S	Weekly	3	8/15/2014	0	2.2	18.1	79.7	29.45	-0.01
GMP-4S	Weekly	3	8/22/2014	0.3	1.1	15.9	82.7	29.43	-0.01
GMP-4S	Weekly	3	8/29/2014	3.8	0.4	15	80.8	29.26	0
GMP-4S	Weekly	3	9/3/2014	25.1	6.3	9.9	58.7	29.47	-0.01
GMP-4S	Weekly	3	9/12/2014	26	11.1	9.6	53.3	29.64	0.03
GMP-4S	Weekly	3	9/18/2014	42.2	5.9	8.3	43.6	29.43	0.02
GMP-4S	Weekly	3	9/25/2014	27.5	5.8	8.8	57.9	29.58	0.01
GMP-5D	Weekly	3	6/25/2014	0.1	4.8	19	76.1	29.5	0
GMP-5D	Weekly	3	7/3/2014	0	0.8	20.6	78.6	29.67	0
GMP-5D	Weekly	3	7/10/2014	0	2.6	19.5	77.9	29.63	0.01
GMP-5D	Weekly	3	7/17/2014	0	1.6	19.8	78.6	29.57	0
GMP-5D	Weekly	3	7/24/2014	0	5.9	18	76.1	29.63	0
GMP-5D	Weekly	3	7/31/2014	0	0.5	20.6	78.9	29.55	0
GMP-5D	Weekly	3	8/7/2014	0	21.5	10.8	67.7	29.46	0.05
GMP-5D	Weekly	3	8/15/2014	0	2.5	18.7	78.8	29.45	0
GMP-5D	Weekly	3	8/22/2014	0	1.2	18.5	80.3	29.42	-0.02
GMP-5D	Weekly	3	8/29/2014	0	4.3	18.3	77.4	29.32	-0.04
GMP-5D	Weekly	3	9/3/2014	0	9	17.8	73.2	29.45	0.01
GMP-5D	Weekly	3	9/12/2014	0	13.1	18.1	68.8	29.64	-0.02
GMP-5D	Weekly	3	9/18/2014	0.4	5	19	75.6	29.44	-0.01
GMP-5D	Weekly	3	9/25/2014	0.5	6.4	18.1	75	29.6	-0.02
GMP-5S	Weekly	3	6/25/2014	30.6	27.5	7.4	34.5	29.5	0.01
GMP-5S	Weekly	3	7/3/2014	3.1	0.9	19.9	76.1	29.67	0.02

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-5S	Weekly	3	7/10/2014	0.8	3.1	18.8	77.3	29.63	0.03
GMP-5S	Weekly	3	7/17/2014	1.6	2.3	19.2	76.9	29.57	0.01
GMP-5S	Weekly	3	7/24/2014	9.3	11.4	15	64.3	29.62	0.08
GMP-5S	Weekly	3	7/31/2014	0.6	0.7	20.3	78.4	29.55	0
GMP-5S	Weekly	3	8/7/2014	19.4	47	0.4	33.2	29.46	0.52
GMP-5S	Weekly	3	8/15/2014	3.2	4.7	17.9	74.2	29.45	0.01
GMP-5S	Weekly	3	8/22/2014	1.8	3.5	17.6	77.1	29.42	-0.02
GMP-5S	Weekly	3	8/29/2014	21.9	15	12.8	50.3	29.32	0.68
GMP-5S	Weekly	3	9/3/2014	23.5	38.4	6.3	31.8	29.45	0.19
GMP-5S	Weekly	3	9/12/2014	26.5	46.3	3	24.2	29.64	0.87
GMP-5S	Weekly	3	9/18/2014	29.5	40.6	5.4	24.5	29.44	0.32
GMP-5S	Weekly	3	9/25/2014	32.9	45.8	3.7	17.6	29.61	1
GMP-6D	Weekly	3	6/25/2014	0	1.5	19.7	78.8	29.5	0
GMP-6D	Weekly	3	7/3/2014	0	0	20.5	79.5	29.68	0
GMP-6D	Weekly	3	7/10/2014	0.1	0.5	17.6	81.8	29.64	0.02
GMP-6D	Weekly	3	7/17/2014	0	0.1	20.1	79.8	14.76	-0.02
GMP-6D	Weekly	3	7/24/2014	0	0.2	20	79.8	29.64	0
GMP-6D	Weekly	3	7/31/2014	0	0.2	20.1	79.7	29.56	-0.01
GMP-6D	Weekly	3	8/7/2014	0.9	1	12	86.1	29.47	0.02
GMP-6D	Weekly	3	8/15/2014	0	0.4	19.6	80	29.46	-0.01
GMP-6D	Weekly	3	8/22/2014	0	0.4	19	80.6	29.43	-0.01
GMP-6D	Weekly	3	8/29/2014	0.1	0.7	19.5	79.7	29.33	0
GMP-6D	Weekly	3	9/3/2014	0.1	0.8	19.8	79.3	29.46	0
GMP-6D	Weekly	3	9/12/2014	0	1.1	21.6	77.3	29.65	0.03
GMP-6D	Weekly	3	9/18/2014	1.5	1.2	18.5	78.8	29.46	-0.04
GMP-6D	Weekly	3	9/25/2014	2.4	1.4	17.4	78.8	29.61	0
GMP-6S	Weekly	3	6/25/2014	0	4.6	18.9	76.5	29.5	0.17
GMP-6S	Weekly	3	7/3/2014	0	0	20.6	79.4	29.68	0
GMP-6S	Weekly	3	7/10/2014	0.3	0.5	19.8	79.4	29.64	0.01
GMP-6S	Weekly	3	7/17/2014	0.1	0.2	20.1	79.6	29.58	0
GMP-6S	Weekly	3	7/24/2014	0.1	0.3	20.1	79.5	29.64	0
GMP-6S	Weekly	3	7/31/2014	0.2	0.3	19.8	79.7	29.56	0
GMP-6S	Weekly	3	8/7/2014	0.3	1	19.1	79.6	29.47	0
GMP-6S	Weekly	3	8/15/2014	0.1	0.5	19.3	80.1	29.46	0

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-6S	Weekly	3	8/22/2014	0	0.7	18.9	80.4	29.43	0
GMP-6S	Weekly	3	8/29/2014	0.7	1.1	18.3	79.9	29.34	0.05
GMP-6S	Weekly	3	9/3/2014	0.5	1.7	19.9	77.9	29.46	0.05
GMP-6S	Weekly	3	9/12/2014	0.3	1.9	19.5	78.3	29.65	0.14
GMP-6S	Weekly	3	9/18/2014	2	2	17.6	78.4	29.46	0.04
GMP-6S	Weekly	3	9/25/2014	31.4	3.8	0.2	64.6	29.61	0.03
GMP-13D	Weekly	4	6/25/2014	0	2.3	19.7	78	29.48	0.12
GMP-13D	Weekly	4	7/3/2014	0	3.4	19.3	77.3	29.66	0
GMP-13D	Weekly	4	7/10/2014	0	5.1	18.7	76.2	29.61	0.03
GMP-13D	Weekly	4	7/17/2014	0	2.6	19.6	77.8	29.56	0.02
GMP-13D	Weekly	4	7/24/2014	0	4.1	18.8	77.1	29.58	0
GMP-13D	Weekly	4	7/31/2014	0	2.4	19.8	77.8	29.53	0.01
GMP-13D	Weekly	4	8/7/2014	0.2	2.3	19.8	77.7	29.33	0.02
GMP-13D	Weekly	4	8/15/2014	0	5	15.5	79.5	29.45	0
GMP-13D	Weekly	4	8/22/2014	0	2.9	16.1	81	29.42	0.01
GMP-13D	Weekly	4	8/29/2014	0	6	13.8	80.2	29.26	0.03
GMP-13D	Weekly	4	9/3/2014	0	5.8	18.5	75.7	29.47	0
GMP-13D	Weekly	4	9/12/2014	0	16.7	14.2	69.1	29.63	0.06
GMP-13D	Weekly	4	9/18/2014	0.3	3.1	19.5	77.1	29.43	0.02
GMP-13D	Weekly	4	9/25/2014	0	6.7	17.8	75.5	29.58	0.03
GMP-13S	Weekly	4	6/25/2014	0	5.4	17.5	77.1	29.48	0.03
GMP-13S	Weekly	4	7/3/2014	0.1	4.6	18.6	76.7	29.66	0.01
GMP-13S	Weekly	4	7/10/2014	0	7	18	75	29.6	-0.01
GMP-13S	Weekly	4	7/17/2014	0	3.9	18.9	77.2	29.55	0
GMP-13S	Weekly	4	7/24/2014	0	6.9	17.4	75.7	29.58	0
GMP-13S	Weekly	4	7/31/2014	0	3.6	18.6	77.8	29.52	0
GMP-13S	Weekly	4	8/7/2014	0.2	3.3	18.2	78.3	29.33	0.16
GMP-13S	Weekly	4	8/15/2014	0	6.7	15.1	78.2	29.45	-0.01
GMP-13S	Weekly	4	8/22/2014	0	4.2	15.4	80.4	29.42	-0.01
GMP-13S	Weekly	4	8/29/2014	0	7.7	12.9	79.4	29.26	0
GMP-13S	Weekly	4	9/3/2014	0	15.8	12.9	71.3	29.46	-0.01
GMP-13S	Weekly	4	9/12/2014	0	19	12.1	68.9	29.63	0
GMP-13S	Weekly	4	9/18/2014	0.2	4.5	15	80.3	29.42	-0.01
GMP-13S	Weekly	4	9/25/2014	0	17.8	11.9	70.3	29.58	0

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-01	Weekly	4	6/25/14	57.5	33.9	0.1	8.5	29.51	8.33
GMP-01	Weekly	4	7/3/14	62.7	34	0.1	3.2	29.69	3.61
GMP-01	Weekly	4	7/10/14	46.1	34.6	0.2	19.1	29.64	1.4
GMP-01	Weekly	4	7/17/14	58.3	35.6	0	6.1	29.59	1.08
GMP-01	Weekly	4	7/24/14	55.6	33.8	0.2	10.4	29.63	1.34
GMP-01	Weekly	4	7/31/14	58	35.8	0	6.2	29.56	3.54
GMP-01	Weekly	4	8/7/14	63.2	35.7	0	1.1	29.37	4.1
GMP-01	Weekly	4	8/15/14	58	34.2	0	7.8	29.48	1.08
GMP-01	Weekly	4	8/22/14	0	0.7	18.5	80.8	29.45	-0.01
GMP-01	Weekly	4	8/29/14	62.8	34.9	0.1	2.2	29.31	14.59
GMP-01	Weekly	4	9/3/14	50.4	34.5	0	15.1	29.48	19.21
GMP-01	Weekly	4	9/12/14	49.8	30.2	1.8	18.2	29.66	11.92
GMP-01	Weekly	4	9/18/14	56.8	38.7	0.5	4	29.46	10.89
GMP-01	Weekly	4	9/25/14	40.2	43.4	0.4	16	29.62	10.38
GMP-02	Weekly	4	6/25/14	47.3	34	3.1	15.6	29.49	10.1
GMP-02	Weekly	4	7/3/14	62.4	35.1	0	2.5	29.67	0.3
GMP-02	Weekly	4	7/10/14	49.4	30.9	0.6	19.1	29.62	2.63
GMP-02	Weekly	4	7/17/14	55	38.9	0	6.1	29.57	1.02
GMP-02	Weekly	4	7/24/14	53.5	36.3	0.1	10.1	29.61	4.62
GMP-02	Weekly	4	7/31/14	56	35.7	0.1	8.2	29.54	2.51
GMP-02	Weekly	4	8/7/14	61	37.4	0.1	1.5	29.35	2.37
GMP-02	Weekly	4	8/15/14	64	30.9	0.1	5	29.47	6.06
GMP-02	Weekly	4	8/22/14	59.7	29.8	0.3	10.2	29.43	1.56
GMP-02	Weekly	4	8/29/14	51	39.4	0	9.6	29.28	3.5
GMP-02	Weekly	4	9/3/14	46.1	38	0	15.9	29.47	3.76
GMP-02	Weekly	4	9/12/14	49.1	35	4.4	11.5	29.65	7.83
GMP-02	Weekly	4	9/18/14	60.7	37.2	0	2.1	29.45	10.33
GMP-02	Weekly	4	9/25/14	42.7	42.2	0	15.1	29.6	9.8
GMP-03	Weekly	4	6/25/14	40.8	24.2	4.9	30.1	29.48	0.08
GMP-03	Weekly	4	7/3/14	35.3	23	7	34.7	29.66	-0.01
GMP-03	Weekly	4	7/10/14	32.1	26.5	4.3	37.1	29.6	0.01
GMP-03	Weekly	4	7/17/14	30.7	21	8.1	40.2	29.56	0.03
GMP-03	Weekly	4	7/24/14	38	30.7	3.8	27.5	29.59	0
GMP-03	Weekly	4	7/31/14	45.3	29	4.2	21.5	29.53	0.03

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-03	Weekly	4	8/7/14	43.6	31	4	21.4	29.33	0.1
GMP-03	Weekly	4	8/15/14	34	24.2	5.9	35.9	29.45	0.02
GMP-03	Weekly	4	8/22/14	33.3	40	3	23.7	29.42	0.02
GMP-03	Weekly	4	8/29/14	36.5	52.7	0	10.8	29.27	0.1
GMP-03	Weekly	4	9/3/14	32.3	48.6	0.1	19	29.46	0.15
GMP-03	Weekly	4	9/12/14	28.7	56.5	0	14.8	29.63	0.11
GMP-03	Weekly	4	9/18/14	33.9	60.9	0	5.2	29.43	0.07
GMP-03	Weekly	4	9/25/14	22	60.4	0.9	16.7	29.58	0

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**TABLE 3**

**SENTRY GAS MONITORING PROBE DATA**

**JUNE 21, 2014 – SEPTEMBER 25, 2014**

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Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-06	Quarterly	1	9/25/2014	2	4.8	18.4	74.8	29.62	0
GMP-07	Quarterly	1	9/25/2014	1.5	8.4	13.1	77	29.61	-0.03
GMP-05	Quarterly	3	9/25/2014	66.1	28.8	0.6	4.5	29.6	5.3

Note: GMP-04 has been decommissioned

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**TABLE 4**

**INVESTIGATIVE GAS MONITORING PROBE DATA**

**JUNE 21, 2014 – SEPTEMBER 25, 2014**

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Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
TMP-1D	Weekly	4	6/25/2014	0	4.4	19.3	76.3	29.52	0.8
TMP-1D	Weekly	4	7/3/2014	0	2	20.4	77.6	29.69	0
TMP-1D	Weekly	4	7/10/2014	0	2.6	20.3	77.1	29.65	0
TMP-1D	Weekly	4	7/17/2014	0	4.2	20	75.8	29.59	0.03
TMP-1D	Weekly	4	7/24/2014	0	5.2	18.1	76.7	29.63	0
TMP-1D	Weekly	4	7/31/2014	0	3.1	20.1	76.8	29.57	0
TMP-1D	Weekly	4	8/7/2014	0.7	1.5	19.8	78	29.37	0.11
TMP-1D	Weekly	4	8/15/2014	0	1.4	19.2	79.4	29.48	0.04
TMP-1D	Weekly	4	8/22/2014	0	4.5	17.7	77.8	29.45	0.01
TMP-1D	Weekly	4	8/29/2014	1.5	2.6	18.8	77.1	29.31	1.23
TMP-1D	Weekly	4	9/3/2014	0.1	6.2	18.6	75.1	29.49	0.45
TMP-1D	Weekly	4	9/12/2014	0	7.9	19.6	72.5	29.66	0.87
TMP-1D	Weekly	4	9/18/2014	0.8	3.5	19.2	76.5	29.47	1.08
TMP-1D	Weekly	4	9/25/2014	0.4	5	18.1	76.5	29.62	0.73
TMP-1M	Weekly	4	6/25/2014	0	7.6	18.2	74.2	29.52	-0.04
TMP-1M	Weekly	4	7/3/2014	0	3.5	19.9	76.6	29.69	0
TMP-1M	Weekly	4	7/10/2014	0	4.7	19.6	75.7	29.65	-0.03
TMP-1M	Weekly	4	7/17/2014	0	8.1	18.8	73.1	29.59	-0.04
TMP-1M	Weekly	4	7/24/2014	0	7.8	17.2	75	29.63	0.01
TMP-1M	Weekly	4	7/31/2014	0	7	18.8	74.2	29.57	0
TMP-1M	Weekly	4	8/7/2014	0.2	2.8	19.5	77.5	29.37	0.02
TMP-1M	Weekly	4	8/15/2014	0	6.8	17.9	75.3	29.48	0.01
TMP-1M	Weekly	4	8/22/2014	0	7.2	16.8	76	29.45	0.02
TMP-1M	Weekly	4	8/29/2014	0.4	3.2	18.9	77.5	29.31	0
TMP-1M	Weekly	4	9/3/2014	0	9	17.6	73.4	29.49	0
TMP-1M	Weekly	4	9/12/2014	0	13.3	17.5	69.2	29.66	-0.05
TMP-1M	Weekly	4	9/18/2014	0.6	5.9	18.7	74.8	29.47	0.01
TMP-1M	Weekly	4	9/25/2014	0	10.1	16.9	73	29.62	-0.01
TMP-1S	Weekly	4	6/25/2014	32	60.7	0.2	7.1	29.52	0.13
TMP-1S	Weekly	4	7/3/2014	30.3	51.2	3.1	15.4	29.69	0.04
TMP-1S	Weekly	4	7/10/2014	20.4	49.1	3.7	26.8	29.65	0.11
TMP-1S	Weekly	4	7/17/2014	33.3	54.7	1.3	10.7	29.59	0.25
TMP-1S	Weekly	4	7/24/2014	32.2	54.4	0.8	12.6	29.63	0.03
TMP-1S	Weekly	4	7/31/2014	34.9	54	1.1	10	29.57	0.01

Note: TMP-3D has not been read since 6/12/14, TMP-3M has not been read since 5/22/14, and TMP-3S has not been read since 6/20/14.

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
TMP-1S	Weekly	4	8/7/2014	40.8	56.7	0	2.5	29.37	0.5
TMP-1S	Weekly	4	8/15/2014	33.8	53.5	1.3	11.4	29.48	0.14
TMP-1S	Weekly	4	8/22/2014	32.7	54.6	0.9	11.8	29.45	0.09
TMP-1S	Weekly	4	8/29/2014	37.9	59.3	0.1	2.7	29.31	0.18
TMP-1S	Weekly	4	9/3/2014	30.8	55.2	0	14	29.48	0.33
TMP-1S	Weekly	4	9/12/2014	29.6	58.3	0.1	12	29.66	0.5
TMP-1S	Weekly	4	9/18/2014	40.3	55.8	0.1	3.8	29.46	0.18
TMP-1S	Weekly	4	9/25/2014	30	57.3	0.2	12.5	29.62	0.13
TMP-2D	Weekly	4	6/25/2014	55.7	35.4	0.3	8.6	29.51	8.88
TMP-2D	Weekly	4	7/3/2014	41.1	32.3	4.5	22.1	29.68	6.17
TMP-2D	Weekly	4	7/10/2014	18.7	19.3	10	52	29.63	0.75
TMP-2D	Weekly	4	7/17/2014	27.5	23.3	9.5	39.7	29.59	2.88
TMP-2D	Weekly	4	7/24/2014	18.1	15.7	11.9	54.3	29.62	0.61
TMP-2D	Weekly	4	7/31/2014	0	0.1	20.7	79.2	29.56	0.01
TMP-2D	Weekly	4	8/7/2014	5.5	6.2	18.1	70.2	29.36	0.07
TMP-2D	Weekly	4	8/15/2014	0.4	0.9	18.9	79.8	29.47	0.03
TMP-2D	Weekly	4	8/22/2014	0	1.4	18.2	80.4	29.45	0
TMP-2D	Weekly	4	8/29/2014	44.8	34.2	2.2	18.8	29.3	4.21
TMP-2D	Weekly	4	9/3/2014	49	35.4	0.1	15.5	29.48	6.43
TMP-2D	Weekly	4	9/12/2014	9.3	17	13.7	60	29.66	0.22
TMP-2D	Weekly	4	9/18/2014	12.5	16.8	14.4	56.3	29.46	0.03
TMP-2D	Weekly	4	9/25/2014	12.6	32.3	9.6	45.5	29.61	0.09
TMP-2M	Weekly	4	6/25/2014	6.2	3	18.6	72.2	29.51	-0.02
TMP-2M	Weekly	4	7/3/2014	10.8	4.4	17.2	67.6	29.68	0.06
TMP-2M	Weekly	4	7/10/2014	0	4	19.1	76.9	29.63	0.02
TMP-2M	Weekly	4	7/17/2014	1.4	6.7	19	72.9	29.59	-0.02
TMP-2M	Weekly	4	7/24/2014	1.3	1.7	18.9	78.1	29.62	0.01
TMP-2M	Weekly	4	7/31/2014	0	1.7	20.2	78.1	29.56	0.03
TMP-2M	Weekly	4	8/7/2014	4.4	6.1	18.2	71.3	29.36	0
TMP-2M	Weekly	4	8/15/2014	0.3	3.2	18.4	78.1	29.47	0.02
TMP-2M	Weekly	4	8/22/2014	1.6	2.5	17.6	78.3	29.45	-0.04
TMP-2M	Weekly	4	8/29/2014	7.4	6.2	16.8	69.6	29.3	0.05
TMP-2M	Weekly	4	9/3/2014	6.6	10.1	16.1	67.2	29.48	-0.05
TMP-2M	Weekly	4	9/12/2014	13.2	17.6	12.8	56.4	29.66	0.06

Note: TMP-3D has not been read since 6/12/14, TMP-3M has not been read since 5/22/14, and TMP-3S has not been read since 6/20/14.

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
TMP-2M	Weekly	4	9/18/2014	13.2	14.5	14.8	57.5	29.45	-0.01
TMP-2M	Weekly	4	9/25/2014	7.6	17.7	13.8	60.9	29.61	0.04
TMP-2S	Weekly	4	6/25/2014	0	1.8	20.2	78	29.51	0
TMP-2S	Weekly	4	7/3/2014	0.2	2.2	19.9	77.7	29.68	0
TMP-2S	Weekly	4	7/10/2014	0	8.3	16.9	74.8	29.63	-0.05
TMP-2S	Weekly	4	7/17/2014	26.2	11.8	11.5	50.5	29.58	0
TMP-2S	Weekly	4	7/24/2014	0	2.7	18.9	78.4	29.61	0
TMP-2S	Weekly	4	7/31/2014	0	3.4	19.7	76.9	29.56	0
TMP-2S	Weekly	4	8/7/2014	8.3	11.1	13.3	67.3	29.37	0
TMP-2S	Weekly	4	8/15/2014	12.1	14.5	11.9	61.5	29.47	0
TMP-2S	Weekly	4	8/22/2014	25.5	23.3	8	43.2	29.45	0
TMP-2S	Weekly	4	8/29/2014	10.7	17.6	10.7	61	29.3	0
TMP-2S	Weekly	4	9/3/2014	5.7	11.4	15.2	67.7	29.48	-0.03
TMP-2S	Weekly	4	9/12/2014	0	9.6	17.8	72.6	29.66	-0.03
TMP-2S	Weekly	4	9/18/2014	0.6	7.4	14.7	77.3	29.45	0.01
TMP-2S	Weekly	4	9/25/2014	0	12.6	15.8	71.6	29.61	-0.04
TMP-3D	Weekly	4	6/25/2014	NA	NA	NA	NA	NA	NA
TMP-3D	Weekly	4	7/3/2014	NA	NA	NA	NA	NA	NA
TMP-3D	Weekly	4	7/10/2014	NA	NA	NA	NA	NA	NA
TMP-3D	Weekly	4	7/17/2014	NA	NA	NA	NA	NA	NA
TMP-3D	Weekly	4	7/24/2014	NA	NA	NA	NA	NA	NA
TMP-3D	Weekly	4	7/31/2014	NA	NA	NA	NA	NA	NA
TMP-3D	Weekly	4	8/7/2014	NA	NA	NA	NA	NA	NA
TMP-3D	Weekly	4	8/15/2014	NA	NA	NA	NA	NA	NA
TMP-3D	Weekly	4	8/22/2014	NA	NA	NA	NA	NA	NA
TMP-3D	Weekly	4	8/29/2014	NA	NA	NA	NA	NA	NA
TMP-3D	Weekly	4	9/3/2014	NA	NA	NA	NA	NA	NA
TMP-3D	Weekly	4	9/12/2014	NA	NA	NA	NA	NA	NA
TMP-3D	Weekly	4	9/18/2014	NA	NA	NA	NA	NA	NA
TMP-3D	Weekly	4	9/25/2014	NA	NA	NA	NA	NA	NA
TMP-3M	Weekly	4	6/25/2014	NA	NA	NA	NA	NA	NA
TMP-3M	Weekly	4	7/3/2014	NA	NA	NA	NA	NA	NA
TMP-3M	Weekly	4	7/10/14	NA	NA	NA	NA	NA	NA
TMP-3M	Weekly	4	7/17/14	NA	NA	NA	NA	NA	NA

Note: TMP-3D has not been read since 6/12/14, TMP-3M has not been read since 5/22/14, and TMP-3S has not been read since 6/20/14.

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
TMP-3M	Weekly	4	7/24/14	NA	NA	NA	NA	NA	NA
TMP-3M	Weekly	4	7/31/14	NA	NA	NA	NA	NA	NA
TMP-3M	Weekly	4	8/7/14	NA	NA	NA	NA	NA	NA
TMP-3M	Weekly	4	8/15/14	NA	NA	NA	NA	NA	NA
TMP-3M	Weekly	4	8/22/14	NA	NA	NA	NA	NA	NA
TMP-3M	Weekly	4	8/29/14	NA	NA	NA	NA	NA	NA
TMP-3M	Weekly	4	9/3/14	NA	NA	NA	NA	NA	NA
TMP-3M	Weekly	4	9/12/14	NA	NA	NA	NA	NA	NA
TMP-3M	Weekly	4	9/18/14	NA	NA	NA	NA	NA	NA
TMP-3M	Weekly	4	9/25/14	NA	NA	NA	NA	NA	NA
TMP-3S	Weekly	4	6/25/14	NA	NA	NA	NA	NA	NA
TMP-3S	Weekly	4	7/3/14	NA	NA	NA	NA	NA	NA
TMP-3S	Weekly	4	7/10/14	NA	NA	NA	NA	NA	NA
TMP-3S	Weekly	4	7/17/14	NA	NA	NA	NA	NA	NA
TMP-3S	Weekly	4	7/24/14	NA	NA	NA	NA	NA	NA
TMP-3S	Weekly	4	7/31/14	NA	NA	NA	NA	NA	NA
TMP-3S	Weekly	4	8/7/14	NA	NA	NA	NA	NA	NA
TMP-3S	Weekly	4	8/15/14	NA	NA	NA	NA	NA	NA
TMP-3S	Weekly	4	8/22/14	NA	NA	NA	NA	NA	NA
TMP-3S	Weekly	4	8/29/14	NA	NA	NA	NA	NA	NA
TMP-3S	Weekly	4	9/3/14	NA	NA	NA	NA	NA	NA
TMP-3S	Weekly	4	9/12/14	NA	NA	NA	NA	NA	NA
TMP-3S	Weekly	4	9/18/14	NA	NA	NA	NA	NA	NA
TMP-3S	Weekly	4	9/25/14	NA	NA	NA	NA	NA	NA

Note: TMP-3D has not been read since 6/12/14, TMP-3M has not been read since 5/22/14, and TMP-3S has not been read since 6/20/14.

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**TABLE 5**

**PUBLIC SAFETY GAS MONITORING PROBE DATA**

**JUNE 21, 2014 – SEPTEMBER 25, 2014**

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Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-09	Weekly	4	6/25/2014	0.0	0.9	19.3	79.8	29.53	0
GMP-09	Weekly	4	7/3/2014	0.0	0.5	21.1	78.4	29.71	0.01
GMP-09	Weekly	4	7/10/2014	0.0	1.7	20.3	78	29.67	0.16
GMP-09	Weekly	4	7/17/2014	0.0	1.3	20	78.7	29.6	-0.02
GMP-09	Weekly	4	7/24/2014	0.0	3	19	78	29.66	0
GMP-09	Weekly	4	7/31/2014	0.0	0.6	20.7	78.7	29.58	0
GMP-09	Weekly	4	8/7/2014	0.0	2.5	19.6	77.9	29.38	0
GMP-09	Weekly	4	8/15/2014	0.0	1.4	18.8	79.8	29.49	0.91
GMP-09	Weekly	4	8/22/2014	0.1	2.9	17.9	79.1	29.46	0.44
GMP-09	Weekly	4	8/29/2014	0.0	2.9	18.4	78.7	29.34	0.61
GMP-09	Weekly	4	9/3/2014	0.0	7.6	18.4	74	29.49	0.78
GMP-09	Weekly	4	9/12/2014	0.4	11.8	19.1	68.7	29.69	1.87
GMP-09	Weekly	4	9/18/2014	1.4	4.9	18.2	75.5	29.48	0.05
GMP-09	Weekly	4	9/25/2014	36.8	34.5	0.2	28.5	29.6	0.04
GMP-10	Weekly	4	6/25/2014	0.0	0.8	19.2	80	29.52	0
GMP-10	Weekly	4	7/3/2014	0.0	0.5	20.8	78.7	29.69	0
GMP-10	Weekly	4	7/10/2014	0.0	1.1	20.6	78.3	29.66	0
GMP-10	Weekly	4	7/17/2014	0.0	0.8	20.4	78.8	29.59	-0.02
GMP-10	Weekly	4	7/24/2014	0.0	1.6	19.3	79.1	29.65	-0.03
GMP-10	Weekly	4	7/31/2014	0.0	0.4	20.8	78.8	29.57	0
GMP-10	Weekly	4	8/7/2014	0.0	0.8	20	79.2	29.37	0
GMP-10	Weekly	4	8/15/2014	0.0	1.8	15.7	82.5	29.48	0
GMP-10	Weekly	4	8/22/2014	0.0	0.9	18.4	80.7	29.45	-0.02
GMP-10	Weekly	4	8/29/2014	0.0	1.8	18.5	79.7	29.32	0.03
GMP-10	Weekly	4	9/3/2014	0.0	4.4	17.6	78	29.48	0.5
GMP-10	Weekly	4	9/12/2014	0.0	7.5	17.5	75	29.67	-1.1
GMP-10	Weekly	4	9/18/2014	0.2	2	18.8	79	29.47	-1.09
GMP-10	Weekly	4	9/25/2014	0.0	8.1	16.6	75.3	29.62	-7.75
GMP-11	Weekly	4	6/25/2014	0.0	0.4	20.2	79.4	29.51	0
GMP-11	Weekly	4	7/3/2014	0.0	0.2	20.6	79.2	29.69	0
GMP-11	Weekly	4	7/10/2014	0.0	0.5	20.5	79	29.65	0
GMP-11	Weekly	4	7/17/2014	0.0	0.4	20.7	78.9	29.59	0
GMP-11	Weekly	4	7/24/2014	0.0	0.7	19.3	80	29.63	0.01
GMP-11	Weekly	4	7/31/2014	0.0	0.3	20.8	78.9	29.56	0

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-11	Weekly	4	8/7/2014	0.0	0.5	19.9	79.6	29.37	-0.02
GMP-11	Weekly	4	8/15/2014	0.0	1.1	19.1	79.8	29.47	-0.01
GMP-11	Weekly	4	8/22/2014	0.0	0.5	18.4	81.1	29.45	-0.02
GMP-11	Weekly	4	8/29/2014	0.0	0.5	19.6	79.9	29.3	-0.01
GMP-11	Weekly	4	9/3/2014	0.0	1.6	20.3	78.1	29.48	0
GMP-11	Weekly	4	9/12/2014	0.0	4.4	21.2	74.4	29.66	0.03
GMP-11	Weekly	4	9/18/2014	0.0	0.5	20.4	79.1	29.46	-0.01
GMP-11	Weekly	4	9/25/2014	0.0	5.5	18.3	76.2	29.61	0
GMP-12	Weekly	4	6/25/2014	0.0	0.3	20.4	79.3	29.51	0
GMP-12	Weekly	4	7/3/2014	0.0	0.3	20.6	79.1	29.69	0.01
GMP-12	Weekly	4	7/10/2014	0.0	0.4	20.6	79	29.64	0
GMP-12	Weekly	4	7/17/2014	0.0	0.4	20.8	78.8	29.58	0
GMP-12	Weekly	4	7/24/2014	0.0	0.6	19.3	80.1	29.63	0
GMP-12	Weekly	4	7/31/2014	0.0	0.3	20.9	78.8	29.56	0
GMP-12	Weekly	4	8/7/2014	0.0	0.6	19.9	79.5	29.37	-0.02
GMP-12	Weekly	4	8/15/2014	0.0	0.9	19.2	79.9	29.47	-0.01
GMP-12	Weekly	4	8/22/2014	0.0	0.4	18.5	81.1	29.44	-0.02
GMP-12	Weekly	4	8/29/2014	0.0	0.4	19.8	79.8	29.3	-0.01
GMP-12	Weekly	4	9/3/2014	0.0	1.4	20.3	78.3	29.47	-0.01
GMP-12	Weekly	4	9/12/2014	0.0	3.7	21.5	74.8	29.66	0
GMP-12	Weekly	4	9/18/2014	0.0	0.5	20.5	79	29.46	-0.01
GMP-12	Weekly	4	9/25/2014	0.0	4.4	19	76.6	29.61	0
4OSS	Weekly	4	6/25/2014	0.0	0.4	20.3	79.3	29.51	0
4OSS	Weekly	4	7/3/2014	0.0	0.2	20.6	79.2	29.69	0.01
4OSS	Weekly	4	7/10/2014	0.0	0.6	20.6	78.8	29.64	0
4OSS	Weekly	4	7/17/2014	0.0	0.5	20.7	78.8	29.59	0
4OSS	Weekly	4	7/24/2014	0.0	0.8	19.4	79.8	29.63	0
4OSS	Weekly	4	7/31/2014	0.0	0.3	20.9	78.8	29.56	0
4OSS	Weekly	4	8/7/2014	0.0	0.5	19.9	79.6	29.37	0.8
4OSS	Weekly	4	8/15/2014	0.0	1.3	18.8	79.9	29.47	0.11
4OSS	Weekly	4	8/22/2014	0.0	0.5	18.4	81.1	29.44	-0.01
4OSS	Weekly	4	8/29/2014	0.0	0.4	19.8	79.8	29.3	0.15
4OSS	Weekly	4	9/3/2014	0.0	2.2	19.6	78.2	29.47	0.14
4OSS	Weekly	4	9/12/2014	0.0	5.4	20.5	74.1	29.66	-2.38

Gas Monitoring Probe Data - Public Safety Probes  
06/21/2014 - 09/25/2014

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
4OSS	Weekly	4	9/18/2014	0.0	0.6	20.3	79.1	29.46	-1.27
4OSS	Weekly	4	9/25/2014	0.0	5.9	18	76.1	29.61	0.7
4ASS	Weekly	4	6/25/2014	0.0	0.7	18.9	80.4	29.52	0
4ASS	Weekly	4	7/3/2014	0.0	0.2	20.7	79.1	29.69	-0.01
4ASS	Weekly	4	7/10/14	0.0	0.9	20.5	78.6	29.65	0
4ASS	Weekly	4	7/17/14	0.0	0.6	20.5	78.9	29.59	0
4ASS	Weekly	4	7/24/14	0.0	1	19.3	79.7	29.64	0
4ASS	Weekly	4	7/31/14	0.0	0.4	20.7	78.9	29.56	0
4ASS	Weekly	4	8/7/14	0.1	0.6	19.8	79.5	29.37	1.26
4ASS	Weekly	4	8/15/14	0.0	1.6	15.7	82.7	29.48	0.03
4ASS	Weekly	4	8/22/14	0.0	0.7	18.4	80.9	29.45	0
4ASS	Weekly	4	8/29/14	0.0	0.4	19.7	79.9	29.31	0
4ASS	Weekly	4	9/3/14	0.0	3.2	18.5	78.3	29.47	0.01
4ASS	Weekly	4	9/12/14	0.0	6.2	18.7	75.1	29.67	0.3
4ASS	Weekly	4	9/18/14	0.0	0.8	19.8	79.4	29.46	-3.95
4ASS	Weekly	4	9/25/14	0.0	7.1	17.2	75.7	29.61	0.11

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**TABLE 6**

**GAS MONITORING PROBE WATER LEVEL DATA**

**JUNE 21, 2014 – SEPTEMBER 25, 2014**

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Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-08	06/25/14	1	33.8	No Comment
GMP-16D	06/25/14	1	8	No Comment
GMP-16S	06/25/14	1	7.9	No Comment
GMP-7D	06/25/14	1	18	No Comment
GMP-7S	06/25/14	1	16.3	No Comment
GMP-15D	06/25/14	2	9.2	No Comment
GMP-15S	06/25/14	2	8	No Comment
GMP-14D	06/25/14	3	5.1	No Comment
GMP-14S	06/25/14	3	5.5	No Comment
GMP-4D	06/25/14	3	7	No Comment
GMP-4S	06/25/14	3	6.9	No Comment
GMP-5D	06/25/14	3	20	No Comment
GMP-5S	06/25/14	3	12.7	No Comment
GMP-6D	06/25/14	3	12	No Comment
GMP-6S	06/25/14	3	9.5	No Comment
4ASS	06/25/14	4	5	No Comment
4OSS	06/25/14	4	9.6	No Comment
GMP-01	06/25/14	4	Dry	No Comment
GMP-02	06/25/14	4	17.4	No Comment
GMP-03	06/25/14	4	11.4	No Comment
GMP-09	06/25/14	4	7.9	No Comment
GMP-10	06/25/14	4	6.4	No Comment
GMP-11	06/25/14	4	0.5	No Comment
GMP-12	06/25/14	4	0	No Comment
GMP-13D	06/25/14	4	12.2	No Comment
GMP-13S	06/25/14	4	8.6	No Comment
TMP-1D	06/25/14	4	20	No Comment
TMP-1M	06/25/14	4	20	No Comment
TMP-1S	06/25/14	4	19.2	No Comment
TMP-2D	06/25/14	4	19	No Comment
TMP-2M	06/25/14	4	17.4	No Comment
TMP-2S	06/25/14	4	16.4	No Comment
TMP-3D	06/25/14	4	Unable to obtain	Excessive pressure
TMP-3M	06/25/14	4	Unable to obtain	Excessive pressure

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-3S	06/25/14	4	Unable to obtain	Excessive pressure
GMP-08	07/03/14	1	33.8	No Comment
GMP-16D	07/03/14	1	8.3	No Comment
GMP-16S	07/03/14	1	8.1	No Comment
GMP-7D	07/03/14	1	19	No Comment
GMP-7S	07/03/14	1	18.3	No Comment
GMP-15D	07/03/14	2	9.3	No Comment
GMP-15S	07/03/14	2	8.2	Relative Pressure corrected
GMP-14D	07/03/14	3	5.7	No Comment
GMP-14S	07/03/14	3	5.5	No Comment
GMP-4D	07/03/14	3	6.9	No Comment
GMP-4S	07/03/14	3	6.9	No Comment
GMP-5D	07/03/14	3	20.1	No Comment
GMP-5S	07/03/14	3	12.6	No Comment
GMP-6D	07/03/14	3	12.1	No Comment
GMP-6S	07/03/14	3	9.5	No Comment
4ASS	07/03/14	4	5.6	No Comment
4OSS	07/03/14	4	9.2	No Comment
GMP-01	07/03/14	4	Dry	No Comment
GMP-02	07/03/14	4	13	No Comment
GMP-03	07/03/14	4	11.6	No Comment
GMP-09	07/03/14	4	8.9	No Comment
GMP-10	07/03/14	4	7.4	No Comment
GMP-11	07/03/14	4	0.5	No Comment
GMP-12	07/03/14	4	0	No Comment
GMP-13D	07/03/14	4	11.3	No Comment
GMP-13S	07/03/14	4	8.4	No Comment
TMP-1D	07/03/14	4	20.4	No Comment
TMP-1M	07/03/14	4	20.4	No Comment
TMP-1S	07/03/14	4	19.6	No Comment
TMP-2D	07/03/14	4	21	No Comment
TMP-2M	07/03/14	4	17.9	No Comment
TMP-2S	07/03/14	4	17	No Comment
TMP-3D	07/03/14	4	Unable to obtain	Excessive pressure

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-3M	07/03/14	4	Unable to obtain	Excessive pressure
TMP-3S	07/03/14	4	Unable to obtain	Excessive pressure
GMP-08	07/10/14	1	33.8	No Comment
GMP-16D	07/10/14	1	8.4	No Comment
GMP-16S	07/10/14	1	8.3	No Comment
GMP-7D	07/10/14	1	18.9	No Comment
GMP-7S	07/10/14	1	18	No Comment
GMP-15D	07/10/14	2	9.7	No Comment
GMP-15S	07/10/14	2	8.5	No Comment
GMP-14D	07/10/14	3	5.9	No Comment
GMP-14S	07/10/14	3	5.6	No Comment
GMP-4D	07/10/14	3	7.1	No Comment
GMP-4S	07/10/14	3	7.1	No Comment
GMP-5D	07/10/14	3	20.4	No Comment
GMP-5S	07/10/14	3	13	No Comment
GMP-6D	07/10/14	3	12.3	No Comment
GMP-6S	07/10/14	3	9.8	No Comment
4ASS	07/10/14	4	5.7	No Comment
4OSS	07/10/14	4	9.3	No Comment
GMP-01	07/10/14	4	Dry	No Comment
GMP-02	07/10/14	4	17.3	No Comment
GMP-03	07/10/14	4	11.7	No Comment
GMP-09	07/10/14	4	9.6	No Comment
GMP-10	07/10/14	4	7.6	No Comment
GMP-11	07/10/14	4	0.3	No Comment
GMP-12	07/10/14	4	0	No Comment
GMP-13D	07/10/14	4	11.8	No Comment
GMP-13S	07/10/14	4	8.8	No Comment
TMP-1D	07/10/14	4	20.5	No Comment
TMP-1M	07/10/14	4	20.5	No Comment
TMP-1S	07/10/14	4	19.9	No Comment
TMP-2D	07/10/14	4	20.1	No Comment
TMP-2M	07/10/14	4	18.7	No Comment
TMP-2S	07/10/14	4	17.5	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-3D	07/10/14	4	Unable to obtain	Excessive pressure
TMP-3M	07/10/14	4	Unable to obtain	Excessive pressure
TMP-3S	07/10/14	4	Unable to obtain	Excessive pressure
GMP-08	07/17/14	1	33.7	No Comment
GMP-16D	07/17/14	1	8.4	No Comment
GMP-16S	07/17/14	1	8.3	No Comment
GMP-7D	07/17/14	1	18.8	No Comment
GMP-7S	07/17/14	1	17.8	No Comment
GMP-15D	07/17/14	2	9.7	No Comment
GMP-15S	07/17/14	2	8.6	No Comment
GMP-14D	07/17/14	3	5.9	No Comment
GMP-14S	07/17/14	3	5.7	No Comment
GMP-4D	07/17/14	3	7.4	No Comment
GMP-4S	07/17/14	3	7.4	No Comment
GMP-5D	07/17/14	3	20.3	No Comment
GMP-5S	07/17/14	3	13.1	No Comment
GMP-6D	07/17/14	3	12.3	No Comment
GMP-6S	07/17/14	3	9.9	No Comment
4ASS	07/17/14	4	5	No Comment
4OSS	07/17/14	4	9.6	No Comment
GMP-01	07/17/14	4	Dry	No Comment
GMP-02	07/17/14	4	17.5	No Comment
GMP-03	07/17/14	4	11.6	No Comment
GMP-09	07/17/14	4	9.9	No Comment
GMP-10	07/17/14	4	7.4	No Comment
GMP-11	07/17/14	4	0.3	No Comment
GMP-12	07/17/14	4	0	No Comment
GMP-13D	07/17/14	4	11.4	No Comment
GMP-13S	07/17/14	4	8.8	No Comment
TMP-1D	07/17/14	4	20.5	No Comment
TMP-1M	07/17/14	4	20.4	No Comment
TMP-1S	07/17/14	4	19.9	No Comment
TMP-2D	07/17/14	4	21.1	No Comment
TMP-2M	07/17/14	4	19.1	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-2S	07/17/14	4	17.4	No Comment
TMP-3D	07/17/14	4	NA	Sealed off
TMP-3M	07/17/14	4	NA	Sealed off
TMP-3S	07/17/14	4	NA	Sealed off
GMP-08	07/24/14	1	33.7	No Comment
GMP-16D	07/24/14	1	8.6	Database reads 16S. Should be 16D
GMP-16S	07/24/14	1	8.5	No Comment
GMP-7D	07/24/14	1	19.1	No Comment
GMP-7S	07/24/14	1	18.5	No Comment
GMP-15D	07/24/14	2	10	No Comment
GMP-15S	07/24/14	2	8.8	No Comment
GMP-14D	07/24/14	3	7.8	CH4 last week = 27.9%
GMP-14S	07/24/14	3	6.5	CH4 last week = 6.7%
GMP-4D	07/24/14	3	7.6	Baro. Pressure is wrong.
GMP-4S	07/24/14	3	7.5	CH4 last week = 3.2%
GMP-5D	07/24/14	3	20.6	No Comment
GMP-5S	07/24/14	3	13.7	CH4 last week = 1.6%
GMP-6D	07/24/14	3	12.5	No Comment
GMP-6S	07/24/14	3	10.1	No Comment
4ASS	07/24/14	4	5.4	No Comment
4OSS	07/24/14	4	9.5	No Comment
GMP-01	07/24/14	4	Dry	CH4 last week = 58.3%
GMP-02	07/24/14	4	17.5	No Comment
GMP-03	07/24/14	4	11.8	CH4 last week =30.7%
GMP-09	07/24/14	4	10.2	No Comment
GMP-10	07/24/14	4	7.4	No Comment
GMP-11	07/24/14	4	0	No Comment
GMP-12	07/24/14	4	0	No Comment
GMP-13D	07/24/14	4	11.4	No Comment
GMP-13S	07/24/14	4	8.9	No Comment
TMP-1D	07/24/14	4	21.2	No Comment
TMP-1M	07/24/14	4	20.6	No Comment
TMP-1S	07/24/14	4	20.1	No Comment
TMP-2D	07/24/14	4	21.1	CH4 last week = 27.5%

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-2M	07/24/14	4	18.8	No Comment
TMP-2S	07/24/14	4	17.6	CH4 last week =26.2%
TMP-3D	07/24/14	4	NA	Sealed off
TMP-3M	07/24/14	4	NA	Sealed off
TMP-3S	07/24/14	4	NA	Sealed off
GMP-08	07/31/14	1	33.6	No Comment
GMP-16D	07/31/14	1	8.9	No Comment
GMP-16S	07/31/14	1	8.7	No Comment
GMP-7D	07/31/14	1	19	No Comment
GMP-7S	07/31/14	1	18.6	No Comment
GMP-15D	07/31/14	2	10.3	No Comment
GMP-15S	07/31/14	2	9	No Comment
GMP-14D	07/31/14	3	7	CH4 last week = 18.5%
GMP-14S	07/31/14	3	6.3	CH4 last week = 10.3%
GMP-4D	07/31/14	3	7.8	No Comment
GMP-4S	07/31/14	3	7.4	CH4 last week = 2%
GMP-5D	07/31/14	3	20.8	No Comment
GMP-5S	07/31/14	3	13.8	CH4 last week = 9.3%
GMP-6D	07/31/14	3	12.7	No Comment
GMP-6S	07/31/14	3	10.3	No Comment
4ASS	07/31/14	4	6	No Comment
4OSS	07/31/14	4	9.5	No Comment
GMP-01	07/31/14	4	Dry	No Comment
GMP-02	07/31/14	4	17.5	No Comment
GMP-03	07/31/14	4	12.6	CH4 last week = 38%
GMP-09	07/31/14	4	10.4	No Comment
GMP-10	07/31/14	4	9.6	No Comment
GMP-11	07/31/14	4	0.3	No Comment
GMP-12	07/31/14	4	0	No Comment
GMP-13D	07/31/14	4	11.2	No Comment
GMP-13S	07/31/14	4	9.2	No Comment
TMP-1D	07/31/14	4	21	No Comment
TMP-1M	07/31/14	4	21	No Comment
TMP-1S	07/31/14	4	20.4	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-2D	07/31/14	4	21	CH4 last week = 18.1%
TMP-2M	07/31/14	4	18.6	No Comment
TMP-2S	07/31/14	4	17.3	No Comment
TMP-3D	07/31/14	4	NA	Sealed off
TMP-3M	07/31/14	4	NA	Sealed off
TMP-3S	07/31/14	4	NA	Sealed off
GMP-08	08/07/14	1	33.3	No Comment
GMP-16D	08/07/14	1	8.8	No Comment
GMP-16S	08/07/14	1	8.5	No Comment
GMP-7D	08/07/14	1	18.8	No Comment
GMP-7S	08/07/14	1	18.4	No Comment
GMP-15D	08/07/14	2	10.2	No Comment
GMP-15S	08/07/14	2	9	No Comment
GMP-14D	08/07/14	3	6.2	No Comment
GMP-14S	08/07/14	3	6.9	No Comment
GMP-4D	08/07/14	3	7.8	No Comment
GMP-4S	08/07/14	3	7.2	No Comment
GMP-5D	08/07/14	3	20.6	No Comment
GMP-5S	08/07/14	3	13.8	No Comment
GMP-6D	08/07/14	3	12.6	No Comment
GMP-6S	08/07/14	3	10.1	No Comment
4ASS	08/07/14	4	5.8	No Comment
4OSS	08/07/14	4	9.4	No Comment
GMP-01	08/07/14	4	Dry	No Comment
GMP-02	08/07/14	4	17.3	No Comment
GMP-03	08/07/14	4	12.4	No Comment
GMP-09	08/07/14	4	10.2	No Comment
GMP-10	08/07/14	4	9.3	No Comment
GMP-11	08/07/14	4	0	No Comment
GMP-12	08/07/14	4	0	No Comment
GMP-13D	08/07/14	4	11	No Comment
GMP-13S	08/07/14	4	8.9	No Comment
TMP-1D	08/07/14	4	20.6	No Comment
TMP-1M	08/07/14	4	20.6	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-1S	08/07/14	4	20.2	No Comment
TMP-2D	08/07/14	4	21	No Comment
TMP-2M	08/07/14	4	18.6	No Comment
TMP-2S	08/07/14	4	17.1	No Comment
TMP-3D	08/07/14	4	NA	Sealed off
TMP-3M	08/07/14	4	NA	Sealed off
TMP-3S	08/07/14	4	NA	Sealed off
GMP-08	08/15/14	1	33.6	No Comment
GMP-16D	08/15/14	1	8.4	No Comment
GMP-16S	08/15/14	1	8.2	No Comment
GMP-7D	08/15/14	1	18.8	No Comment
GMP-7S	08/15/14	1	18.2	No Comment
GMP-15D	08/15/14	2	9.7	No Comment
GMP-15S	08/15/14	2	8.3	No Comment
GMP-14D	08/15/14	3	7.6	No Comment
GMP-14S	08/15/14	3	6.7	No Comment
GMP-4D	08/15/14	3	7.7	No Comment
GMP-4S	08/15/14	3	7.7	No Comment
GMP-5D	08/15/14	3	20.4	No Comment
GMP-5S	08/15/14	3	13.5	No Comment
GMP-6D	08/15/14	3	12.3	No Comment
GMP-6S	08/15/14	3	9.7	No Comment
4ASS	08/15/14	4	5.3	No Comment
4OSS	08/15/14	4	9.5	No Comment
GMP-01	08/15/14	4	Dry	No Comment
GMP-02	08/15/14	4	17.3	No Comment
GMP-03	08/15/14	4	11.9	No Comment
GMP-09	08/15/14	4	9.8	No Comment
GMP-10	08/15/14	4	7.4	No Comment
GMP-11	08/15/14	4	0	No Comment
GMP-12	08/15/14	4	0	No Comment
GMP-13D	08/15/14	4	11.5	No Comment
GMP-13S	08/15/14	4	9	No Comment
TMP-1D	08/15/14	4	20.6	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-1M	08/15/14	4	20.7	No Comment
TMP-1S	08/15/14	4	20	No Comment
TMP-2D	08/15/14	4	21.1	No Comment
TMP-2M	08/15/14	4	18.8	No Comment
TMP-2S	08/15/14	4	17.6	No Comment
TMP-3D	08/15/14	4	NA	Sealed off
TMP-3M	08/15/14	4	NA	Sealed off
TMP-3S	08/15/14	4	NA	Sealed off
GMP-08	08/22/14	1	33.8	No Comment
GMP-16D	08/22/14	1	8.3	No Comment
GMP-16S	08/22/14	1	8.3	No Comment
GMP-7D	08/22/14	1	18.6	No Comment
GMP-7S	08/22/14	1	18.1	No Comment
GMP-15D	08/22/14	2	9.6	No Comment
GMP-15S	08/22/14	2	8.4	No Comment
GMP-14D	08/22/14	3	7.4	No Comment
GMP-14S	08/22/14	3	6.8	No Comment
GMP-4D	08/22/14	3	7.9	No Comment
GMP-4S	08/22/14	3	7.9	No Comment
GMP-5D	08/22/14	3	20.1	No Comment
GMP-5S	08/22/14	3	13.5	No Comment
GMP-6D	08/22/14	3	12.4	No Comment
GMP-6S	08/22/14	3	9.8	No Comment
4ASS	08/22/14	4	5.4	No Comment
4OSS	08/22/14	4	9.4	No Comment
GMP-01	08/22/14	4	11	DTB=12
GMP-02	08/22/14	4	17.3	No Comment
GMP-03	08/22/14	4	11.8	No Comment
GMP-09	08/22/14	4	10	No Comment
GMP-10	08/22/14	4	7.1	No Comment
GMP-11	08/22/14	4	0	No Comment
GMP-12	08/22/14	4	0	No Comment
GMP-13D	08/22/14	4	11.6	No Comment
GMP-13S	08/22/14	4	9.2	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-1D	08/22/14	4	20.7	No Comment
TMP-1M	08/22/14	4	20.6	No Comment
TMP-1S	08/22/14	4	20.1	No Comment
TMP-2D	08/22/14	4	21	No Comment
TMP-2M	08/22/14	4	18.9	No Comment
TMP-2S	08/22/14	4	17.5	No Comment
TMP-3D	08/22/14	4	NA	Sealed off
TMP-3M	08/22/14	4	NA	Sealed off
TMP-3S	08/22/14	4	NA	Sealed off
GMP-08	08/29/14	1	34	No Comment
GMP-16D	08/29/14	1	8.2	No Comment
GMP-16S	08/29/14	1	8.1	No Comment
GMP-7D	08/29/14	1	18.7	No Comment
GMP-7S	08/29/14	1	18.4	No Comment
GMP-15D	08/29/14	2	9.4	No Comment
GMP-15S	08/29/14	2	8.6	No Comment
GMP-14D	08/29/14	3	7.3	LW=0.5% CH4
GMP-14S	08/29/14	3	6.4	LW = 1.1% CH4
GMP-4D	08/29/14	3	7.8	No Comment
GMP-4S	08/29/14	3	7.6	LW=0.3% CH4
GMP-5D	08/29/14	3	20.1	No Comment
GMP-5S	08/29/14	3	13.2	LW=1.8% CH4
GMP-6D	08/29/14	3	12.6	No Comment
GMP-6S	08/29/14	3	9.8	No Comment
4ASS	08/29/14	4	5.3	No Comment
4OSS	08/29/14	4	9	No Comment
GMP-01	08/29/14	4	DRY	LW=0% CH4
GMP-02	08/29/14	4	17.1	No Comment
GMP-03	08/29/14	4	11.5	No Comment
GMP-09	08/29/14	4	8.9	No Comment
GMP-10	08/29/14	4	6.7	No Comment
GMP-11	08/29/14	4	0	No Comment
GMP-12	08/29/14	4	0	No Comment
GMP-13D	08/29/14	4	11.4	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-13S	08/29/14	4	9	No Comment
TMP-1D	08/29/14	4	20.8	LW=0% CH4
TMP-1M	08/29/14	4	20.4	No Comment
TMP-1S	08/29/14	4	20.2	No Comment
TMP-2D	08/29/14	4	21	LW=0% CH4
TMP-2M	08/29/14	4	18.4	LW=1.6% CH4
TMP-2S	08/29/14	4	17.3	LW=25.5% CH4
TMP-3D	08/29/14	4	NA	Sealed off
TMP-3M	08/29/14	4	NA	Sealed off
TMP-3S	08/29/14	4	NA	Sealed off
GMP-08	09/03/14	1	33.7	No Comment
GMP-16D	09/03/14	1	7.9	No Comment
GMP-16S	09/03/14	1	7.8	No Comment
GMP-7D	09/03/14	1	18.5	No Comment
GMP-7S	09/03/14	1	18	No Comment
GMP-15D	09/03/14	2	9.1	No Comment
GMP-15S	09/03/14	2	8.3	No Comment
GMP-14D	09/03/14	3	7	LW=38.1% CH4
GMP-14S	09/03/14	3	6.1	LW = 21.2% CH4
GMP-4D	09/03/14	3	7.4	No Comment
GMP-4S	09/03/14	3	7.2	LW=3.8% CH4
GMP-5D	09/03/14	3	19.8	No Comment
GMP-5S	09/03/14	3	12.9	LW=1.8% CH4
GMP-6D	09/03/14	3	12.3	No Comment
GMP-6S	09/03/14	3	9.6	No Comment
4ASS	09/03/14	4	5	No Comment
4OSS	09/03/14	4	8.8	No Comment
GMP-01	09/03/14	4	DRY	LW=62.8% CH4
GMP-02	09/03/14	4	17	No Comment
GMP-03	09/03/14	4	11.3	No Comment
GMP-09	09/03/14	4	9.2	No Comment
GMP-10	09/03/14	4	6.4	No Comment
GMP-11	09/03/14	4	0	No Comment
GMP-12	09/03/14	4	0	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-13D	09/03/14	4	11.2	No Comment
GMP-13S	09/03/14	4	8.8	No Comment
TMP-1D	09/03/14	4	20.3	LW=1.5%
TMP-1M	09/03/14	4	20	No Comment
TMP-1S	09/03/14	4	19.8	LW=37.9% CH4
TMP-2D	09/03/14	4	20.8	LW=44.8% CH4
TMP-2M	09/03/14	4	18.1	No Comment
TMP-2S	09/03/14	4	17	LW=10.7% CH4
TMP-3D	09/03/14	4	NA	Sealed off
TMP-3M	09/03/14	4	NA	Sealed off
TMP-3S	09/03/14	4	NA	Sealed off
GMP-08	09/12/14	1	33.8	No Comment
GMP-16D	09/12/14	1	7.7	No Comment
GMP-16S	09/12/14	1	7.6	No Comment
GMP-7D	09/12/14	1	18.3	No Comment
GMP-7S	09/12/14	1	17.8	No Comment
GMP-15D	09/12/14	2	9	No Comment
GMP-15S	09/12/14	2	8.4	No Comment
GMP-14D	09/12/14	3	7.2	No Comment
GMP-14S	09/12/14	3	6	LW-16.7% CH4
GMP-4D	09/12/14	3	7.4	No Comment
GMP-4S	09/12/14	3	7.2	No Comment
GMP-5D	09/12/14	3	19.4	No Comment
GMP-5S	09/12/14	3	12.6	LW=1.8% CH4
GMP-6D	09/12/14	3	12	No Comment
GMP-6S	09/12/14	3	9.4	No Comment
4ASS	09/12/14	4	5.1	No Comment
4OSS	09/12/14	4	8.7	No Comment
GMP-01	09/12/14	4	DRY	No Comment
GMP-02	09/12/14	4	17.1	No Comment
GMP-03	09/12/14	4	11	LW = 32.3% CH4
GMP-09	09/12/14	4	8.9	No Comment
GMP-10	09/12/14	4	6.1	No Comment
GMP-11	09/12/14	4	0	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-12	09/12/14	4	0	No Comment
GMP-13D	09/12/14	4	11.3	No Comment
GMP-13S	09/12/14	4	8.6	No Comment
TMP-1D	09/12/14	4	20	No Comment
TMP-1M	09/12/14	4	19.9	No Comment
TMP-1S	09/12/14	4	19.5	No Comment
TMP-2D	09/12/14	4	20.5	LW=49% CH4
TMP-2M	09/12/14	4	18	LW=6.6% CH4
TMP-2S	09/12/14	4	16.8	LW=5.7% CH4
TMP-3D	09/12/14	4	NA	Sealed off
TMP-3M	09/12/14	4	NA	Sealed off
TMP-3S	09/12/14	4	NA	Sealed off
GMP-08	09/18/14	1	34.1	No Comment
GMP-16D	09/18/14	1	7.8	No Comment
GMP-16S	09/18/14	1	7.6	No Comment
GMP-7D	09/18/14	1	18.4	No Comment
GMP-7S	09/18/14	1	17.9	No Comment
GMP-15D	09/18/14	2	9.1	No Comment
GMP-15S	09/18/14	2	8.6	No Comment
GMP-14D	09/18/14	3	7.5	LW = 57.5% CH4
GMP-14S	09/18/14	3	6.1	No Comment
GMP-4D	09/18/14	3	7.6	No Comment
GMP-4S	09/18/14	3	7.2	LW = 26% CH4
GMP-5D	09/18/14	3	19.4	Rel. Press Fluc
GMP-5S	09/18/14	3	12.7	LW=26.5% CH4
GMP-6D	09/18/14	3	12.2	No Comment
GMP-6S	09/18/14	3	9.3	No Comment
4ASS	09/18/14	4	5.4	No Comment
4OSS	09/18/14	4	8.8	No Comment
GMP-01	09/18/14	4	DRY	No Comment
GMP-02	09/18/14	4	17.3	LW = 49.1% CH4
GMP-03	09/18/14	4	11.4	LW = 28.7% CH4
GMP-09	09/18/14	4	8.8	No Comment
GMP-10	09/18/14	4	6.3	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-11	09/18/14	4	0	No Comment
GMP-12	09/18/14	4	0	No Comment
GMP-13D	09/18/14	4	11.4	No Comment
GMP-13S	09/18/14	4	8.4	No Comment
TMP-1D	09/18/14	4	20.1	No Comment
TMP-1M	09/18/14	4	19.9	No Comment
TMP-1S	09/18/14	4	19.8	LW=29.6% CH4
TMP-2D	09/18/14	4	20.3	LW=9.3% CH4
TMP-2M	09/18/14	4	18.1	No Comment
TMP-2S	09/18/14	4	16.6	No Comment
TMP-3D	09/18/14	4	NA	Sealed off
TMP-3M	09/18/14	4	NA	Sealed off
TMP-3S	09/18/14	4	NA	Sealed off
GMP-06	09/25/14	1	8	No Comment
GMP-07	09/25/14	1	24	No Comment
GMP-08	09/25/14	1	34	No Comment
GMP-16D	09/25/14	1	7.7	No Comment
GMP-16S	09/25/14	1	7.4	No Comment
GMP-7D	09/25/14	1	18.4	No Comment
GMP-7S	09/25/14	1	18	No Comment
GMP-15D	09/25/14	2	9	No Comment
GMP-15S	09/25/14	2	8.8	No Comment
GMP-05	09/25/14	3	7.7	No Comment
GMP-14D	09/25/14	3	7.6	No Comment
GMP-14S	09/25/14	3	6	LW=23.4% CH4
GMP-4D	09/25/14	3	7.4	No Comment
GMP-4S	09/25/14	3	7.2	No Comment
GMP-5D	09/25/14	3	19.5	No Comment
GMP-5S	09/25/14	3	12.7	No Comment
GMP-6D	09/25/14	3	12.1	LW=1.5% CH4
GMP-6S	09/25/14	3	9.2	LW=2% CH4
4ASS	09/25/14	4	5.3	No Comment
4OSS	09/25/14	4	8.9	No Comment
GMP-01	09/25/14	4	Dry	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-02	09/25/14	4	17.2	No Comment
GMP-03	09/25/14	4	11.5	No Comment
GMP-09	09/25/14	4	9.5	LW=1.4% CH4
GMP-10	09/25/14	4	6.4	No Comment
GMP-11	09/25/14	4	0	No Comment
GMP-12	09/25/14	4	0	No Comment
GMP-13D	09/25/14	4	11.3	No Comment
GMP-13S	09/25/14	4	8.5	No Comment
TMP-1D	09/25/14	4	20	No Comment
TMP-1M	09/25/14	4	20	No Comment
TMP-1S	09/25/14	4	20	LW=40.3%
TMP-2D	09/25/14	4	20	No Comment
TMP-2M	09/25/14	4	18	No Comment
TMP-2S	09/25/14	4	16.8	No Comment
TMP-3D	09/25/14	4	NA	Sealed off
TMP-3M	09/25/14	4	NA	Sealed off
TMP-3S	09/25/14	4	NA	Sealed off

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**APPENDIX A**

**LANDFILL GAS CORRECTIVE ACTION PLAN UPDATE, JULY 26, 2013**

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**BRIDGETON LANDFILL  
LANDFILL GAS CORRECTIVE ACTION PLAN UPDATE**

**Submitted Pursuant to Section 23 of Agreed Order  
Case No. 13SL-CC01088, Effective May 13, 2013**

**Bridgeton Landfill, LLC  
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**July 26, 2013**

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- Table 2: Sentry Gas Monitoring Probe Data (11/21/12 – 7/5/13)
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## APPENDICES

- Appendix A – Gas Monitoring Probe Methane Level Graphs
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- Appendix C – Bridgeton Landfill Infrastructure As-Built Drawing, July 2013

## 1.0 INTRODUCTION

On May 13, 2013, Bridgeton Landfill entered into an Agreed Order with the State of Missouri which requires actions to address what was called a subsurface smoldering event (SSE). Section 23 of the Agreed Order requires the preparation of an updated "Landfill Gas Corrective Action Plan" (CAP) and requests that the update consider SSE control measures.

Missouri Solid Waste Management Regulations require that subsurface landfill gas be controlled so that it does not exceed 2.5% (which is equal to 50% of the lower explosive limit, or LEL) in the ground at the facility property boundary. If this level is exceeded at the property boundary, the facility must implement enhanced monitoring and corrective measures. Corrective Action Plans are frequently used to present and communicate these measures.

Bridgeton Landfill has been monitoring for gas migration using permanent gas monitoring probes since 1998. Since that time, landfill gas Corrective Action Plans have been implemented, additional monitoring locations have been added, and many control features have been installed. These efforts have been previously documented and are incorporated by reference as background for this current work.

Lateral landfill gas migration is common at unlined municipal solid waste (MSW) landfills, and especially in quarry fill environments. Bridgeton Landfill has some areas where the property line is close to solid waste limits (near the edge of the quarry wall) and monitoring has detected methane near the property line in certain locations. In addition, the SSE that Bridgeton Landfill has been experiencing since 2010, and that intensified in 2012, has further challenged methane control in those areas.

The purpose of this document, as required by the Agreed Order, is to provide an update to the November 27, 2012 CAP that considers the SSE control measures. As such, this document includes monitoring data up to July 2013, reviews the status of gas migration control, presents recent (since the approved November 27, 2012 CAP) efforts to reduce methane migration, and discusses forward-going monitoring and reporting procedures. It is intended that this CAP supplements and/or supersedes the previous CAPs and agreements.

## 2.0 REVIEW OF CURRENT GAS MIGRATION CONTROL STATUS

The intensification of the SSE has created conditions that have made control of gas migration more challenging, including:

- Increased pressure within the landfill waste with pressure-gradient which forces gas outward;
- Increased liquid generation resulting in steam and saturated gas which effects collection efficiency, and
- Carefully controlled and reduced application of gas extraction well vacuum with efforts to minimize oxygen content in the gas well.

Detailed graphs showing methane concentrations for the past three years are included in Appendix A. Appendix B includes a list of the gas monitoring probes monitored at the Bridgeton Landfill along with the boring logs and/or construction logs for each probe. Please note, the gas monitoring probes has been referenced with different abbreviations and the table in Appendix B is included to provide clarity.

As can be seen on the graphs, there are several compliance point and sentry monitoring probe locations that have been historically elevated (GMP-01, GMP-04, GMP-05 GMP-06 and GMP-07), as well as elevated levels in new gas monitoring probes where monitoring began in October 2012 after the SSE intensified (GMP-5S, GMP-14S, GMP-14D). Temporary monitoring probes installed to determine the rate and extent of the methane migration in the vicinity of impacted probe GMP-01 (TMP-1S, TMP-2S, TMP-2M, TMP-2D, TMP-3S, TMP-3M, and TMP-3D) have also exhibited elevated levels of methane since installation.

Due to the additional gas monitoring probes, which initiated monitoring in October 2012 to better define the zone of migration on the eastern boundary of the landfill, GMP-04 through GMP-07 located closer to the landfill are typically monitored on a quarterly basis but are sentry probes and are no longer utilized as the compliance probes in accordance with Missouri Solid Waste Law and Rules. Tables 1 through 4 present the probe results for the monitoring period November 21, 2012 through July 5, 2013.

Along the southern boundary of the landfill, adjacent to Boenker Road, GMP-01 has continued to show elevated levels above the regulatory threshold. Corrective measures have not been effective to address the migration in this vicinity. Corrective actions taken to date have focused on methane migration within the soil overburden due to investigative action demonstrating shallow migration. However, after the installation of the interceptor trench, which was constructed to the soil/bedrock interface between the waste disposal area and impacted GMP-01, elevated levels continued to be exhibited in GMP-01. Due to the ineffectiveness of the perimeter gas wells (2005) and interceptor trench (2010) installed in the vicinity of GMP-01 to eliminate or reduce methane impacts, further investigation was deemed necessary under the conditions of the Settlement Agreement.

In order to effectively determine the zone of migration in the vicinity of GMP-01, temporary probes (TMP-1, TMP-2 and TMP-3) were installed as investigation probes to better define the zone of migration. In order to do this, each temporary probe were installed as nested probes with three monitored zones – shallow (S), middle (M) and deep (D). The shallow zone was screened within the soil overburden; the middle zone was screened through the uppermost weathered/fractured bedrock and the deep zone within the saturated bedrock. As presented in Appendix A, TMP-1 located west of GMP-01 is impacted with elevated methane levels within the soil overburden and weathered bedrock. TMP-2, located east of GMP-01, and TMP-3, located north of GMP-01, has observed elevated methane in each of the monitored zones. It is likely the observed elevated methane within the deep monitored zone observed in TMP-2 and TMP-3 are a result of diffusion transport due to these probes located less than 75 feet from the waste mass as well as the pressure-gradient force caused by the SSE as noted with increased relative pressure during monitoring of the probes.

As noted in the TMP boring logs, weathered bedrock was observed at lower elevations than the base of the interceptor trench. TMP-1, located west of GMP-1, the weathered bedrock was observed between 36 feet below ground surface (bgs) to 66.5 feet bgs. TMP-2, located east of GMP-1, the weathered bedrock was observed between 18 feet bgs to 47 feet bgs. TMP-3, located between the landfill and GMP-1, the weathered bedrock was observed between 31 feet bgs to 50 feet bgs. TMP-2, located between the landfill and GMP-1, the weathered bedrock was observed between 31 feet bgs to 50 feet bgs. Due to weathered bedrock observed at lower elevations than the base of the interceptor trench, it is likely methane continues to migrate through these weathered zones. Table 3 presents the temporary gas monitoring probe data.

The intensification of the SSE in 2012, resulting in increased pressure within the landfill, brought challenges associated within dewatering the interceptor trench located south of the waste boundary and maintaining sufficient vacuum on select gas extraction wells located within the south quarry. As a result, elevated levels of methane continue to be observed since October 2012.

Currently the public safety probes located across Boenker Road, on private property (GMP-09, GMP-10, GMP-11, and GMP-12) have no detectable levels of methane and have not observed elevated methane in two years (GMP-11). There is no evidence of methane migration onto adjacent properties at this time. Table 4 presents the gas monitoring probe data for the public safety probes.

Along the east property boundary, adjacent to the south quarry, elevated methane has been observed at two gas monitoring probe locations utilized for compliance: GMP-5S, GMP-14S, GMP-14D. The gas monitoring probes installed between August and September 2012 were installed as nested probes with two monitoring zones - shallow (S) and deep (D). The shallow zone was screened within the soil overburden; the deep zone was screened through the uppermost weathered bedrock to approximately 10 feet below the historic low water table.

The intent of these nested probes is to determine if methane migration is occurring at the property boundary as well as to ascertain the zone in which it is occurring. Similar to GMP-01, weathered bedrock was observed below the soil overburden at GMP-14 where GMP-14D is screened. The weathered bedrock is likely providing a zone of migration within the deeper zone, GMP-14D.

As described in Section 3.0, Bridgeton Landfill has performed recent improvements that should ultimately reduce landfill gas migration.

### 3.0 RECENT GAS MIGRATION CONTROL EFFORTS

Many recent additional measures have been recently undertaken that should ultimately reduce gas migration, including:

1. The SSE has impacted the facility's infrastructure designed to remove liquid efficiently from the waste mass which results in increased liquid in the force main and the gas conveyance system resulting in a reduction of their efficiency to remove landfill gas. Adding new gas extraction wells, replacing compromised gas extraction wells, and adding liquid pumps and extraction points will improve landfill gas collection and improve overall efficiency of the system. The following features have been installed per the November 27, 2012 CAP and in addition to the measures proposed in the CAP:
  - In November 2012 the Bridgeton Landfill installed 5 new trench wells, 5 new liquid sumps, and 7 new gas extraction wells.
  - During the January 1, 2013 through June 30, 2013 period the following additional extraction points were installed at the Bridgeton Landfill:
    - In February 2013 the Bridgeton Landfill installed 9 new gas extraction wells,
    - In March 2013 the Bridgeton Landfill installed 3 new gas extraction wells,
    - In April 2013 the Bridgeton Landfill installed 11 new gas extraction wells,
    - In May 2013 the Bridgeton Landfill installed 13 new gas extraction wells,
2. Addition of a 2,500 scfm utility flare in the southeastern portion of the disposal area in June 2013. This flare has improved vacuum distribution around the well field, especially in the southern and southeastern end where migration has been problematic.
3. Installation of 25 perimeter liquid sumps connected by perforated liquid/gas collection piping in May and June 2013. These were installed as part of the South Quarry capping project, and will allow collection of additional gas at the perimeter of the landfill, and
4. Placement of 32 acres of geomembrane cap and enhanced gas collection features which should be completed in August 2013. The cap will allow additional vacuum to be pulled from the cover integrity system consisting of a composite liner system which will reduce concern for oxygen intrusion. This should result in better long term gas capture and, in time, reduced gas pressure.

An updated as-built map that shows all of these features that were in place as of June 30, 2013 is included in Appendix C.

Due to the increased liquid generation and increased pressure within the landfill the improvements completed within the past nine months have not yet resulted in a reduction of methane observed within the gas monitoring probes. It is premature to evaluate the

effectiveness of the recent gas migration control efforts outlined in this section due to impacts associated with increased liquid generation and the continued dynamic movement and changes of the SSE in the South Quarry area.

#### 4.0 PROPOSED AND ONGOING GAS MIGRATION CONTROL EFFORTS

The recent additional measures outlined in Section 3.0 are on-going efforts to improve landfill gas control at the Bridgeton Landfill. These upgrades should reduce pressure within the waste mass that may be contributing to the exceedances and in turn alleviate methane migration along the southern and eastern property boundaries. Improvements to the landfill are on-going and will continue until the SSE is controlled. Below are additional improvements that are being proposed or currently implemented:

1. The SSE has resulted in an increase in condensate generation. In order to improve liquid removal at the site a third party consultant has been contracted to evaluate the effectiveness of the existing force main. Due to the increased liquid movement within the force main pressure has built up within the system resulting in back pressure and reduced pump functionality. Pressure relief valves have been installed on numerous pneumatic pumps to address this issue. However, due to the increased liquid generation additional capacity within the force main is needed. As such, the preliminary design proposes utilizing the existing force main for management of liquid removed from the LCSs and a second separate force main for liquids removed from the remaining extraction points. The additional liquid force main will allow optimum operations of the pumps while providing increased available vacuum on the landfill gas collection system. This corrective action measure will be submitted to the MDNR in third quarter 2013 sealed by a Missouri Professional Engineer.
2. In order to improve liquid management once the liquids are removed from the disposal area the Bridgeton Landfill has contracted with a third party consulting firm for additional storage and pretreatment of the extracted liquid. During the second quarter 2013 the landfill installed a 316,000 gallon above ground liquid storage and treatment tank. The preliminary treatment plant design includes incorporation of the existing 96,000 gallon tank located near Boenker Road, the newly installed 316,000 gallon tank, four-1,000,000 gallon tanks and a pretreatment facility. This will provide the landfill additional capacity to remove the liquid from the disposal area at a design capacity of 300,000 gallons per day. The treatment plant design will be submitted to the MDNR in third quarter 2013 sealed by a Missouri Professional Engineer.
3. The Bridgeton Landfill has submitted a Permit to Construct application to the St. Louis County Department of Health for the installation of two 4,000 scfm utility flares. These utility flares would replace the existing enclosed flares with a design flow of 3,500 scfm each. The replacement of the enclosed flares with the two 4,000 scfm utility flares coupled with the existing 3,500 scfm John Zink utility flare and the 2,500 scfm LFG Specialties utility flare will provide a combined design flow of the four utility flares of 14,000 scfm. Authorization to Construct is anticipated to be issued by the end of July 2013. The installation of the 4,000 scfm utility flares is anticipated to be completed shortly after permit issuance with operations of each unit by the end of third quarter

2013. Utility flares are better suited to handle the lower heating value gas at the Bridgeton Landfill resulting in less downtime of the control devices.

4. A natural gas line has been installed in the vicinity of the flare compound. It will be connected to the gas collection system if the lower heating value or hydrogen concentration drop below levels to effectively operate the landfill gas control devices.
5. The Bridgeton Landfill will be upgrading the landfill gas coolers at the east utility flare (2,500 scfm LFG Specialties) and at the flare compound in the near future. This improvement will result in additional vacuum available to the well field.

The improvements associated with the liquid conveyance system and the landfill gas control devices are essential to address methane migration at the facility. These efforts should result in a decrease in pressure within the landfill and improved landfill gas collection efficiencies within the south quarry. The liquid force main modification and the liquid treatment system will be submitted to the MDNR for review and approval. The landfill appreciates the continued support to address the SSE in a timely manner and appreciates an expedited review of these submittals.

Monitoring results of the nested gas and temporary monitoring probes have shown that methane is migrating through the weathered bedrock and additional controls are likely needed to address these exceedances. However, due to increased liquid generation associated with the SSE, the effectiveness of the recent improvements could not be determined. It is requested to further evaluate the zone of migration of the impacted gas monitoring and temporary monitoring probes with weekly water level readings and monitoring of the impacted probes to better delineate if methane is migrating through deeper zones. It is requested that this evaluation period be extended through the third quarter 2013. At that time a comprehensive corrective action plan will be submitted evaluating the impact of the recently-completed capping, other recent measures, and the proposed measures described above. During this period the landfill will continue to complete improvements to the liquid conveyance system in efforts to minimize liquids within the gas collection system.

## **5.0 CONTINUED MONITORING AND REPORTING**

The Bridgeton Landfill will initiate weekly monitoring of all monitoring probes including the gas monitoring probes, sentry probes and temporary monitoring probes. The Bridgeton Landfill proposes that landfill gas corrective summary reports to be incorporated into the quarterly report and submitted by the 15<sup>th</sup> of each month following a calendar quarter. These reports will summarize all corrective action completed to address methane migration within the prior quarter and, if elevated levels persist, provide a corrective action plan to address the methane exceedances.

Bridgeton Landfill understands that the submittal of quarterly landfill gas corrective action summary reports and corrective action plans is at a higher frequency than outlined in Paragraph 4 of the January 17, 2011 Settlement Agreement between the MDNR and the Bridgeton Landfill but believes that incorporation in the quarterly report is valuable.

This section of the report will include at a minimum a review previous data, evaluate effectiveness of efforts made to control migration, and propose additional measures directed at eliminating detection levels in gas monitoring probes. As a regular procedure, these reports will be submitted by the 15<sup>th</sup> of each month following a calendar quarter.

Bridgeton Landfill will continue to take aggressive action to control the impacts of the SSE, evaluate corrective measures to address methane migration within the weathered bedrock and improve gas collection within the limits of waste. Any major new gas migration control features needed--particularly those located outside the limit of waste--would be designed and sealed by a Missouri professional engineer and submitted to the MDNR for comment and approval.

The MDNR will continue to provide ongoing review, comment, and approval of actions as it deems necessary. This reporting process will continue until Bridgeton Landfill demonstrates uninterrupted compliance with the MDNR's methane regulations (all compliance gas monitoring probes less than 2.5% methane) for a period of one year.

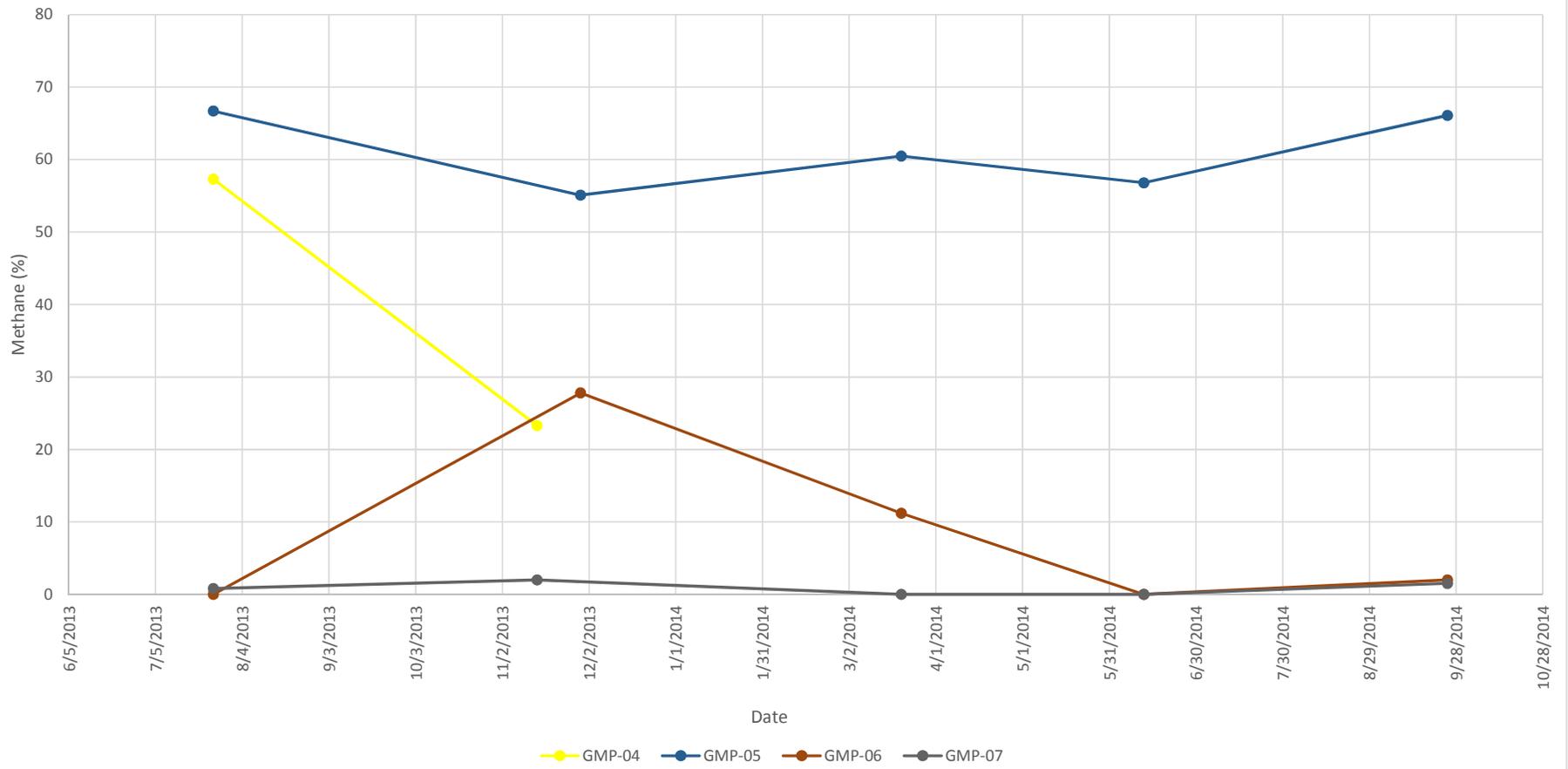
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**APPENDIX B**

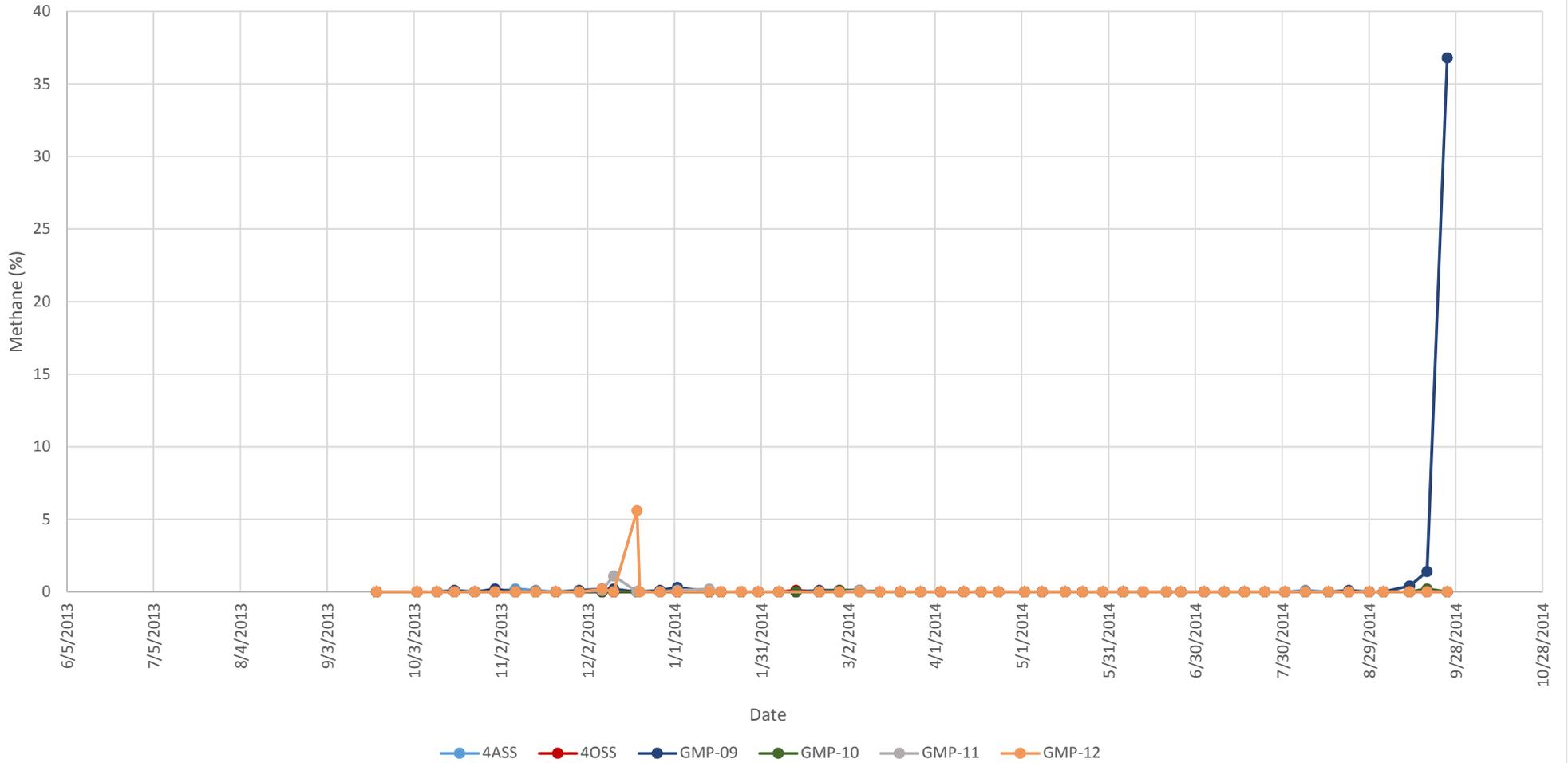
**GAS MONITORING PROBE METHANE LEVEL GRAPHS**

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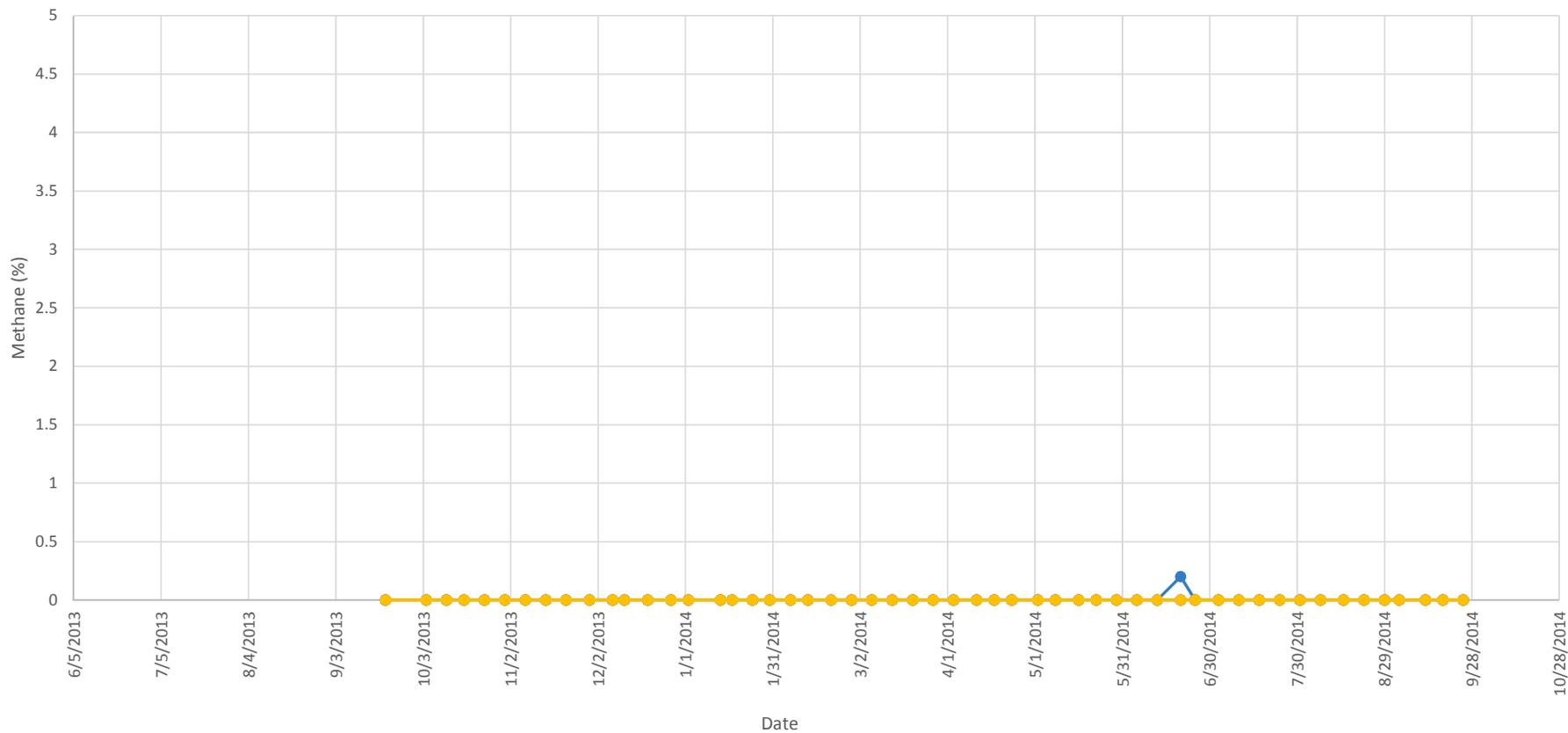
### Sentry Probes



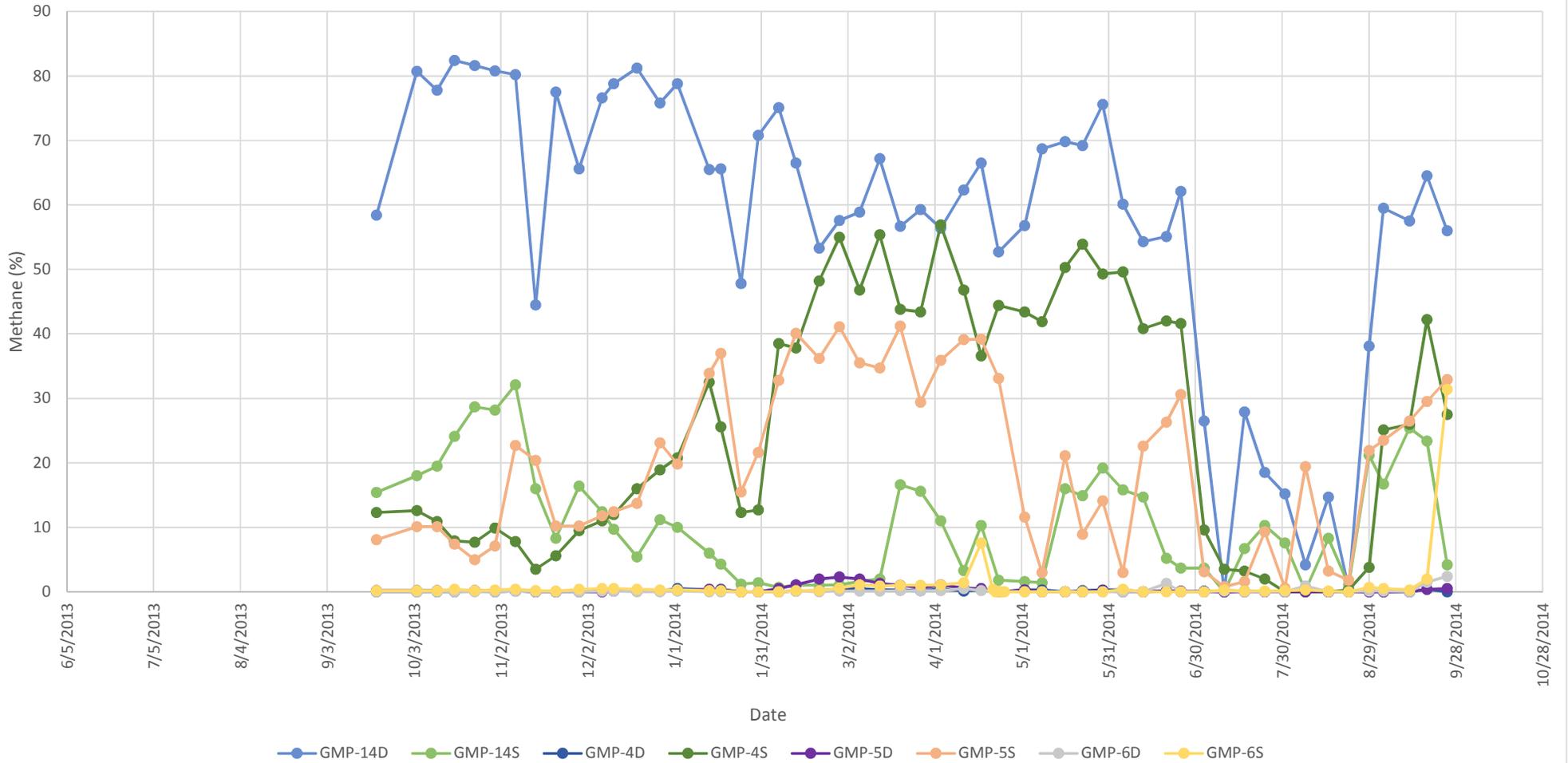
# Public Safety Probes



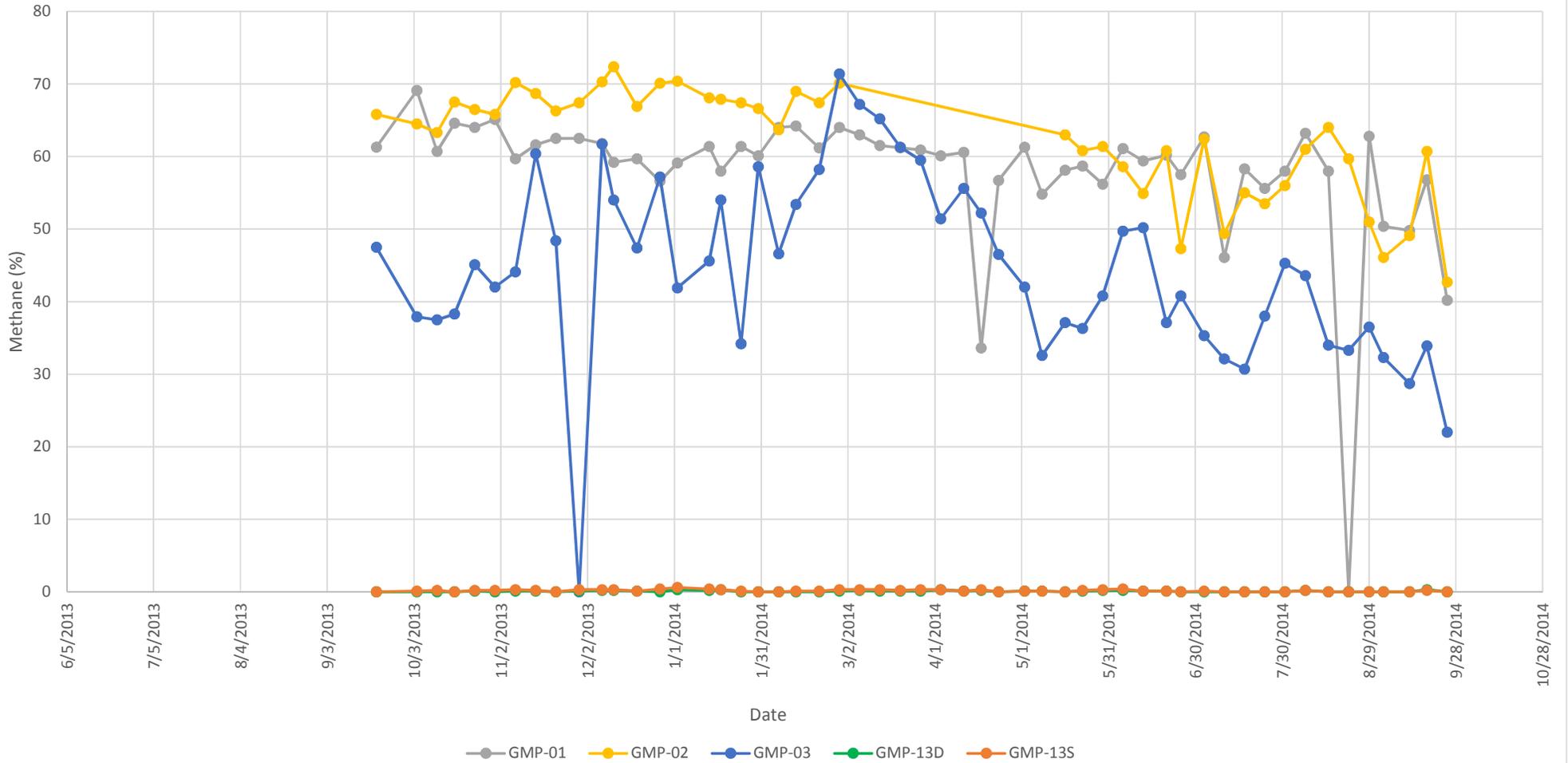
### Northern Compliance Probes



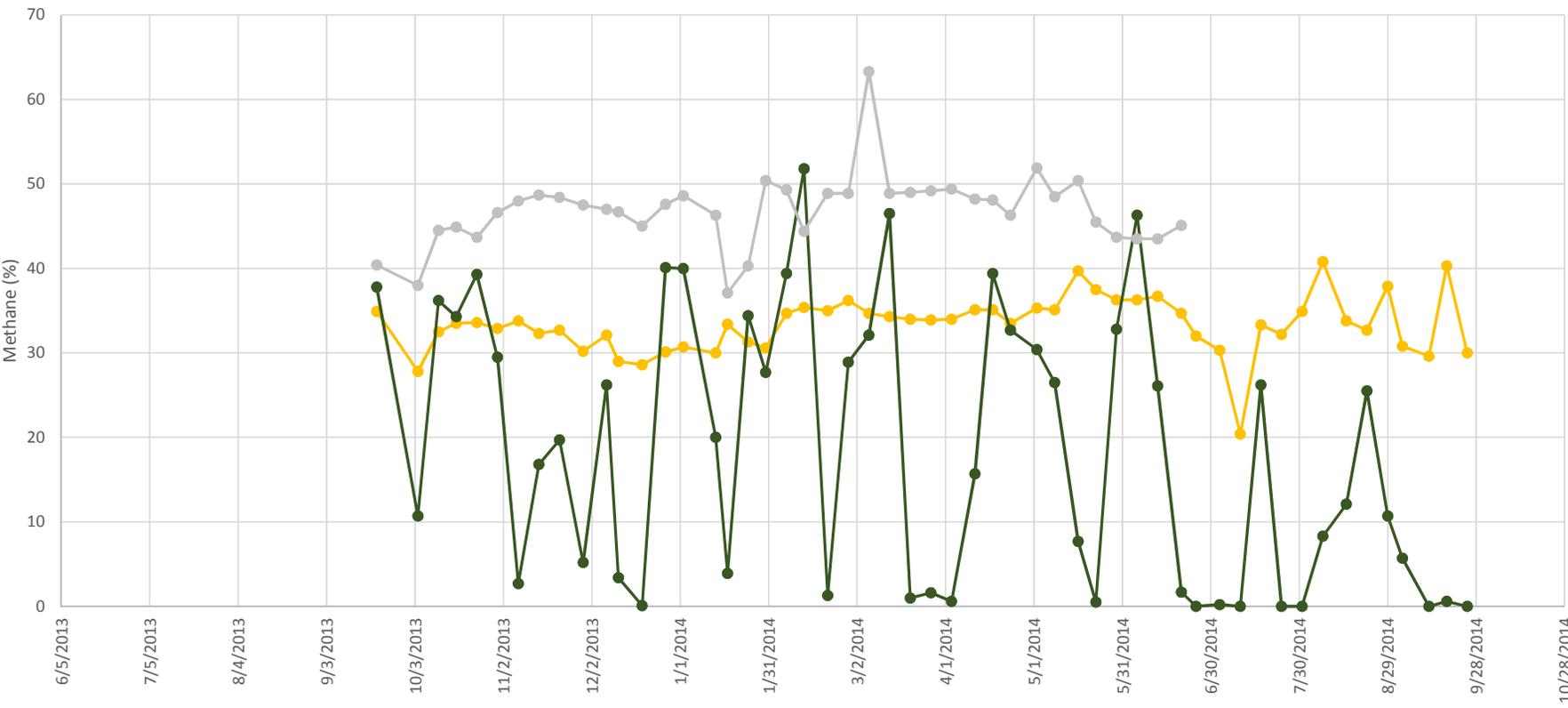
### Eastern Compliance Probes



South & West Compliance Probes

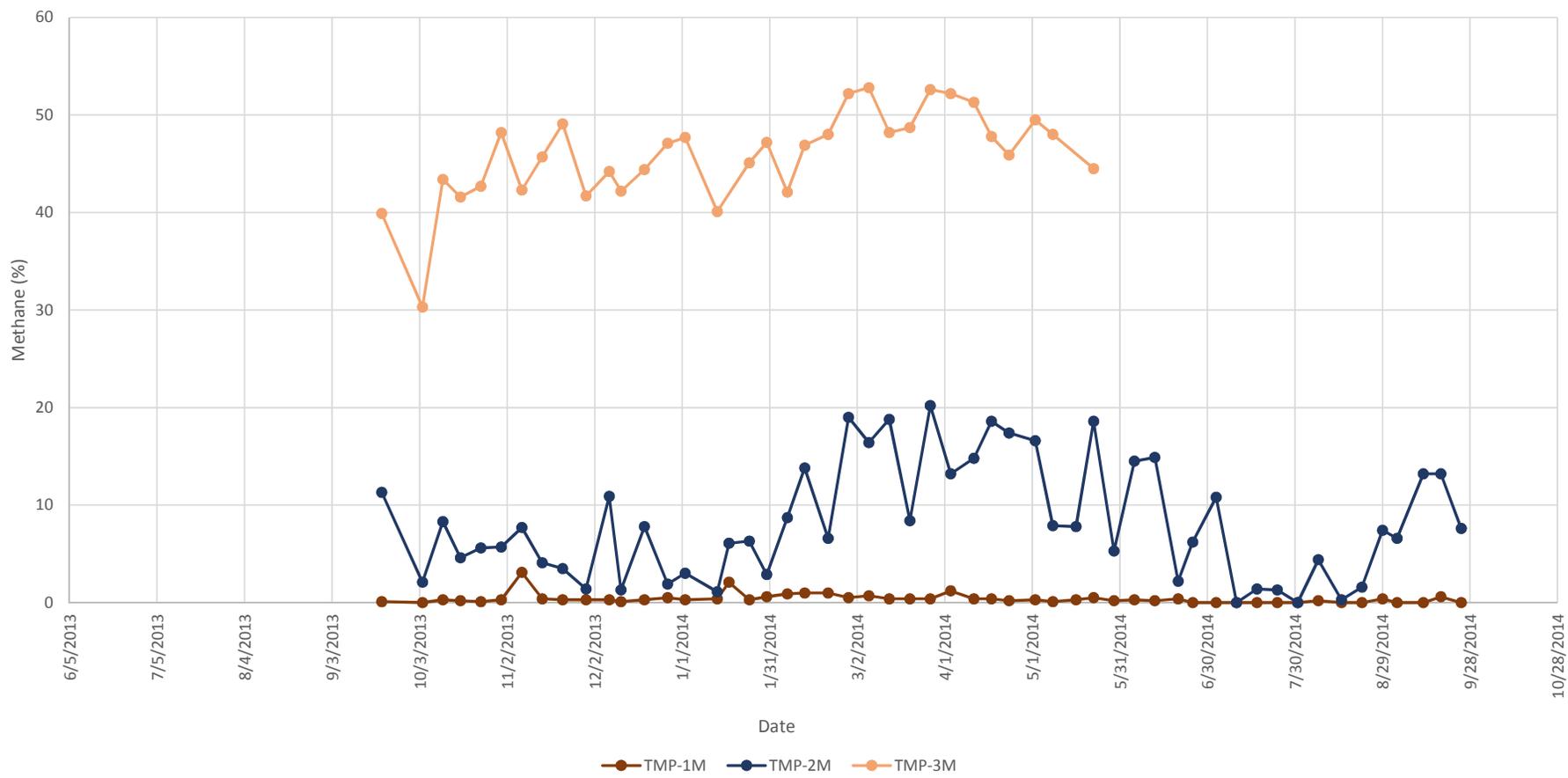


### Shallow Investigative Probes

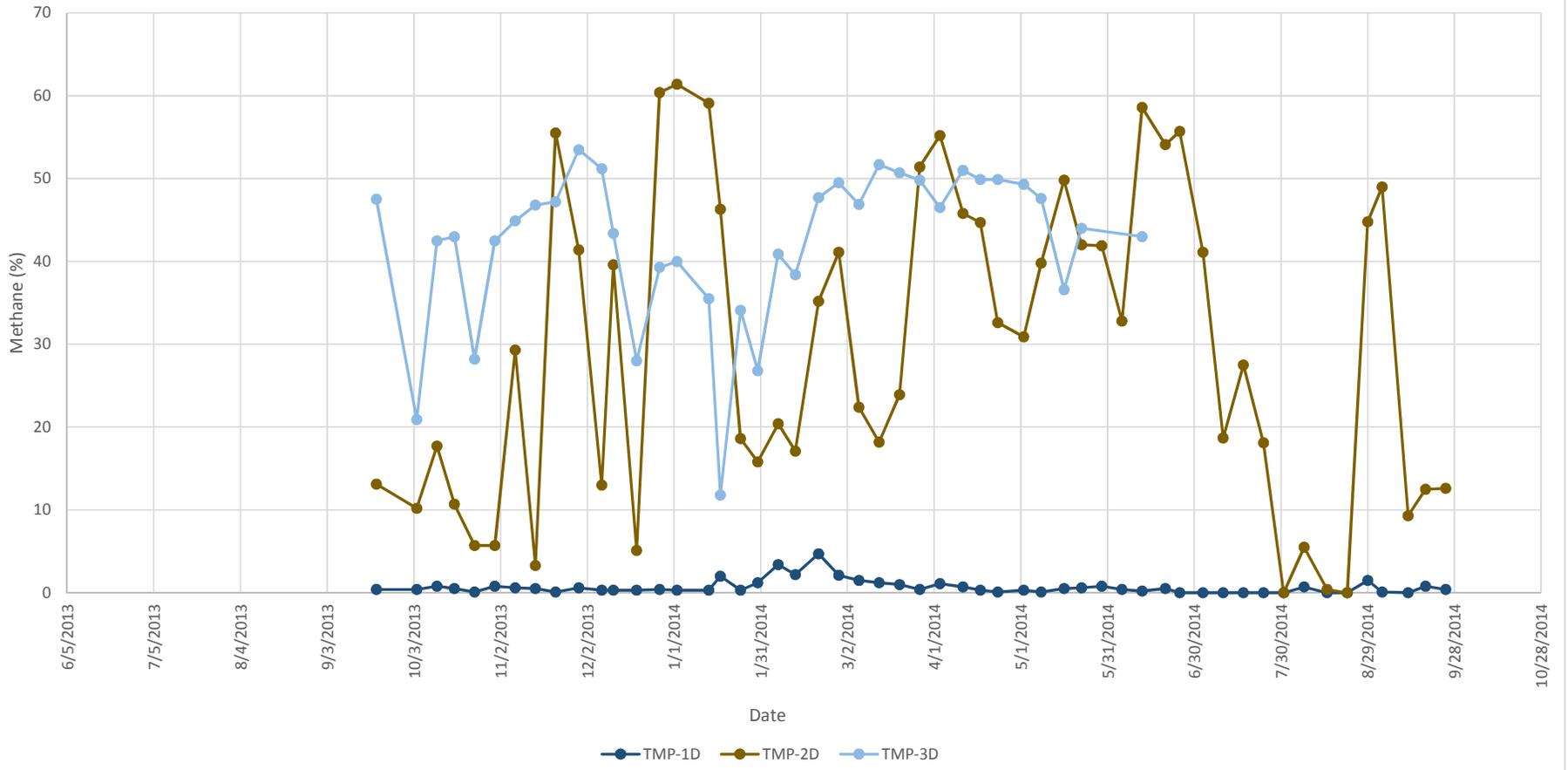


—●— TMP-1S    —●— TMP-2S    —●— TMP-3S

### Mid Investigative Probes



### Deep Investigative Probes

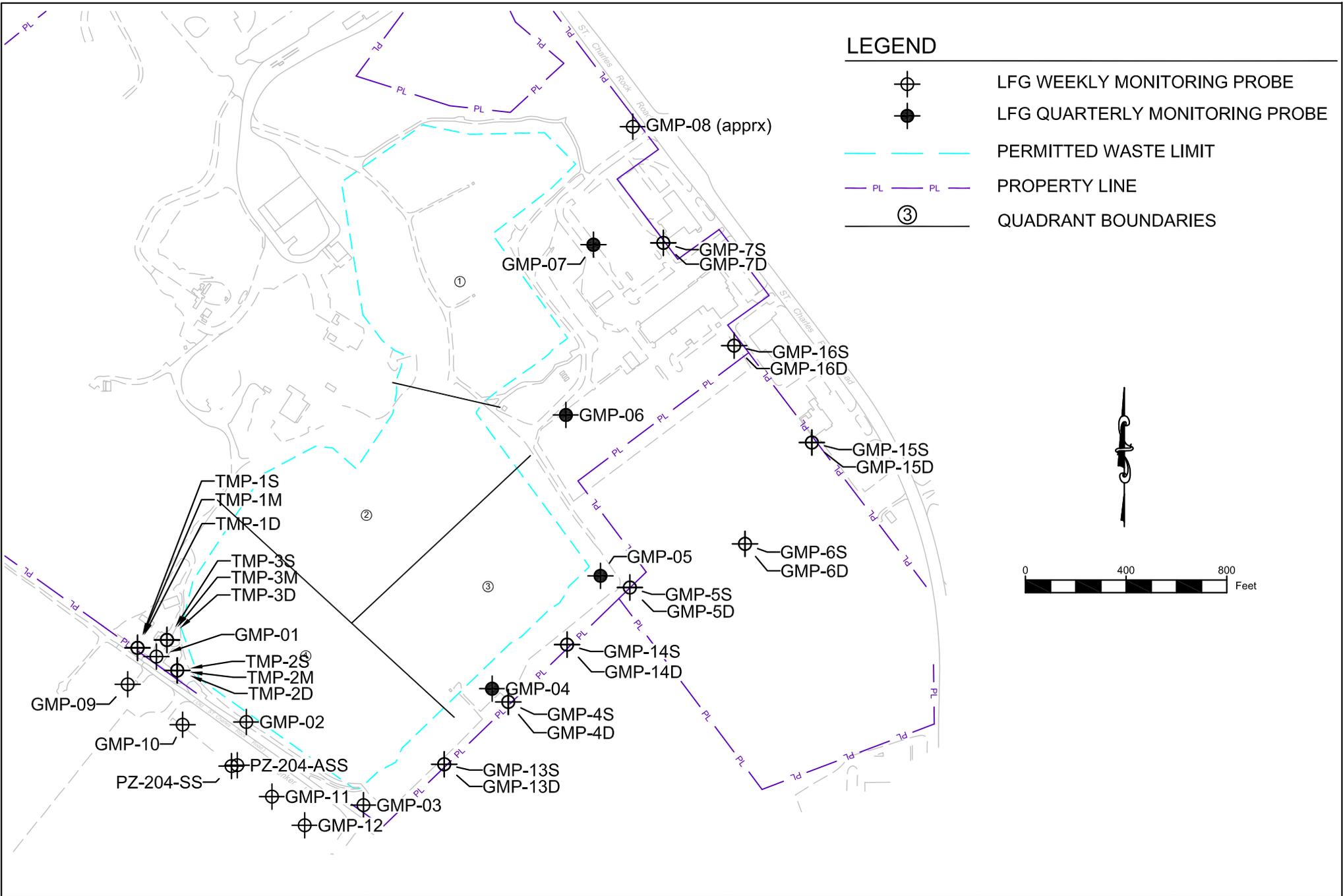


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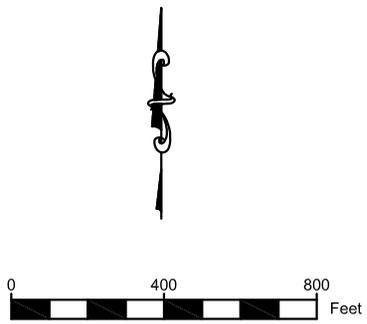
**APPENDIX C**

**INFRASTRUCTURE SITE PLAN, GAS MONITORING PROBE LOCATIONS**

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LEGEND	
	LFG WEEKLY MONITORING PROBE
	LFG QUARTERLY MONITORING PROBE
	PERMITTED WASTE LIMIT
	PROPERTY LINE
	QUADRANT BOUNDARIES



BRIDGETON LANDFILL LLC  
 13570 ST. CHARLES ROCK ROAD  
 BRIDGETON, MISSOURI 63044

BRIDGETON LANDFILL  
 SITE INFRASTRUCTURE



DECEMBER 2013	
DESIGNED BY: PML	
APPROVED BY: --	
REVISION	DATE

DRAWING NO.:  
**001**

## GAS MONITORING PROBES