



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

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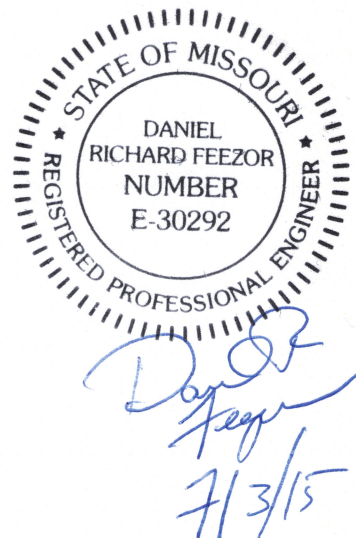


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1.0 INTRODUCTION

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), second quarter 2014 (July 15, 2014), third quarter 2014 (October 15, 2014), fourth quarter 2014 (January 15, 2015) and first quarter 2015 (April 15, 2015). The purpose of this document is to provide monitoring data subsequent to the April 2015 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 (BL) 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 June 25, 2014 to June 25, 2015 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 March 20, 2015 through June 25, 2015.

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 Newly Elevated Compliance Probes were measured at greater than 2.5% methane this period. All probes measuring greater than 2.5% methane had measured at or above the threshold in prior monitoring periods. Therefore, no new adjacent property notifications were required.

Probes with greater than or equal to 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-14D, -14S, -01, -02, -03, -05, -09, -4D, -4S, -5S, -6S, TMP-1S, TMP-2D, TMP -2M, TMP-2S, TMP-3S, TMP-3D and TMP-3M.

The readings in GMP-09 continue to show an apparent downward trend. All readings obtained April 2, 2015 and after have been below the 2.5% methane threshold.

No Readings due to Extenuating Circumstances

No readings have been obtained from GMP-02 since 5/14/15 due to high pressure and liquid realized in the probe.

No valid readings were obtained from the probes the week of 6-19-15. No valid readings were obtained on 6-19-15 due to sampling collection error pursuant to procedures outlined in the MDNR Publication 2053 (Sampling of Landfill Gas Monitoring Wells).

No readings were obtained from TMP-3D on the week of 3-26-15 and 4-2-15 due to excessive pressure and liquid at the monitoring point.

No readings were obtained from TMP-3M on the week of 3-26-15, 4-2-15, 4-9-15, and 4-16-15 due to excessive pressure and liquid at the monitoring point.

No readings were obtained from TMP-3S on the week of 3-26-15, 4-2-15, 4-9-15, 4-23-15, 4-28-15, 5-4-15, 5-14-15, 5-20-15 and 5-27-15 due to excessive pressure and liquid at the monitoring point.

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, GMP-15D, GMP-15S, GMP-16D, GMP-16S, GMP-06, GMP-07, GMP-08, GMP-10, GMP-11, GMP-12, GMP-5D, GMP-6D, GMP-7D, GMP-7S, TMP-1D, TMP-1M, PZ-204-SS and PZ-204A-SS.

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 (May 20, 2015), GMP-05 showed elevated methane measurements, 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 has been monitored more frequently during this monitoring period. It has exhibited methane percentages below 2.5%.

Prior Correspondence with the MDNR

The Bridgeton Landfill received a letter dated September 24, 2014 from the MDNR in response to Bridgeton Landfill CAP submittals dated August 22, 2014 and September 3, 2014. The MDNR letter provided conditional approval for the following:

Addition of 18 inch above ground gas header line from Condensate Sump-16 to Condensate Sump-3.

The BL submitted the drawings titled Permit Drawings Proposed South Slope Header System as an attachment to a December 3, 2014 letter and December 12, 2014 Addendum submitted to MDNR. The BL has divided the 18 inch above ground gas header into three phases (A, B and C). The layout of the respective phase are shown in **Appendix E**. Phase B of the 18 inch header has been completed and is operational. Phase A and C construction are currently underway and are scheduled to be completed by the end of August, weather permitting.

Re-drilling four (4) compromised GEWs, (i.e., GEW-20A, -21A, -22R and -81) along the southwest corner of south slope of the South Quarry.

The BL has installed new Gas Extraction Wells (GEWs) adjacent to the existing GEW-20A, -21A, -22R and -81. These GEWs have been designated as GEW-120, -121, -123 and -122, respectively. These wells continue to be operated to extract landfill gas from the south quarry of the Bridgeton Landfill.

Adding one (1) new GEW, (i.e. GEW-123) on the south slope of the South Quarry.

The BL continues operation of the recently installed landfill gas extraction wells:

1. GEW-120
2. GEW-121
3. GEW-122
4. GEW-123
5. GEW-124
6. GEW-125
7. GEW-126
8. GEW-127
9. GEW-128
10. GEW-129
11. GEW-131
12. GEW-132
13. GEW-133
14. GEW-134
15. GEW-135
16. GEW-136
17. GEW-137
18. GEW-138
19. GEW-139
20. GEW-140
21. GEW-141
22. GEW-142
23. GEW-143

- 24. GEW-144
- 25. GEW-145
- 26. GEW-146
- 27. GEW-147
- 28. GEW-148
- 29. GEW-149
- 30. GEW-150
- 31. GEW-151
- 32. GEW-152
- 33. GEW-153
- 34. GEW-154
- 35. GEW-155
- 36. GEW-156

The improvements outlined by the BL in the December 3, 2014 and December 12, 2014 Addendum submittals to MDNR are on-going. The completion of the improvements are currently scheduled to be completed by the end of August 2015, pending weather.

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 are gas migration control efforts initiated or completed in the second quarter of 2015.

Leachate Conveyance System

The upgraded force-main that was completed in the first quarter of 2014 is functioning well and continues to provide low back pressure within the force-main.

The lift station and grit chamber installed on the southwest side of the facility continues to operate and is functioning well.

The southeast lift station and grit chamber structures were installed in the fourth quarter of 2014. The connection and operation of these facilities are currently underway. The completion of this work is anticipated to be in August of 2015. The completion of these facilities will be dependent on weather and material procurement lead times.

General LFG System Modifications and Improvements:

The following improvements have been completed or initiated in the South Quarry at the Bridgeton Landfill:

- Operational efforts to increase vacuum and the effectiveness of landfill gas extraction to GEWs in the northeast corner of the south quarry.
- Continued operation of the landfill gas extraction system adjacent to Metropolitan Sewer District lift station just southwest of the south quarry.
- Continued construction of Phase A, B and C of the 18 inch landfill gas header collection line.

Leachate Pretreatment Facility:

The leachate pretreatment facility continued operation during the second quarter of 2015.

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:

- Continue the operational evaluation on the northeast portion of the south quarry. Specifically, the applied vacuum to GEWs in the area including recently installed GEW-150.

- Continue installation of the items outlined in the December 3, 2014 letter and December 12, 2014 Addendum to MDNR. The improvements include an 18" LFG header system, connection of lift station and grit chamber on southeast corner of the south quarry, improved leachate conveyance between southeast and southwest lift stations, manifold header for wells under pressure and other collateral work associated.
- The BL installed flowable fill at one location pursuant to the MDNR approval granted on September 4, 2014. It was determined that a more significant amount would be required at each location. Subsequently, the MDNR approved a larger volume per location on October 21, 2014. The BL will continue to utilize the flowable fill protocol, on an as needed basis, as part of operation and maintenance of the facility.
- The BL is currently completing evaluation to expand the existing Perimeter Extraction System. The evaluation will include additional Perimeter Extraction Wells on the southwest side of the south quarry. The proposed system expansion will be submitted to MDNR prior to the end of the third quarter of 2015.
- The BL will continue to intensely monitor the effects of the vast completed and on-going system improvements directly and indirectly related to landfill gas migration control.

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 October 15th, 2015 quarterly report update.

TABLE 1

LIST OF LANDFILL GAS MONITORING PROBES

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-204A-SS	PZ204ASS	4ASS	PZ-204-ASS	Public Safety Probe	weekly

* Well has been decommissioned

TABLE 2

COMPLIANCE GAS MONITORING PROBE DATA

MARCH 20, 2015 – JUNE 25, 2015

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-16D	weekly	1	3/26/2015	0	2.4	20.1	77.5	30	-0.38
GMP-16D	weekly	1	4/2/2015	0	1.1	11.8	87.1	30	-0.17
GMP-16D	weekly	1	4/9/2015	0	1.2	9.9	88.9	30	3.17
GMP-16D	weekly	1	4/16/2015	0	2.6	11.2	86.2	30	-0.03
GMP-16D	weekly	1	4/23/2015	0	0.3	13.3	86.4	30	-0.06
GMP-16D	weekly	1	4/28/2015	0	0.8	11.8	87.4	30	0.08
GMP-16D	weekly	1	5/4/2015	0	1	12.1	86.9	30	0.04
GMP-16D	weekly	1	5/14/2015	0	0.9	9.5	89.6	30	-0.48
GMP-16D	weekly	1	5/20/2015	0	3.3	9.6	87.1	30	0.52
GMP-16D	weekly	1	5/27/2015	0	0	7.8	92.2	30	-0.04
GMP-16D	weekly	1	6/4/2015	0	4.7	7.3	88	30	-1.05
GMP-16D	weekly	1	6/10/2015	0	4.4	7.1	88.5	30	1.2
GMP-16D	weekly	1	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-16D	weekly	1	6/25/2015	0	6.5	6.7	86.8	30	-7.68
GMP-16S	weekly	1	3/26/2015	0.3	5.3	10.6	83.8	30	-0.51
GMP-16S	weekly	1	4/2/2015	0	0.9	20.8	78.3	30	0
GMP-16S	weekly	1	4/9/2015	0	1	19.9	79.1	30	4.44
GMP-16S	weekly	1	4/16/2015	0	2	20.7	77.3	30	-0.03
GMP-16S	weekly	1	4/23/2015	0	0.7	20	79.3	30	-5.67
GMP-16S	weekly	1	4/28/2015	0	1.3	19.9	78.8	30	-0.52
GMP-16S	weekly	1	5/4/2015	0	1.1	21.2	77.7	30	-0.01
GMP-16S	weekly	1	5/14/2015	0	1.2	20.5	78.3	30	1.56
GMP-16S	weekly	1	5/20/2015	0	1.3	24.4	74.3	30	-0.02
GMP-16S	weekly	1	5/27/2015	0	0	20.7	79.3	30	-3.47
GMP-16S	weekly	1	6/4/2015	0	0.4	21.2	78.4	30	-5.98
GMP-16S	weekly	1	6/10/2015	0	0.8	21.2	78	30	0.15
GMP-16S	weekly	1	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-16S	weekly	1	6/25/2015	0	0.1	21.2	78.7	30	-5.3
GMP-08	quarterly	1	3/26/2015	0	1.5	15.3	83.2	30	0
GMP-08	quarterly	1	4/2/2015	0	0.1	17.7	82.2	30	-0.01
GMP-08	quarterly	1	4/9/2015	0	0.4	15.7	83.9	30	0
GMP-08	quarterly	1	4/16/2015	0.1	3.2	17.7	79	30	0.01
GMP-08	quarterly	1	4/23/2015	0	1.2	18.1	80.7	30	0.01
GMP-08	quarterly	1	4/28/2015	0	2.5	16.3	81.2	30	0.07

NR = No Reading

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-08	quarterly	1	5/4/2015	0	0.6	19.9	79.5	30	0.03
GMP-08	quarterly	1	5/14/2015	0	1.4	14.6	84	30	0.04
GMP-08	quarterly	1	5/20/2015	0.1	10.3	10.5	79.1	30	0.02
GMP-08	quarterly	1	5/27/2015	0	0	20.3	79.7	30	0.01
GMP-08	quarterly	1	6/4/2015	0	1.5	18.9	79.6	30	-0.01
GMP-08	quarterly	1	6/10/2015	0	2.2	19.1	78.7	30	0
GMP-08	quarterly	1	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-08	quarterly	1	6/25/2015	0	4.3	13.6	82.1	30	0.01
GMP-7D	weekly	1	3/26/2015	0	1	20.5	78.5	30	-0.02
GMP-7D	weekly	1	4/2/2015	0	1.4	20.5	78.1	30	-0.02
GMP-7D	weekly	1	4/9/2015	0	1.6	19.5	78.9	30	0.03
GMP-7D	weekly	1	4/16/2015	0	0.6	20.8	78.6	30	0.01
GMP-7D	weekly	1	4/23/2015	0	1.3	19.9	78.8	30	0.01
GMP-7D	weekly	1	4/28/2015	0	2	19.7	78.3	30	0.01
GMP-7D	weekly	1	5/4/2015	0	1.5	20.7	77.8	30	0.01
GMP-7D	weekly	1	5/14/2015	0	2.2	20	77.8	30	0
GMP-7D	weekly	1	5/20/2015	0	1.7	24.5	73.8	30	0.01
GMP-7D	weekly	1	5/27/2015	0	0.4	20.3	79.3	30	0.02
GMP-7D	weekly	1	6/4/2015	0	1.8	20.6	77.6	30	-0.06
GMP-7D	weekly	1	6/10/2015	0	1.6	21.1	77.3	30	0
GMP-7D	weekly	1	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-7D	weekly	1	6/25/2015	0	0.3	21.3	78.4	30	0.03
GMP-7S	weekly	1	3/26/2015	0	1.7	7.2	91.1	30	7.33
GMP-7S	weekly	1	4/2/2015	0	0.8	8.1	91.1	30	-0.01
GMP-7S	weekly	1	4/9/2015	0	1.2	6.8	92	30	5.91
GMP-7S	weekly	1	4/16/2015	0	1.1	8.3	90.6	30	0
GMP-7S	weekly	1	4/23/2015	0	1.4	6.3	92.3	30	0
GMP-7S	weekly	1	4/28/2015	0	2.3	7.1	90.6	30	0
GMP-7S	weekly	1	5/4/2015	0	1.4	8.8	89.8	30	0
GMP-7S	weekly	1	5/14/2015	0	1.9	5.8	92.3	30	0.01
GMP-7S	weekly	1	5/20/2015	0	0	18.8	81.2	30	0.01
GMP-7S	weekly	1	5/27/2015	0	0	4.5	95.5	30	0
GMP-7S	weekly	1	6/4/2015	0	1.7	5.4	92.9	30	-0.01
GMP-7S	weekly	1	6/10/2015	0	1.9	4.2	93.9	30	0

NR = No Reading

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-7S	weekly	1	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-7S	weekly	1	6/25/2015	0	1.7	3.8	94.5	30	0
GMP-15D	weekly	2	3/26/2015	0	1.1	20.4	78.5	30	-0.01
GMP-15D	weekly	2	4/2/2015	0	1.6	20.6	77.8	30	-2.51
GMP-15D	weekly	2	4/9/2015	0	1.9	19.1	79	30	0.01
GMP-15D	weekly	2	4/16/2015	0	0.8	21	78.2	30	0.02
GMP-15D	weekly	2	4/23/2015	0	0.7	20	79.3	30	0.02
GMP-15D	weekly	2	4/28/2015	0	1	19.9	79.1	30	0.07
GMP-15D	weekly	2	5/4/2015	0	1.3	21	77.7	30	0.06
GMP-15D	weekly	2	5/14/2015	0	1.2	20.2	78.6	30	0.08
GMP-15D	weekly	2	5/20/2015	0	1.7	23.9	74.4	30	-0.03
GMP-15D	weekly	2	5/27/2015	0	0	20.5	79.5	30	0.14
GMP-15D	weekly	2	6/4/2015	0	2.1	20.7	77.2	30	-0.14
GMP-15D	weekly	2	6/10/2015	0	1.9	20.7	77.4	30	0.08
GMP-15D	weekly	2	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-15D	weekly	2	6/25/2015	0	0.3	20.9	78.8	30	0.12
GMP-15S	weekly	2	3/26/2015	0	1.9	20.1	78	30	0
GMP-15S	weekly	2	4/2/2015	0	1.4	20.2	78.4	30	0
GMP-15S	weekly	2	4/9/2015	0	1.8	19.6	78.6	30	0
GMP-15S	weekly	2	4/16/2015	0	1.6	20.9	77.5	30	0.01
GMP-15S	weekly	2	4/23/2015	0	1.4	19.7	78.9	30	0.02
GMP-15S	weekly	2	4/28/2015	0	1.6	19.8	78.6	30	0.02
GMP-15S	weekly	2	5/4/2015	0	1.9	20.6	77.5	30	0.04
GMP-15S	weekly	2	5/14/2015	0	2.1	19.9	78	30	0.05
GMP-15S	weekly	2	5/20/2015	0	2.9	23.6	73.5	30	-0.7
GMP-15S	weekly	2	5/27/2015	0	3.6	19.8	76.6	30	0.06
GMP-15S	weekly	2	6/4/2015	0	3.5	20.2	76.3	30	-0.08
GMP-15S	weekly	2	6/10/2015	0	4.1	20.3	75.6	30	0.03
GMP-15S	weekly	2	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-15S	weekly	2	6/25/2015	0	0.4	21	78.6	30	0.03
GMP-14D	weekly	3	3/26/2015	62.3	23.5	2.9	11.3	30	1.04
GMP-14D	weekly	3	4/2/2015	65	23.7	2	9.3	30	1.29
GMP-14D	weekly	3	4/9/2015	66.2	22.2	2.1	9.5	30	0.92
GMP-14D	weekly	3	4/16/2015	70.7	19	2.1	8.2	30	0.81

NR = No Reading

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-14D	weekly	3	4/23/2015	61.1	19.2	2.4	17.3	30	0.74
GMP-14D	weekly	3	4/28/2015	68.8	23.7	0.5	7	30	0.97
GMP-14D	weekly	3	5/4/2015	70.9	22.3	0.5	6.3	30	0.9
GMP-14D	weekly	3	5/14/2015	71.2	22.6	0.7	5.5	30	1.09
GMP-14D	weekly	3	5/20/2015	69.9	22.6	1.2	6.3	30	1.56
GMP-14D	weekly	3	5/27/2015	71.5	23.1	0.6	4.8	30	2.43
GMP-14D	weekly	3	6/4/2015	71.6	22.7	0.8	4.9	30	2.14
GMP-14D	weekly	3	6/10/2015	69.6	23.4	1	6	30	2.19
GMP-14D	weekly	3	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-14D	weekly	3	6/25/2015	58.1	21.4	4	16.5	30	3.53
GMP-14S	weekly	3	3/26/2015	5.3	1.7	19.1	73.9	30	0.04
GMP-14S	weekly	3	4/2/2015	3.6	2.2	19.6	74.6	30	0
GMP-14S	weekly	3	4/9/2015	6.5	1.6	18.4	73.5	30	0
GMP-14S	weekly	3	4/16/2015	1.8	1.9	20.7	75.6	30	0
GMP-14S	weekly	3	4/23/2015	4.6	0.8	19	75.6	30	0.01
GMP-14S	weekly	3	4/28/2015	5.6	0.9	19.1	74.4	30	0
GMP-14S	weekly	3	5/4/2015	6.2	1.4	19.5	72.9	30	0
GMP-14S	weekly	3	5/14/2015	11.4	2.4	18.4	67.8	30	0
GMP-14S	weekly	3	5/20/2015	12.6	2.4	20.8	64.2	30	-0.01
GMP-14S	weekly	3	5/27/2015	14.1	3.3	16.5	66.1	30	0.01
GMP-14S	weekly	3	6/4/2015	6.8	1.8	18.5	72.9	30	0
GMP-14S	weekly	3	6/10/2015	14.3	3.4	17.1	65.2	30	0
GMP-14S	weekly	3	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-14S	weekly	3	6/25/2015	24.8	8.1	14.1	53	30	0
GMP-4D	weekly	3	3/26/2015	0.4	2	20.3	77.3	30	-0.03
GMP-4D	weekly	3	4/2/2015	3.5	4.7	19.7	72.1	30	-0.01
GMP-4D	weekly	3	4/9/2015	0.6	2.8	19.5	77.1	30	0.13
GMP-4D	weekly	3	4/16/2015	1.7	3.8	20.5	74	30	0.03
GMP-4D	weekly	3	4/23/2015	0.3	0.7	20.3	78.7	30	0.03
GMP-4D	weekly	3	4/28/2015	0.1	0.8	20.4	78.7	30	-0.02
GMP-4D	weekly	3	5/4/2015	0.4	2.5	21.1	76	30	0
GMP-4D	weekly	3	5/14/2015	0.2	1	21.5	77.3	30	0
GMP-4D	weekly	3	5/20/2015	0.4	3.5	24.1	72	30	-0.01
GMP-4D	weekly	3	5/27/2015	0.1	0	21	78.9	30	0.01

NR = No Reading

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-4D	weekly	3	6/4/2015	0.2	0.9	21.1	77.8	30	0.04
GMP-4D	weekly	3	6/10/2015	0.1	0.5	21.5	77.9	30	-0.03
GMP-4D	weekly	3	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-4D	weekly	3	6/25/2015	0.1	0.4	21.3	78.2	30	0.08
GMP-4S	weekly	3	3/26/2015	62.5	12.9	4.2	20.4	30	0.07
GMP-4S	weekly	3	4/2/2015	53	13.5	6.4	27.1	30	0.02
GMP-4S	weekly	3	4/9/2015	49.8	13.1	7.1	30	30	0.01
GMP-4S	weekly	3	4/16/2015	47.4	13.5	7.8	31.3	30	0
GMP-4S	weekly	3	4/23/2015	36.5	14.3	9.3	39.9	30	0
GMP-4S	weekly	3	4/28/2015	42.6	18.5	6.8	32.1	30	0
GMP-4S	weekly	3	5/4/2015	46.2	18.7	6.5	28.6	30	0.02
GMP-4S	weekly	3	5/14/2015	38.6	16.3	9.2	35.9	30	0.01
GMP-4S	weekly	3	5/20/2015	26	13.2	13.6	47.2	30	-0.01
GMP-4S	weekly	3	5/27/2015	28.6	16.1	10.2	45.1	30	0.01
GMP-4S	weekly	3	6/4/2015	38.1	15.6	8.8	37.5	30	0.03
GMP-4S	weekly	3	6/10/2015	36.2	15.8	9.7	38.3	30	0.01
GMP-4S	weekly	3	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-4S	weekly	3	6/25/2015	20.1	8.7	14.6	56.6	30	0.02
GMP-5D	weekly	3	3/26/2015	0.5	5.3	19.6	74.6	30	0
GMP-5D	weekly	3	4/2/2015	0.3	4.7	20	75	30	-0.09
GMP-5D	weekly	3	4/9/2015	1.7	9.7	18.2	70.4	30	0.52
GMP-5D	weekly	3	4/16/2015	0.6	5.8	20.1	73.5	30	0
GMP-5D	weekly	3	4/23/2015	0.6	4.5	19.4	75.5	30	-0.02
GMP-5D	weekly	3	4/28/2015	0.2	3.6	19.3	76.9	30	0.01
GMP-5D	weekly	3	5/4/2015	0.4	3.9	20.6	75.1	30	0
GMP-5D	weekly	3	5/14/2015	0.2	3.6	20.8	75.4	30	0.01
GMP-5D	weekly	3	5/20/2015	0.6	6.2	23.2	70	30	-0.07
GMP-5D	weekly	3	5/27/2015	0.2	3.8	20	76	30	0.02
GMP-5D	weekly	3	6/4/2015	0.3	3.5	20.3	75.9	30	0.04
GMP-5D	weekly	3	6/10/2015	0.3	4.2	20.7	74.8	30	0
GMP-5D	weekly	3	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-5D	weekly	3	6/25/2015	0.1	1.9	21.1	76.9	30	0.05
GMP-5S	weekly	3	3/26/2015	57	32.9	0.7	9.4	30	2.97
GMP-5S	weekly	3	4/2/2015	50.9	33.9	2.8	12.4	30	0.64

NR = No Reading

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-5S	weekly	3	4/9/2015	59	29.7	0.7	10.6	30	2.55
GMP-5S	weekly	3	4/16/2015	50.4	31.3	2.3	16	30	0.71
GMP-5S	weekly	3	4/23/2015	54.4	28.4	0.2	17	30	0.27
GMP-5S	weekly	3	4/28/2015	35.8	24	7.1	33.1	30	0.18
GMP-5S	weekly	3	5/4/2015	44	28.3	4.4	23.3	30	0.19
GMP-5S	weekly	3	5/14/2015	43.7	25.9	5.7	24.7	30	0.25
GMP-5S	weekly	3	5/20/2015	48.9	28.8	3.2	19.1	30	0.16
GMP-5S	weekly	3	5/27/2015	38.4	23.4	7	31.2	30	0.3
GMP-5S	weekly	3	6/4/2015	49.7	27.7	2.7	19.9	30	0.22
GMP-5S	weekly	3	6/10/2015	52.2	29.7	2.4	15.7	30	0.25
GMP-5S	weekly	3	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-5S	weekly	3	6/25/2015	32.9	18.7	8.8	39.6	30	0.25
GMP-6D	weekly	3	3/26/2015	1.8	1	19.8	77.4	30	0.03
GMP-6D	weekly	3	4/2/2015	1.3	0.7	20.3	77.7	30	-0.06
GMP-6D	weekly	3	4/9/2015	2.3	0.8	19	77.9	30	-0.02
GMP-6D	weekly	3	4/16/2015	1.9	1.1	20.3	76.7	30	0.06
GMP-6D	weekly	3	4/23/2015	1.9	1	19.3	77.8	30	0.02
GMP-6D	weekly	3	4/28/2015	1.5	0.9	19.1	78.5	30	0.07
GMP-6D	weekly	3	5/4/2015	1.5	0.7	20.5	77.3	30	0.04
GMP-6D	weekly	3	5/14/2015	1.6	0.8	20.6	77	30	0.07
GMP-6D	weekly	3	5/20/2015	0.9	0.8	23.9	74.4	30	-0.03
GMP-6D	weekly	3	5/27/2015	0.8	0.2	20.1	78.9	30	0.02
GMP-6D	weekly	3	6/4/2015	1.2	1.1	20.3	77.4	30	0.03
GMP-6D	weekly	3	6/10/2015	0.6	0.7	21	77.7	30	0.06
GMP-6D	weekly	3	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-6D	weekly	3	6/25/2015	0.1	0.2	21.2	78.5	30	0.07
GMP-6S	weekly	3	3/26/2015	44	4.5	2.1	49.4	30	0.65
GMP-6S	weekly	3	4/2/2015	45.5	1.9	3	49.6	30	0.7
GMP-6S	weekly	3	4/9/2015	33.9	1.5	6.4	58.2	30	0.66
GMP-6S	weekly	3	4/16/2015	42.3	3.6	3.5	50.6	30	0.59
GMP-6S	weekly	3	4/23/2015	44.8	3.1	0.8	51.3	30	0.71
GMP-6S	weekly	3	4/28/2015	33.5	1.4	6.1	59	30	0.64
GMP-6S	weekly	3	5/4/2015	29.5	1.1	9.1	60.3	30	0.6
GMP-6S	weekly	3	5/14/2015	33.1	1.6	6.9	58.4	30	0.49

NR = No Reading

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-6S	weekly	3	5/20/2015	31	1.9	6.9	60.2	30	-2.58
GMP-6S	weekly	3	5/27/2015	36.5	2.7	1	59.8	30	0.26
GMP-6S	weekly	3	6/4/2015	29.9	5.2	1.7	63.2	30	0.24
GMP-6S	weekly	3	6/10/2015	22.5	3.6	2.4	71.5	30	0.15
GMP-6S	weekly	3	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-6S	weekly	3	6/25/2015	1.2	1.5	14.2	83.1	30	0.08
GMP-13D	weekly	4	3/26/2015	0.1	2.5	20.1	77.3	30	0.06
GMP-13D	weekly	4	4/2/2015	0.1	2.8	20.3	76.8	30	0.06
GMP-13D	weekly	4	4/9/2015	0.2	1.9	19.6	78.3	30	0.06
GMP-13D	weekly	4	4/16/2015	0.1	1.1	21.1	77.7	30	0.06
GMP-13D	weekly	4	4/23/2015	0.1	0.5	20.1	79.3	30	0.03
GMP-13D	weekly	4	4/28/2015	0	0.2	20.4	79.4	30	0.02
GMP-13D	weekly	4	5/4/2015	0.2	0.8	21.2	77.8	30	0.02
GMP-13D	weekly	4	5/14/2015	0.1	0.8	21.4	77.7	30	0.04
GMP-13D	weekly	4	5/20/2015	0.1	1.3	24.4	74.2	30	0.02
GMP-13D	weekly	4	5/27/2015	0	0	20.9	79.1	30	0.05
GMP-13D	weekly	4	6/4/2015	0.1	1.2	21.2	77.5	30	0.06
GMP-13D	weekly	4	6/10/2015	0	0.3	21.5	78.2	30	0.03
GMP-13D	weekly	4	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-13D	weekly	4	6/25/2015	0	0.4	21.6	78	30	0.05
GMP-13S	weekly	4	3/26/2015	0.1	5	19.2	75.7	30	-0.04
GMP-13S	weekly	4	4/2/2015	0.1	4.9	19.6	75.4	30	-0.01
GMP-13S	weekly	4	4/9/2015	0.1	2.9	19.5	77.5	30	-0.04
GMP-13S	weekly	4	4/16/2015	0.2	2.4	20.8	76.6	30	0
GMP-13S	weekly	4	4/23/2015	0.3	0.7	19.2	79.8	30	-0.02
GMP-13S	weekly	4	4/28/2015	1.2	0.2	18.9	79.7	30	-0.01
GMP-13S	weekly	4	5/4/2015	0.5	1.5	20.8	77.2	30	0
GMP-13S	weekly	4	5/14/2015	0.2	2	21.3	76.5	30	-0.02
GMP-13S	weekly	4	5/20/2015	0.1	2.5	24.2	73.2	30	-0.02
GMP-13S	weekly	4	5/27/2015	0	1.1	20.9	78	30	0
GMP-13S	weekly	4	6/4/2015	0.2	2.9	21	75.9	30	0
GMP-13S	weekly	4	6/10/2015	0.1	1.4	21.4	77.1	30	-0.02
GMP-13S	weekly	4	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-13S	weekly	4	6/25/2015	0.1	0.9	21.7	77.3	30	0.01

NR = No Reading

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-01	weekly	4	3/26/2015	60.1	36.5	0.2	3.2	30	5.92
GMP-01	weekly	4	4/2/2015	60	35	0.4	4.6	30	4.24
GMP-01	weekly	4	4/9/2015	59	38.3	0.1	2.6	30	12.52
GMP-01	weekly	4	4/16/2015	59.4	35.7	0.5	4.4	30	5.43
GMP-01	weekly	4	4/23/2015	57.5	35.2	0	7.3	30	2.13
GMP-01	weekly	4	4/28/2015	59	38.5	0	2.5	30	2.6
GMP-01	weekly	4	5/4/2015	50.7	34.4	2.1	12.8	30	-0.04
GMP-01	weekly	4	5/14/2015	50	35.1	1.3	13.6	30	-0.05
GMP-01	weekly	4	5/20/2015	33.3	24.6	7.6	34.5	30	-0.01
GMP-01	weekly	4	5/27/2015	20.5	21	8.7	49.8	30	-0.02
GMP-01	weekly	4	6/4/2015	8.3	14.9	11.5	65.3	30	-0.03
GMP-01	weekly	4	6/10/2015	6.4	13.4	12.3	67.9	30	0
GMP-01	weekly	4	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-01	weekly	4	6/25/2015	32.3	24.1	9.4	34.2	30	0.02
GMP-02	weekly	4	3/26/2015	53.3	42.4	0.2	4.1	30	17.52
GMP-02	weekly	4	4/2/2015	41.2	40.4	3	15.4	30	15.63
GMP-02	weekly	4	4/9/2015	51.1	44.4	0.3	4.2	30	20.82
GMP-02	weekly	4	4/16/2015	47.5	47.7	0.1	4.7	30	23.5
GMP-02	weekly	4	4/23/2015	49.7	42.6	0	7.7	30	23.96
GMP-02	weekly	4	4/28/2015	66.1	32.4	0	1.5	30	35.65
GMP-02	weekly	4	5/4/2015	64.9	31.7	0	3.4	30	46.04
GMP-02	weekly	4	5/14/2015	58.7	39.5	0	1.8	30	34.31
GMP-02	weekly	4	5/20/15	NR	NR	NR	NR	NR	NR
GMP-02	weekly	4	5/27/15	NR	NR	NR	NR	NR	NR
GMP-02	weekly	4	6/4/15	NR	NR	NR	NR	NR	NR
GMP-02	weekly	4	6/10/15	NR	NR	NR	NR	NR	NR
GMP-02	weekly	4	6/19/15	NR	NR	NR	NR	NR	NR
GMP-02	weekly	4	6/25/15	NR	NR	NR	NR	NR	NR
GMP-03	weekly	4	3/26/15	35.8	42.6	0	21.6	30	0.4
GMP-03	weekly	4	4/2/15	37.5	46.6	0.1	15.8	30	0.22
GMP-03	weekly	4	4/9/15	38.3	47	0	14.7	30	5.86
GMP-03	weekly	4	4/16/15	37.1	44	0	18.9	30	9.77
GMP-03	weekly	4	4/23/15	30.9	44.5	0.4	24.2	30	4.13
GMP-03	weekly	4	4/28/15	31.6	44.9	0.6	22.9	30	2.47

NR = No Reading

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-03	weekly	4	5/4/15	33.1	41.5	0.9	24.5	30	0.44
GMP-03	weekly	4	5/14/15	39.6	45.6	0	14.8	30	0.13
GMP-03	weekly	4	5/20/15	29.9	38.9	6.3	24.9	30	0.68
GMP-03	weekly	4	5/27/15	29.9	46.3	2.4	21.4	30	2.48
GMP-03	weekly	4	6/4/15	30.5	46.3	1.3	21.9	30	1.48
GMP-03	weekly	4	6/10/15	28.9	47.7	2.7	20.7	30	4.67
GMP-03	weekly	4	6/19/15	NR	NR	NR	NR	NR	NR
GMP-03	weekly	4	6/25/15	28	40.5	4.6	26.9	30	17.74

TABLE 3

SENTRY GAS MONITORING PROBE DATA

MARCH 20, 2015 – JUNE 25, 2015

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-06	quarterly	1	5/20/2015	0	1.2	24.5	74.3	30	0
GMP-07	quarterly	1	5/20/2015	0.3	6	20.1	73.6	30	0
GMP-05	quarterly	3	5/20/2015	64	34.3	0	1.7	30	49.33

Note: GMP-04 has been decommissioned

TABLE 4

INVESTIGATIVE GAS MONITORING PROBE DATA

MARCH 20, 2015 – JUNE 25, 2015

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
TMP-1D	weekly	4	3/26/2015	0.2	1.1	20.6	78.1	30	0.54
TMP-1D	weekly	4	4/2/2015	0.6	2.8	20.5	76.1	30	-0.09
TMP-1D	weekly	4	4/9/2015	0.5	1.6	19.9	78	30	0.82
TMP-1D	weekly	4	4/16/2015	0.3	1.8	21.2	76.7	30	1.01
TMP-1D	weekly	4	4/23/2015	0.1	0.1	21.4	78.4	30	0.02
TMP-1D	weekly	4	4/28/2015	0.1	0.5	22.1	77.3	30	0.79
TMP-1D	weekly	4	5/4/2015	0.2	0.6	21.6	77.6	30	0.66
TMP-1D	weekly	4	5/14/2015	0.1	0.9	21.5	77.5	30	0.02
TMP-1D	weekly	4	5/20/2015	0.1	0.7	24	75.2	30	1.2
TMP-1D	weekly	4	5/27/2015	0.1	0	21.3	78.6	30	0.87
TMP-1D	weekly	4	6/4/2015	0.1	0.3	21.5	78.1	30	0.01
TMP-1D	weekly	4	6/10/2015	0.1	0.4	21.6	77.9	30	0.92
TMP-1D	weekly	4	6/19/2015	NR	NR	NR	NR	NR	NR
TMP-1D	weekly	4	6/25/2015	0	0.2	22	77.8	30	0
TMP-1M	weekly	4	3/26/2015	0.1	2.4	20.5	77	30	-0.05
TMP-1M	weekly	4	4/2/2015	0.4	7.7	19.8	72.1	30	-0.08
TMP-1M	weekly	4	4/9/2015	0.2	2.5	20	77.3	30	-0.04
TMP-1M	weekly	4	4/16/2015	0.4	5.8	20.5	73.3	30	-0.07
TMP-1M	weekly	4	4/23/2015	0.3	1.9	20.9	76.9	30	-0.04
TMP-1M	weekly	4	4/28/2015	0.1	2.4	21.8	75.7	30	-0.03
TMP-1M	weekly	4	5/4/2015	0.1	2.2	21.2	76.5	30	-0.04
TMP-1M	weekly	4	5/14/2015	0.2	2.5	21.2	76.1	30	-0.09
TMP-1M	weekly	4	5/20/2015	0.1	1.7	23.8	74.4	30	-0.1
TMP-1M	weekly	4	5/27/2015	0.1	1.4	21.1	77.4	30	-0.03
TMP-1M	weekly	4	6/4/2015	0.2	1.8	21	77	30	-0.06
TMP-1M	weekly	4	6/10/2015	0.1	1.1	21.6	77.2	30	-0.02
TMP-1M	weekly	4	6/19/2015	NR	NR	NR	NR	NR	NR
TMP-1M	weekly	4	6/25/2015	0.1	0.8	21.9	77.2	30	-0.04
TMP-1S	weekly	4	3/26/2015	44.1	50.3	0	5.6	30	1.67
TMP-1S	weekly	4	4/2/2015	44	50.7	0	5.3	30	0.27
TMP-1S	weekly	4	4/9/2015	44.7	50.4	0	4.9	30	2.72
TMP-1S	weekly	4	4/16/2015	45.7	48.6	0	5.7	30	0.21
TMP-1S	weekly	4	4/23/2015	45.7	47.6	0	6.7	30	0.29
TMP-1S	weekly	4	4/28/2015	46.2	50.8	0	3	30	0.22

NR = No Reading

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
TMP-1S	weekly	4	5/4/2015	45.6	48.8	0	5.6	30	0.14
TMP-1S	weekly	4	5/14/2015	47.1	49	0	3.9	30	0.27
TMP-1S	weekly	4	5/20/2015	47	48.8	0	4.2	30	0.33
TMP-1S	weekly	4	5/27/2015	45.9	50.6	0	3.5	30	0.36
TMP-1S	weekly	4	6/4/2015	47.5	46.9	0	5.6	30	0.21
TMP-1S	weekly	4	6/10/2015	48.5	47.2	0	4.3	30	0.6
TMP-1S	weekly	4	6/19/2015	NR	NR	NR	NR	NR	NR
TMP-1S	weekly	4	6/25/2015	48.7	45.8	0.1	5.4	30	0.1
TMP-2D	weekly	4	3/26/2015	62.5	33.5	0.4	3.6	30	9.95
TMP-2D	weekly	4	4/2/2015	53.9	33.1	3	10	30	5.86
TMP-2D	weekly	4	4/9/2015	61.5	36	0.3	2.2	30	12.45
TMP-2D	weekly	4	4/16/2015	63.3	34.6	0	2.1	30	23.02
TMP-2D	weekly	4	4/23/2015	14.7	9	14.6	61.7	30	0.61
TMP-2D	weekly	4	4/28/2015	2.7	1.4	21	74.9	30	0.07
TMP-2D	weekly	4	5/4/2015	2.2	2.6	21	74.2	30	0.08
TMP-2D	weekly	4	5/14/2015	4.8	6.6	19.6	69	30	0.06
TMP-2D	weekly	4	5/20/2015	2	3.7	23.5	70.8	30	0.03
TMP-2D	weekly	4	5/27/2015	2.4	2.7	20.4	74.5	30	0.04
TMP-2D	weekly	4	6/4/2015	2.8	3	20.7	73.5	30	0.05
TMP-2D	weekly	4	6/10/2015	5.2	4.4	19.8	70.6	30	0.07
TMP-2D	weekly	4	6/19/2015	NR	NR	NR	NR	NR	NR
TMP-2D	weekly	4	6/25/2015	1.2	0.7	21.7	76.4	30	0.04
TMP-2M	weekly	4	3/26/2015	13.9	6.9	16.4	62.8	30	-0.01
TMP-2M	weekly	4	4/2/2015	4.4	1.7	19.5	74.4	30	0.03
TMP-2M	weekly	4	4/9/2015	8.5	5.2	17.3	69	30	0.05
TMP-2M	weekly	4	4/16/2015	3.1	5.4	19.8	71.7	30	0.04
TMP-2M	weekly	4	4/23/2015	3.6	4.3	19.6	72.5	30	0.03
TMP-2M	weekly	4	4/28/2015	21	13	14.7	51.3	30	0.18
TMP-2M	weekly	4	5/4/2015	23	16.9	13.6	46.5	30	0.08
TMP-2M	weekly	4	5/14/2015	43.4	28	6.4	22.2	30	0.07
TMP-2M	weekly	4	5/20/2015	15.9	12.4	17.9	53.8	30	0.01
TMP-2M	weekly	4	5/27/2015	28.5	23.4	11.3	36.8	30	0.08
TMP-2M	weekly	4	6/4/2015	14.1	12.7	16.3	56.9	30	1
TMP-2M	weekly	4	6/10/2015	15.6	13.2	16	55.2	30	0.05

NR = No Reading

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
TMP-2M	weekly	4	6/19/2015	NR	NR	NR	NR	NR	NR
TMP-2M	weekly	4	6/25/2015	9.9	7	18.6	64.5	30	-0.04
TMP-2S	weekly	4	3/26/2015	0.5	2	16.7	80.8	30	0
TMP-2S	weekly	4	4/2/2015	0.6	1.7	19.7	78	30	0
TMP-2S	weekly	4	4/9/2015	0.8	1.1	18.5	79.6	30	-0.01
TMP-2S	weekly	4	4/16/2015	1.1	9.2	13	76.7	30	-0.01
TMP-2S	weekly	4	4/23/2015	7.1	11.8	10.1	71	30	0.01
TMP-2S	weekly	4	4/28/2015	19.7	15.5	7.6	57.2	30	0.01
TMP-2S	weekly	4	5/4/2015	56.9	36.6	0	6.5	30	-0.01
TMP-2S	weekly	4	5/14/2015	51.5	32.8	2.2	13.5	30	0.01
TMP-2S	weekly	4	5/20/2015	48.9	36.1	0	15	30	0
TMP-2S	weekly	4	5/27/2015	27.2	28.1	1.8	42.9	30	0
TMP-2S	weekly	4	6/4/2015	14.6	14.9	9.6	60.9	30	0
TMP-2S	weekly	4	6/10/2015	34.8	24.3	7.1	33.8	30	0.01
TMP-2S	weekly	4	6/19/2015	NR	NR	NR	NR	NR	NR
TMP-2S	weekly	4	6/25/2015	58.2	36.8	0	5	30	0.01
TMP-3D	weekly	4	3/26/2015	NR	NR	NR	NR	NR	NR
TMP-3D	weekly	4	4/2/2015	NR	NR	NR	NR	NR	NR
TMP-3D	weekly	4	4/9/2015	30.7	16.8	10.8	41.7	30	-4.3
TMP-3D	weekly	4	4/16/2015	1.9	1.7	20.6	75.8	30	-3.87
TMP-3D	weekly	4	4/23/2015	0	0	14.2	85.8	30	4.23
TMP-3D	weekly	4	4/28/2015	53.3	44.2	0	2.5	30	6.96
TMP-3D	weekly	4	5/4/2015	0.4	3.3	21.1	75.2	30	-6.4
TMP-3D	weekly	4	5/14/2015	0.6	4.2	20.8	74.4	30	3.58
TMP-3D	weekly	4	5/20/2015	52.1	44.7	0	3.2	30	2.01
TMP-3D	weekly	4	5/27/2015	0.1	0	21.4	78.5	30	-1.14
TMP-3D	weekly	4	6/4/2015	0.1	0.4	21.8	77.7	30	0.3
TMP-3D	weekly	4	6/12/2015	52.7	44.3	0	3	30	2.74
TMP-3D	weekly	4	6/19/2015	NR	NR	NR	NR	NR	NR
TMP-3D	weekly	4	6/25/2015	53.8	41.8	0	4.4	30	14.27
TMP-3M	weekly	4	3/26/2015	NR	NR	NR	NR	NR	NR
TMP-3M	weekly	4	4/2/2015	NR	NR	NR	NR	NR	NR
TMP-3M	weekly	4	4/9/15	NR	NR	NR	NR	NR	NR
TMP-3M	weekly	4	4/16/15	NR	NR	NR	NR	NR	NR

NR = No Reading

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
TMP-3M	weekly	4	4/23/15	8.5	1.8	14.6	75.1	30	-12.2
TMP-3M	weekly	4	4/28/15	7.6	9.1	18.2	65.1	30	-13.68
TMP-3M	weekly	4	5/4/15	32	28	8.1	31.9	30	-2.87
TMP-3M	weekly	4	5/14/15	0.1	1.2	21.6	77.1	30	-9.71
TMP-3M	weekly	4	5/20/15	0.3	3.3	24	72.4	30	-5.43
TMP-3M	weekly	4	5/27/15	0.1	0.5	21.2	78.2	30	-1.67
TMP-3M	weekly	4	6/4/15	1	1.5	21.3	76.2	30	-12.26
TMP-3M	weekly	4	6/12/15	1	2.7	19.9	76.4	30	-9.15
TMP-3M	weekly	4	6/19/15	NR	NR	NR	NR	NR	NR
TMP-3M	weekly	4	6/25/15	23.6	20.9	12.6	42.9	30	-1.3
TMP-3S	weekly	4	3/26/15	NR	NR	NR	NR	NR	NR
TMP-3S	weekly	4	4/2/15	NR	NR	NR	NR	NR	NR
TMP-3S	weekly	4	4/9/15	NR	NR	NR	NR	NR	NR
TMP-3S	weekly	4	4/16/15	51.8	45.2	0	3	30	12.76
TMP-3S	weekly	4	4/23/15	NR	NR	NR	NR	NR	NR
TMP-3S	weekly	4	4/28/15	NR	NR	NR	NR	NR	NR
TMP-3S	weekly	4	5/4/15	NR	NR	NR	NR	NR	NR
TMP-3S	weekly	4	5/14/15	NR	NR	NR	NR	NR	NR
TMP-3S	weekly	4	5/20/15	NR	NR	NR	NR	NR	NR
TMP-3S	weekly	4	5/27/15	NR	NR	NR	NR	NR	NR
TMP-3S	weekly	4	6/4/15	43.8	35.8	4.7	15.7	30	-0.49
TMP-3S	weekly	4	6/12/15	39.4	36.2	5	19.4	30	2.83
TMP-3S	weekly	4	6/19/15	NR	NR	NR	NR	NR	NR
TMP-3S	weekly	4	6/25/15	0.1	0	21.9	78	30	-7.56

TABLE 5

PUBLIC SAFETY GAS MONITORING PROBE DATA

MARCH 20, 2015 – JUNE 25, 2015

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-09	weekly	4	3/26/2015	3.7	10.1	17.9	68.3	30	0.03
GMP-09	weekly	4	4/2/2015	0.2	2.1	20.1	77.6	30	0.04
GMP-09	weekly	4	4/9/2015	0.4	4.3	19.3	76	30	-0.06
GMP-09	weekly	4	4/16/2015	0.4	5.1	20.5	74	30	0.06
GMP-09	weekly	4	4/23/2015	0.5	3.7	19.9	75.9	30	0
GMP-09	weekly	4	4/28/2015	0.0	0.6	21.5	77.9	30	0
GMP-09	weekly	4	5/4/2015	0.1	0.8	21.3	77.8	30	0.06
GMP-09	weekly	4	5/14/2015	0.1	2	20.8	77.1	30	0.04
GMP-09	weekly	4	5/20/2015	0.1	1.1	24.2	74.6	30	0.03
GMP-09	weekly	4	5/27/2015	0.0	0	21	79	30	0.05
GMP-09	weekly	4	6/4/2015	0.3	2.8	20.9	76	30	0
GMP-09	weekly	4	6/10/2015	0.1	0.9	20.8	78.2	30	0.07
GMP-09	weekly	4	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-09	weekly	4	6/25/2015	0.0	0.4	21.9	77.7	30	0
GMP-10	weekly	4	3/26/2015	0.2	3.7	16.4	79.7	30	-2.66
GMP-10	weekly	4	4/2/2015	0.2	3.3	19.7	76.8	30	0.03
GMP-10	weekly	4	4/9/2015	0.4	2.3	18.2	79.1	30	3.3
GMP-10	weekly	4	4/16/2015	0.1	2.4	19.4	78.1	30	0
GMP-10	weekly	4	4/23/2015	0.0	0.7	18.5	80.8	30	-1.73
GMP-10	weekly	4	4/28/2015	0.0	0.5	20.4	79.1	30	-1.69
GMP-10	weekly	4	5/4/2015	0.0	0.6	20.3	79.1	30	0.03
GMP-10	weekly	4	5/14/2015	0.0	1.2	20.1	78.7	30	-3.64
GMP-10	weekly	4	5/20/2015	0.0	0.9	20.7	78.4	30	-8.3
GMP-10	weekly	4	5/27/2015	0.0	0	18.6	81.4	30	-0.06
GMP-10	weekly	4	6/4/2015	0.0	1.3	19	79.7	30	-1.26
GMP-10	weekly	4	6/10/2015	0.0	0.5	18.2	81.3	30	-0.38
GMP-10	weekly	4	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-10	weekly	4	6/25/2015	0.0	0	22	78	30	-0.01
GMP-11	weekly	4	3/26/2015	0.0	0.3	21	78.7	30	0
GMP-11	weekly	4	4/2/2015	0.0	0.6	21.3	78.1	30	0
GMP-11	weekly	4	4/9/2015	0.0	0.3	20.4	79.3	30	-0.04
GMP-11	weekly	4	4/16/2015	0.0	0.3	21.7	78	30	0
GMP-11	weekly	4	4/23/2015	0.0	0.1	20.4	79.5	30	0
GMP-11	weekly	4	4/28/2015	0.0	0.1	21.8	78.1	30	0

NR = No Reading

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
GMP-11	weekly	4	5/4/2015	0.0	0.2	21.7	78.1	30	0
GMP-11	weekly	4	5/14/2015	0.0	0	20.8	79.2	30	0.01
GMP-11	weekly	4	5/20/2015	0.0	0.3	25	74.7	30	-0.01
GMP-11	weekly	4	5/27/2015	0.0	0	21.3	78.7	30	0
GMP-11	weekly	4	6/4/2015	0.0	0.2	21.6	78.2	30	0
GMP-11	weekly	4	6/10/2015	0.0	0.1	21.6	78.3	30	-0.01
GMP-11	weekly	4	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-11	weekly	4	6/25/2015	0.0	0	22.1	77.9	30	0
GMP-12	weekly	4	3/26/2015	0.0	0.1	21.1	78.8	30	0
GMP-12	weekly	4	4/2/2015	0.0	0.3	21.4	78.3	30	0.01
GMP-12	weekly	4	4/9/2015	0.0	0.1	20.4	79.5	30	0
GMP-12	weekly	4	4/16/2015	0.0	0.2	21.2	78.6	30	0
GMP-12	weekly	4	4/23/2015	0.0	0	20.5	79.5	30	0
GMP-12	weekly	4	4/28/2015	0.0	0	21.9	78.1	30	0
GMP-12	weekly	4	5/4/2015	0.0	0.1	21.7	78.2	30	0
GMP-12	weekly	4	5/14/2015	0.0	0.1	21.9	78	30	-0.01
GMP-12	weekly	4	5/20/2015	0.0	0.1	25.2	74.7	30	0
GMP-12	weekly	4	5/27/2015	0.0	0	21.3	78.7	30	0.01
GMP-12	weekly	4	6/4/2015	0.0	0	21.7	78.3	30	-0.01
GMP-12	weekly	4	6/10/2015	0.0	0.1	21.6	78.3	30	0
GMP-12	weekly	4	6/19/2015	NR	NR	NR	NR	NR	NR
GMP-12	weekly	4	6/25/2015	0.0	0.1	22.1	77.8	30	0
4OSS	weekly	4	3/26/2015	0.0	0.8	20.3	78.9	30	0.4
4OSS	weekly	4	4/2/2015	0.0	1	20.9	78.1	30	0.05
4OSS	weekly	4	4/9/2015	0.0	0.4	19.8	79.8	30	1.02
4OSS	weekly	4	4/16/2015	0.0	0.5	21.3	78.2	30	0.03
4OSS	weekly	4	4/23/2015	0.0	0.4	20.1	79.5	30	-0.02
4OSS	weekly	4	4/28/2015	0.0	0.2	21.3	78.5	30	0.16
4OSS	weekly	4	5/4/2015	0.0	0.3	21.4	78.3	30	0.02
4OSS	weekly	4	5/14/2015	0.0	0.3	21.6	78.1	30	0.11
4OSS	weekly	4	5/20/2015	0.0	0.4	24.7	74.9	30	0.02
4OSS	weekly	4	5/27/2015	0.0	0	21.1	78.9	30	0.02
4OSS	weekly	4	6/4/2015	0.0	0.5	21.4	78.1	30	-0.28
4OSS	weekly	4	6/10/2015	0.0	0.3	21.3	78.4	30	0.07

NR = No Reading

Point Name	Frequency	Quadrant	Date	CH4	CO2	O2	Balance	Barometric Pressure	Relative Pressure
4OSS	weekly	4	6/19/2015	NR	NR	NR	NR	NR	NR
4OSS	weekly	4	6/25/2015	0.0	0.1	21.9	78	30	0
4ASS	weekly	4	3/26/2015	0.1	1.6	20.6	77.7	30	0.01
4ASS	weekly	4	4/2/2015	0.1	1.7	21	77.2	30	0.03
4ASS	weekly	4	4/9/2015	0.1	1.2	20	78.7	30	1.86
4ASS	weekly	4	4/16/2015	0.0	0.8	21.5	77.7	30	0
4ASS	weekly	4	4/23/2015	0.0	0	16.8	83.2	30	0.01
4ASS	weekly	4	4/28/2015	0.0	0.2	21.8	78	30	0.01
4ASS	weekly	4	5/4/2015	0.0	0.4	21.6	78	30	0
4ASS	weekly	4	5/14/2015	0.0	0.5	21.8	77.7	30	0.18
4ASS	weekly	4	5/20/15	0.0	0.6	24.5	74.9	30	0.1
4ASS	weekly	4	5/27/15	0.0	0	21.1	78.9	30	0
4ASS	weekly	4	6/4/15	0.0	0.6	21.4	78	30	0
4ASS	weekly	4	6/10/15	0.0	0.3	21.4	78.3	30	0.18
4ASS	weekly	4	6/19/15	NR	NR	NR	NR	NR	NR
4ASS	weekly	4	6/25/15	0.0	0.1	22.1	77.8	30	-0.04

TABLE 6

GAS MONITORING PROBE WATER LEVEL DATA

MARCH 20, 2015 – JUNE 25, 2015

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-08	03/26/15	1	31.7	No Comment
GMP-16D	03/26/15	1	7	No Comment
GMP-16S	03/26/15	1	6.8	No Comment
GMP-7D	03/26/15	1	16.6	No Comment
GMP-7S	03/26/15	1	15.8	No Comment
GMP-15D	03/26/15	2	9.5	No Comment
GMP-15S	03/26/15	2	7	No Comment
GMP-14D	03/26/15	3	4.4	No Comment
GMP-14S	03/26/15	3	6.6	No Comment
GMP-4D	03/26/15	3	7.4	No Comment
GMP-4S	03/26/15	3	7.3	No Comment
GMP-5D	03/26/15	3	19.3	No Comment
GMP-5S	03/26/15	3	12	No Comment
GMP-6D	03/26/15	3	11.2	No Comment
GMP-6S	03/26/15	3	7.8	No Comment
4ASS	03/26/15	4	4.5	No Comment
4OSS	03/26/15	4	6.7	No Comment
GMP-01	03/26/15	4	Dry	No Comment
GMP-02	03/26/15	4	13	No Comment
GMP-03	03/26/15	4	10.8	No Comment
GMP-09	03/26/15	4	8.6	No Comment
GMP-10	03/26/15	4	8	No Comment
GMP-11	03/26/15	4	0	No Comment
GMP-12	03/26/15	4	0	No Comment
GMP-13D	03/26/15	4	10.7	No Comment
GMP-13S	03/26/15	4	8.8	No Comment
TMP-1D	03/26/15	4	19.8	No Comment
TMP-1M	03/26/15	4	20.8	No Comment
TMP-1S	03/26/15	4	18.5	No Comment
TMP-2D	03/26/15	4	21	No Comment
TMP-2M	03/26/15	4	17.8	No Comment
TMP-2S	03/26/15	4	16.5	No Comment
TMP-3D	03/26/15	4	NR	Unable to monitor
TMP-3M	03/26/15	4	NR	Unable to monitor

NR = No Reading

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-3S	03/26/15	4	NR	Unable to monitor
GMP-08	04/02/15	1	31.4	No Comment
GMP-16D	04/02/15	1	7.5	No Comment
GMP-16S	04/02/15	1	6.3	No Comment
GMP-7D	04/02/15	1	15.9	No Comment
GMP-7S	04/02/15	1	15.9	No Comment
GMP-15D	04/02/15	2	9	No Comment
GMP-15S	04/02/15	2	8	No Comment
GMP-14D	04/02/15	3	4.9	No Comment
GMP-14S	04/02/15	3	7	No Comment
GMP-4D	04/02/15	3	6.3	No Comment
GMP-4S	04/02/15	3	7	No Comment
GMP-5D	04/02/15	3	20.8	No Comment
GMP-5S	04/02/15	3	13	No Comment
GMP-6D	04/02/15	3	10.6	No Comment
GMP-6S	04/02/15	3	9.3	No Comment
4ASS	04/02/15	4	4	No Comment
4OSS	04/02/15	4	5	No Comment
GMP-01	04/02/15	4	Dry	No Comment
GMP-02	04/02/15	4	15	No Comment
GMP-03	04/02/15	4	11.5	No Comment
GMP-09	04/02/15	4	7.4	No Comment
GMP-10	04/02/15	4	8.9	No Comment
GMP-11	04/02/15	4	0	No Comment
GMP-12	04/02/15	4	0	No Comment
GMP-13D	04/02/15	4	9.8	No Comment
GMP-13S	04/02/15	4	9	No Comment
TMP-1D	04/02/15	4	20.9	No Comment
TMP-1M	04/02/15	4	20.2	No Comment
TMP-1S	04/02/15	4	18.7	No Comment
TMP-2D	04/02/15	4	22	No Comment
TMP-2M	04/02/15	4	17.1	No Comment
TMP-2S	04/02/15	4	16.9	No Comment
TMP-3D	04/02/15	4	NR	Unable to monitor

NR = No Reading

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-3M	04/02/15	4	NR	Unable to monitor
TMP-3S	04/02/15	4	NR	Unable to monitor
GMP-08	04/09/15	1	32	No Comment
GMP-16D	04/09/15	1	8	No Comment
GMP-16S	04/09/15	1	6.3	No Comment
GMP-7D	04/09/15	1	15	No Comment
GMP-7S	04/09/15	1	16.9	No Comment
GMP-15D	04/09/15	2	10.1	No Comment
GMP-15S	04/09/15	2	9.4	No Comment
GMP-14D	04/09/15	3	6	No Comment
GMP-14S	04/09/15	3	8.3	No Comment
GMP-4D	04/09/15	3	6	No Comment
GMP-4S	04/09/15	3	8.1	No Comment
GMP-5D	04/09/15	3	20	No Comment
GMP-5S	04/09/15	3	14.2	No Comment
GMP-6D	04/09/15	3	10	No Comment
GMP-6S	04/09/15	3	9.4	No Comment
4ASS	04/09/15	4	6.2	No Comment
4OSS	04/09/15	4	5	No Comment
GMP-01	04/09/15	4	Dry	No Comment
GMP-02	04/09/15	4	15.2	No Comment
GMP-03	04/09/15	4	11	No Comment
GMP-09	04/09/15	4	7.8	No Comment
GMP-10	04/09/15	4	9.6	No Comment
GMP-11	04/09/15	4	0	No Comment
GMP-12	04/09/15	4	0	No Comment
GMP-13D	04/09/15	4	10	No Comment
GMP-13S	04/09/15	4	9.6	No Comment
TMP-1D	04/09/15	4	20	No Comment
TMP-1M	04/09/15	4	20	No Comment
TMP-1S	04/09/15	4	18.2	No Comment
TMP-2D	04/09/15	4	20.3	No Comment
TMP-2M	04/09/15	4	17.6	No Comment
TMP-2S	04/09/15	4	17.1	No Comment

NR = No Reading

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-3D	04/09/15	4	NA	No Comment
TMP-3M	04/09/15	4	NR	Unable to monitor
TMP-3S	04/09/15	4	NR	Unable to monitor
GMP-08	04/16/15	1	31.4	No Comment
GMP-16D	04/16/15	1	7.3	No Comment
GMP-16S	04/16/15	1	7	No Comment
GMP-7D	04/16/15	1	17.6	No Comment
GMP-7S	04/16/15	1	17	No Comment
GMP-15D	04/16/15	2	8	No Comment
GMP-15S	04/16/15	2	7.1	No Comment
GMP-14D	04/16/15	3	3.7	No Comment
GMP-14S	04/16/15	3	4	No Comment
GMP-4D	04/16/15	3	5.5	No Comment
GMP-4S	04/16/15	3	5.5	No Comment
GMP-5D	04/16/15	3	19	No Comment
GMP-5S	04/16/15	3	11.7	No Comment
GMP-6D	04/16/15	3	11	No Comment
GMP-6S	04/16/15	3	7.6	No Comment
4ASS	04/16/15	4	4.8	No Comment
4OSS	04/16/15	4	6	No Comment
GMP-01	04/16/15	4	Dry	No Comment
GMP-02	04/16/15	4	13.7	No Comment
GMP-03	04/16/15	4	9.5	No Comment
GMP-09	04/16/15	4	8.1	No Comment
GMP-10	04/16/15	4	5.8	No Comment
GMP-11	04/16/15	4	0	No Comment
GMP-12	04/16/15	4	0	No Comment
GMP-13D	04/16/15	4	10.3	No Comment
GMP-13S	04/16/15	4	6.8	No Comment
TMP-1D	04/16/15	4	19.5	No Comment
TMP-1M	04/16/15	4	20	No Comment
TMP-1S	04/16/15	4	18.5	No Comment
TMP-2D	04/16/15	4	20.7	No Comment
TMP-2M	04/16/15	4	17	No Comment

NR = No Reading

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-2S	04/16/15	4	15.5	No Comment
TMP-3D	04/16/15	4	11.8	No Comment
TMP-3M	04/16/15	4	NR	Unable to monitor
TMP-3S	04/16/15	4	10.5	No Comment
GMP-08	04/23/15	1	31.5	No Comment
GMP-16D	04/23/15	1	6.6	No Comment
GMP-16S	04/23/15	1	7	No Comment
GMP-7D	04/23/15	1	16.2	No Comment
GMP-7S	04/23/15	1	16.2	No Comment
GMP-15D	04/23/15	2	9.2	No Comment
GMP-15S	04/23/15	2	7.3	No Comment
GMP-14D	04/23/15	3	3.8	No Comment
GMP-14S	04/23/15	3	4.6	No Comment
GMP-4D	04/23/15	3	5.7	No Comment
GMP-4S	04/23/15	3	5.7	No Comment
GMP-5D	04/23/15	3	19.1	No Comment
GMP-5S	04/23/15	3	6.5	No Comment
GMP-6D	04/23/15	3	11.1	No Comment
GMP-6S	04/23/15	3	7.2	No Comment
4ASS	04/23/15	4	5.2	No Comment
4OSS	04/23/15	4	6.1	No Comment
GMP-01	04/23/15	4	Dry	No Comment
GMP-02	04/23/15	4	12.8	No Comment
GMP-03	04/23/15	4	9.8	No Comment
GMP-09	04/23/15	4	8.5	No Comment
GMP-10	04/23/15	4	9.2	No Comment
GMP-11	04/23/15	4	0	No Comment
GMP-12	04/23/15	4	0	No Comment
GMP-13D	04/23/15	4	10.2	No Comment
GMP-13S	04/23/15	4	7	No Comment
TMP-1D	04/23/15	4	20	No Comment
TMP-1M	04/23/15	4	19.7	No Comment
TMP-1S	04/23/15	4	18.6	No Comment
TMP-2D	04/23/15	4	22.7	No Comment

NR = No Reading

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-2M	04/23/15	4	18.2	No Comment
TMP-2S	04/23/15	4	17.4	No Comment
TMP-3D	04/23/15	4	12.3	No Comment
TMP-3M	04/23/15	4	10.3	No Comment
TMP-3S	04/23/15	4	NR	Unable to monitor
GMP-08	04/28/15	1	33.4	No Comment
GMP-16D	04/28/15	1	10.3	No Comment
GMP-16S	04/28/15	1	7.9	No Comment
GMP-7D	04/28/15	1	17.1	No Comment
GMP-7S	04/28/15	1	16.8	No Comment
GMP-15D	04/28/15	2	8.8	No Comment
GMP-15S	04/28/15	2	5.3	No Comment
GMP-14D	04/28/15	3	5.1	No Comment
GMP-14S	04/28/15	3	4.9	No Comment
GMP-4D	04/28/15	3	7.8	No Comment
GMP-4S	04/28/15	3	6	No Comment
GMP-5D	04/28/15	3	17.7	No Comment
GMP-5S	04/28/15	3	5.3	No Comment
GMP-6D	04/28/15	3	12.3	No Comment
GMP-6S	04/28/15	3	7	No Comment
4ASS	04/28/15	4	5.9	No Comment
4OSS	04/28/15	4	6	No Comment
GMP-01	04/28/15	4	Dry	No Comment
GMP-02	04/28/15	4	11.2	No Comment
GMP-03	04/28/15	4	9.2	No Comment
GMP-09	04/28/15	4	7.6	No Comment
GMP-10	04/28/15	4	9.9	No Comment
GMP-11	04/28/15	4	0	No Comment
GMP-12	04/28/15	4	0	No Comment
GMP-13D	04/28/15	4	9.2	No Comment
GMP-13S	04/28/15	4	7.1	No Comment
TMP-1D	04/28/15	4	20.9	No Comment
TMP-1M	04/28/15	4	19.2	No Comment
TMP-1S	04/28/15	4	18	No Comment

NR = No Reading

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-2D	04/28/15	4	20.4	No Comment
TMP-2M	04/28/15	4	19.1	No Comment
TMP-2S	04/28/15	4	16.8	No Comment
TMP-3D	04/28/15	4	10.2	No Comment
TMP-3M	04/28/15	4	11.2	No Comment
TMP-3S	04/28/15	4	NR	Unable to monitor
GMP-08	05/04/15	1	35.4	No Comment
GMP-16D	05/04/15	1	11.2	No Comment
GMP-16S	05/04/15	1	8.3	No Comment
GMP-7D	05/04/15	1	16.4	No Comment
GMP-7S	05/04/15	1	18.1	No Comment
GMP-15D	05/04/15	2	8.1	No Comment
GMP-15S	05/04/15	2	4.6	No Comment
GMP-14D	05/04/15	3	6.7	No Comment
GMP-14S	05/04/15	3	5.4	No Comment
GMP-4D	05/04/15	3	8.3	No Comment
GMP-4S	05/04/15	3	7.1	No Comment
GMP-5D	05/04/15	3	19.1	No Comment
GMP-5S	05/04/15	3	6.5	No Comment
GMP-6D	05/04/15	3	13.2	No Comment
GMP-6S	05/04/15	3	8.4	No Comment
4ASS	05/04/15	4	4.5	No Comment
4OSS	05/04/15	4	7	No Comment
GMP-01	05/04/15	4	Dry	No Comment
GMP-02	05/04/15	4	10.5	No Comment
GMP-03	05/04/15	4	10.2	No Comment
GMP-09	05/04/15	4	8.1	No Comment
GMP-10	05/04/15	4	11.1	No Comment
GMP-11	05/04/15	4	0	No Comment
GMP-12	05/04/15	4	0	No Comment
GMP-13D	05/04/15	4	10.8	No Comment
GMP-13S	05/04/15	4	6.8	No Comment
TMP-1D	05/04/15	4	21.5	No Comment
TMP-1M	05/04/15	4	17.8	No Comment

NR = No Reading

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-1S	05/04/15	4	17.2	No Comment
TMP-2D	05/04/15	4	21.3	No Comment
TMP-2M	05/04/15	4	18.2	No Comment
TMP-2S	05/04/15	4	16.1	No Comment
TMP-3D	05/04/15	4	12.1	No Comment
TMP-3M	05/04/15	4	10	No Comment
TMP-3S	05/04/15	4	NR	Unable to monitor
GMP-08	05/14/15	1	31.4	No Comment
GMP-16D	05/14/15	1	6.6	No Comment
GMP-16S	05/14/15	1	7	No Comment
GMP-7D	05/14/15	1	16	No Comment
GMP-7S	05/14/15	1	16	No Comment
GMP-15D	05/14/15	2	9.2	No Comment
GMP-15S	05/14/15	2	7.3	No Comment
GMP-14D	05/14/15	3	3.8	No Comment
GMP-14S	05/14/15	3	4.6	No Comment
GMP-4D	05/14/15	3	9.1	No Comment
GMP-4S	05/14/15	3	7.6	No Comment
GMP-5D	05/14/15	3	18.9	No Comment
GMP-5S	05/14/15	3	6.4	No Comment
GMP-6D	05/14/15	3	11.1	No Comment
GMP-6S	05/14/15	3	7.2	No Comment
4ASS	05/14/15	4	5.3	No Comment
4OSS	05/14/15	4	6	No Comment
GMP-01	05/14/15	4	Dry	No Comment
GMP-02	05/14/15	4	12.7	No Comment
GMP-03	05/14/15	4	7	No Comment
GMP-09	05/14/15	4	8.5	No Comment
GMP-10	05/14/15	4	9.2	No Comment
GMP-11	05/14/15	4	0	No Comment
GMP-12	05/14/15	4	0	No Comment
GMP-13D	05/14/15	4	5.5	No Comment
GMP-13S	05/14/15	4	5.5	No Comment
TMP-1D	05/14/15	4	20	No Comment

NR = No Reading

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-1M	05/14/15	4	20	No Comment
TMP-1S	05/14/15	4	18.9	No Comment
TMP-2D	05/14/15	4	22.9	No Comment
TMP-2M	05/14/15	4	18	No Comment
TMP-2S	05/14/15	4	17.5	No Comment
TMP-3D	05/14/15	4	11.8	No Comment
TMP-3M	05/14/15	4	10.5	No Comment
TMP-3S	05/14/15	4	NR	Unable to monitor
GMP-06	05/20/15	1	8.1	No Comment
GMP-07	05/20/15	1	23.6	No Comment
GMP-08	05/20/15	1	32.8	No Comment
GMP-16D	05/20/15	1	7.5	No Comment
GMP-16S	05/20/15	1	8	No Comment
GMP-7D	05/20/15	1	16.4	No Comment
GMP-7S	05/20/15	1	17.1	No Comment
GMP-15D	05/20/15	2	9.6	No Comment
GMP-15S	05/20/15	2	7	No Comment
GMP-05	05/20/15	3	10.6	No Comment
GMP-14D	05/20/15	3	5.2	No Comment
GMP-14S	05/20/15	3	5	No Comment
GMP-4D	05/20/15	3	10.2	No Comment
GMP-4S	05/20/15	3	7.8	No Comment
GMP-5D	05/20/15	3	19.5	No Comment
GMP-5S	05/20/15	3	6	No Comment
GMP-6D	05/20/15	3	11.9	No Comment
GMP-6S	05/20/15	3	7	No Comment
4ASS	05/20/15	4	5	No Comment
4OSS	05/20/15	4	6.8	No Comment
GMP-01	05/20/15	4	Dry	No Comment
GMP-02	05/20/15	4	NR	Unable to monitor
GMP-03	05/20/15	4	9.2	No Comment
GMP-09	05/20/15	4	9.6	No Comment
GMP-10	05/20/15	4	9.1	No Comment
GMP-11	05/20/15	4	0	No Comment

NR = No Reading

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-12	05/20/15	4	0	No Comment
GMP-13D	05/20/15	4	4.5	No Comment
GMP-13S	05/20/15	4	6	No Comment
TMP-1D	05/20/15	4	20.5	No Comment
TMP-1M	05/20/15	4	21.3	No Comment
TMP-1S	05/20/15	4	18.1	No Comment
TMP-2D	05/20/15	4	20.5	No Comment
TMP-2M	05/20/15	4	18.6	No Comment
TMP-2S	05/20/15	4	17.6	No Comment
TMP-3D	05/20/15	4	11	No Comment
TMP-3M	05/20/15	4	10.8	No Comment
TMP-3S	05/20/15	4	NR	Unable to monitor
GMP-08	05/27/15	1	11.5	No Comment
GMP-16D	05/27/15	1	7.9	No Comment
GMP-16S	05/27/15	1	8.5	No Comment
GMP-7D	05/27/15	1	17.4	No Comment
GMP-7S	05/27/15	1	18.2	No Comment
GMP-15D	05/27/15	2	8.6	No Comment
GMP-15S	05/27/15	2	8	No Comment
GMP-14D	05/27/15	3	5.9	No Comment
GMP-14S	05/27/15	3	5.3	No Comment
GMP-4D	05/27/15	3	10.5	No Comment
GMP-4S	05/27/15	3	8.6	No Comment
GMP-5D	05/27/15	3	18.2	No Comment
GMP-5S	05/27/15	3	7.1	No Comment
GMP-6D	05/27/15	3	12	No Comment
GMP-6S	05/27/15	3	5.6	No Comment
4ASS	05/27/15	4	6	No Comment
4OSS	05/27/15	4	7.2	No Comment
GMP-01	05/27/15	4	Dry	No Comment
GMP-02	05/27/15	4	NR	Unable to Monitor
GMP-03	05/27/15	4	8.2	No Comment
GMP-09	05/27/15	4	9.2	No Comment
GMP-10	05/27/15	4	10.5	No Comment

NR = No Reading

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-11	05/27/15	4	0	No Comment
GMP-12	05/27/15	4	0	No Comment
GMP-13D	05/27/15	4	5.2	No Comment
GMP-13S	05/27/15	4	7.1	No Comment
TMP-1D	05/27/15	4	19.6	No Comment
TMP-1M	05/27/15	4	20.8	No Comment
TMP-1S	05/27/15	4	17	No Comment
TMP-2D	05/27/15	4	19.4	No Comment
TMP-2M	05/27/15	4	19.3	No Comment
TMP-2S	05/27/15	4	17.5	No Comment
TMP-3D	05/27/15	4	10.4	No Comment
TMP-3M	05/27/15	4	12.3	No Comment
TMP-3S	05/27/15	4	NR	Unable to Monitor
GMP-08	06/04/15	1	25.8	No Comment
GMP-16D	06/04/15	1	8	No Comment
GMP-16S	06/04/15	1	9.2	No Comment
GMP-7D	06/04/15	1	15.2	No Comment
GMP-7S	06/04/15	1	17.4	No Comment
GMP-15D	06/04/15	2	9.5	No Comment
GMP-15S	06/04/15	2	9.2	No Comment
GMP-14D	06/04/15	3	4.2	No Comment
GMP-14S	06/04/15	3	5	No Comment
GMP-4D	06/04/15	3	11.5	No Comment
GMP-4S	06/04/15	3	8.2	No Comment
GMP-5D	06/04/15	3	17.5	No Comment
GMP-5S	06/04/15	3	6.2	No Comment
GMP-6D	06/04/15	3	11.1	No Comment
GMP-6S	06/04/15	3	5	No Comment
4ASS	06/04/15	4	6.2	No Comment
4OSS	06/04/15	4	6.5	No Comment
GMP-01	06/04/15	4	Dry	No Comment
GMP-02	06/04/15	4	NR	Unable to Monitor
GMP-03	06/04/15	4	7.5	No Comment
GMP-09	06/04/15	4	9.6	No Comment

NR = No Reading

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-10	06/04/15	4	11.2	No Comment
GMP-11	06/04/15	4	0	No Comment
GMP-12	06/04/15	4	0	No Comment
GMP-13D	06/04/15	4	6.2	No Comment
GMP-13S	06/04/15	4	7	No Comment
TMP-1D	06/04/15	4	17.5	No Comment
TMP-1M	06/04/15	4	20.2	No Comment
TMP-1S	06/04/15	4	18.1	No Comment
TMP-2D	06/04/15	4	18.5	No Comment
TMP-2M	06/04/15	4	17.8	No Comment
TMP-2S	06/04/15	4	16.2	No Comment
TMP-3D	06/04/15	4	11.2	No Comment
TMP-3M	06/04/15	4	12.1	No Comment
TMP-3S	06/04/15	4	11.1	No Comment
GMP-08	06/10/15	1	28.2	No Comment
GMP-16D	06/10/15	1	8.6	No Comment
GMP-16S	06/10/15	1	9	No Comment
GMP-7D	06/10/15	1	16.2	No Comment
GMP-7S	06/10/15	1	18.1	No Comment
GMP-15D	06/10/15	2	9.5	No Comment
GMP-15S	06/10/15	2	9	No Comment
GMP-14D	06/10/15	3	4.5	No Comment
GMP-14S	06/10/15	3	6	No Comment
GMP-4D	06/10/15	3	11.2	No Comment
GMP-4S	06/10/15	3	8.1	No Comment
GMP-5D	06/10/15	3	18.2	No Comment
GMP-5S	06/10/15	3	7.2	No Comment
GMP-6D	06/10/15	3	12	No Comment
GMP-6S	06/10/15	3	6.2	No Comment
4ASS	06/10/15	4	7.1	No Comment
4OSS	06/10/15	4	6.8	No Comment
GMP-01	06/10/15	4	Dry	No Comment
GMP-02	06/10/15	4	NR	Unable to Monitor
GMP-03	06/10/15	4	8.5	No Comment

NR = No Reading

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-09	06/10/15	4	10.2	No Comment
GMP-10	06/10/15	4	11	No Comment
GMP-11	06/10/15	4	0	No Comment
GMP-12	06/10/15	4	0	No Comment
GMP-13D	06/10/15	4	7.2	No Comment
GMP-13S	06/10/15	4	8.1	No Comment
TMP-1D	06/10/15	4	18.2	No Comment
TMP-1M	06/10/15	4	21.3	No Comment
TMP-1S	06/10/15	4	17.4	No Comment
TMP-2D	06/10/15	4	17.6	No Comment
TMP-2M	06/10/15	4	18.2	No Comment
TMP-2S	06/10/15	4	16.1	No Comment
TMP-3D	06/12/15	4	11	No Comment
TMP-3M	06/12/15	4	10.4	No Comment
TMP-3S	06/12/15	4	11.1	No Comment
GMP-08	06/19/15	1	29.5	No Comment
GMP-16D	06/19/15	1	8.4	No Comment
GMP-16S	06/19/15	1	9	No Comment
GMP-7D	06/19/15	1	16.3	No Comment
GMP-7S	06/19/15	1	18	No Comment
GMP-15D	06/19/15	2	9	No Comment
GMP-15S	06/19/15	2	8.5	No Comment
GMP-14D	06/19/15	3	5	No Comment
GMP-14S	06/19/15	3	6	No Comment
GMP-4D	06/19/15	3	11	No Comment
GMP-4S	06/19/15	3	9.2	No Comment
GMP-5D	06/19/15	3	19.1	No Comment
GMP-5S	06/19/15	3	7	No Comment
GMP-6D	06/19/15	3	11.5	No Comment
GMP-6S	06/19/15	3	5	No Comment
4ASS	06/19/15	4	9.1	No Comment
4OSS	06/19/15	4	6.2	No Comment
GMP-01	06/19/15	4	Dry	No Comment
GMP-02	06/19/15	4	NR	Unable to Monitor

NR = No Reading

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-03	06/19/15	4	8	No Comment
GMP-09	06/19/15	4	9.5	No Comment
GMP-10	06/19/15	4	9.5	No Comment
GMP-11	06/19/15	4	0	No Comment
GMP-12	06/19/15	4	0	No Comment
GMP-13D	06/19/15	4	7.1	No Comment
GMP-13S	06/19/15	4	7.4	No Comment
TMP-1D	06/19/15	4	17.5	No Comment
TMP-1M	06/19/15	4	20.5	No Comment
TMP-1S	06/19/15	4	16.8	No Comment
TMP-2D	06/19/15	4	16.8	No Comment
TMP-2M	06/19/15	4	18.2	No Comment
TMP-2S	06/19/15	4	15.2	No Comment
TMP-3D	06/19/15	4	NR	Unable to Monitor
TMP-3M	06/19/15	4	NR	Unable to Monitor
TMP-3S	06/19/15	4	NR	Unable to Monitor
GMP-08	06/25/15	1	30.48	No Comment
GMP-16D	06/25/15	1	5.39	No Comment
GMP-16S	06/25/15	1	5.68	No Comment
GMP-7D	06/25/15	1	15.11	No Comment
GMP-7S	06/25/15	1	20	No Comment
GMP-15D	06/25/15	2	8.7	No Comment
GMP-15S	06/25/15	2	6.99	No Comment
GMP-14D	06/25/15	3	2.88	No Comment
GMP-14S	06/25/15	3	3	No Comment
GMP-4D	06/25/15	3	4.53	No Comment
GMP-4S	06/25/15	3	4.28	No Comment
GMP-5D	06/25/15	3	18.32	No Comment
GMP-5S	06/25/15	3	10.9	No Comment
GMP-6D	06/25/15	3	10.1	No Comment
GMP-6S	06/25/15	3	6.59	No Comment
4ASS	06/25/15	4	4.75	No Comment
4OSS	06/25/15	4	5.9	No Comment
GMP-01	06/25/15	4	11.6	No Comment

NR = No Reading

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-02	06/25/15	4	NR	Unable to Monitor
GMP-03	06/25/15	4	8.74	No Comment
GMP-09	06/25/15	4	6.29	No Comment
GMP-10	06/25/15	4	8.64	No Comment
GMP-11	06/25/15	4	0.7	No Comment
GMP-12	06/25/15	4	0	No Comment
GMP-13D	06/25/15	4	9.07	No Comment
GMP-13S	06/25/15	4	5.65	No Comment
TMP-1D	06/25/15	4	17.75	No Comment
TMP-1M	06/25/15	4	18.3	No Comment
TMP-1S	06/25/15	4	16.71	No Comment
TMP-2D	06/25/15	4	14.82	No Comment
TMP-2M	06/25/15	4	15	No Comment
TMP-2S	06/25/15	4	14.17	No Comment
TMP-3D	06/25/15	4	12.29	No Comment
TMP-3M	06/25/15	4	10.35	No Comment
TMP-3S	06/25/15	4	10.08	No Comment

APPENDIX A

LANDFILL GAS CORRECTIVE ACTION PLAN UPDATE, JULY 26, 2013

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
13570 St. Charles Rock Rd.
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July 26, 2013

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3.0	RECENT GAS MIGRATION CONTROL EFFORTS	5
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TABLES

Table 1: Compliance Gas Monitoring Probe Data (11/21/12 – 7/5/13)
Table 2: Sentry Gas Monitoring Probe Data (11/21/12 – 7/5/13)
Table 3: Temporary Gas Monitoring Probe Data (11/21/12 – 7/5/13)
Table 4: Public Safety Gas Monitoring Probe Data (11/21/12 – 7/5/13)

APPENDICES

Appendix A – Gas Monitoring Probe Methane Level Graphs
Appendix B – GMP and TMP Boring Logs/Construction Logs
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. 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 15th 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 15th of each month following a calendar quarter.

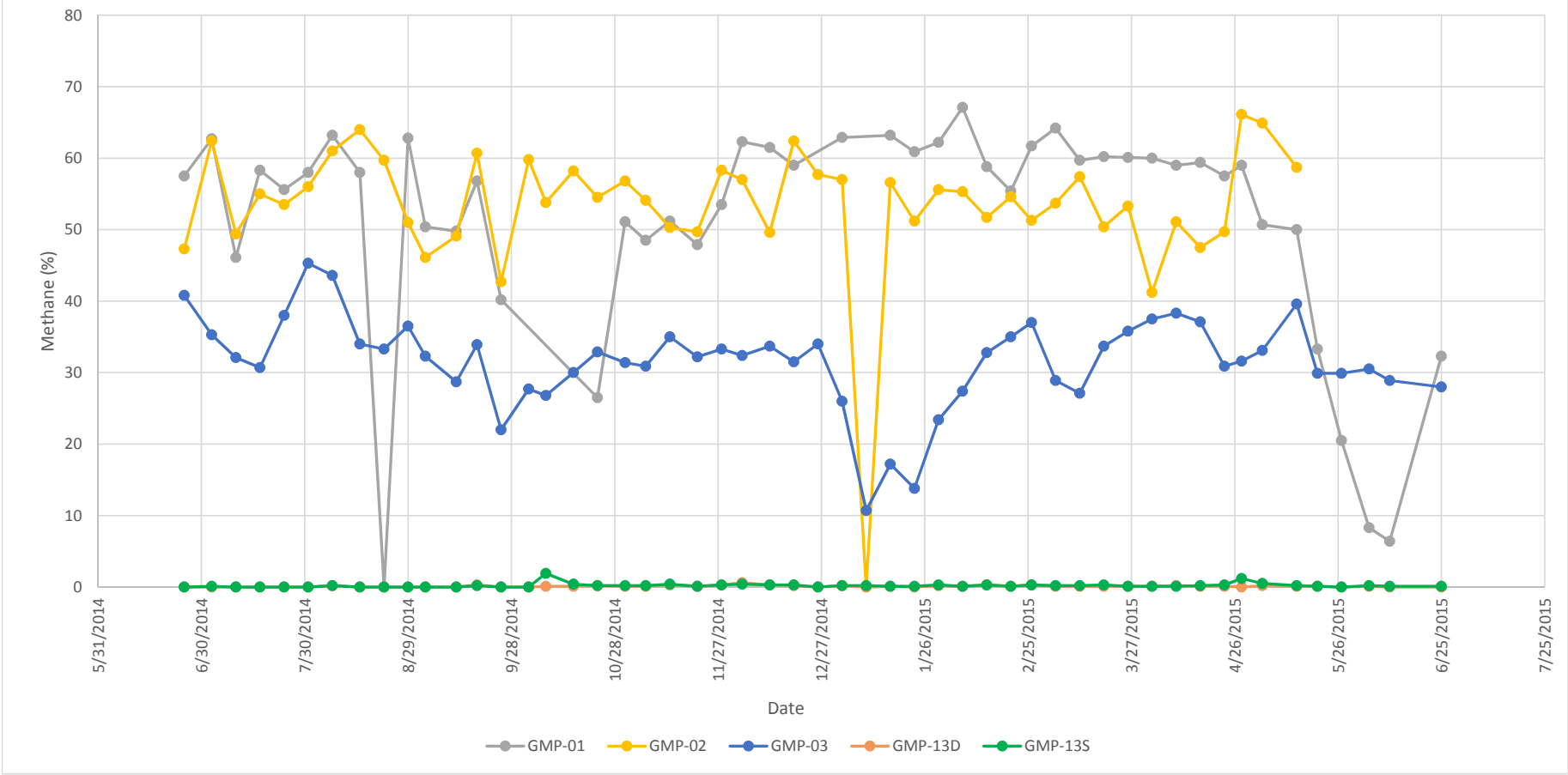
Bridgeton Landfill will continue to take aggressive action to control the impacts of the SSE, evaluate corrective measures to address methane migration within the weathered bedrock and improve gas collection within the limits of waste. Any major new gas migration control features needed--particularly 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.

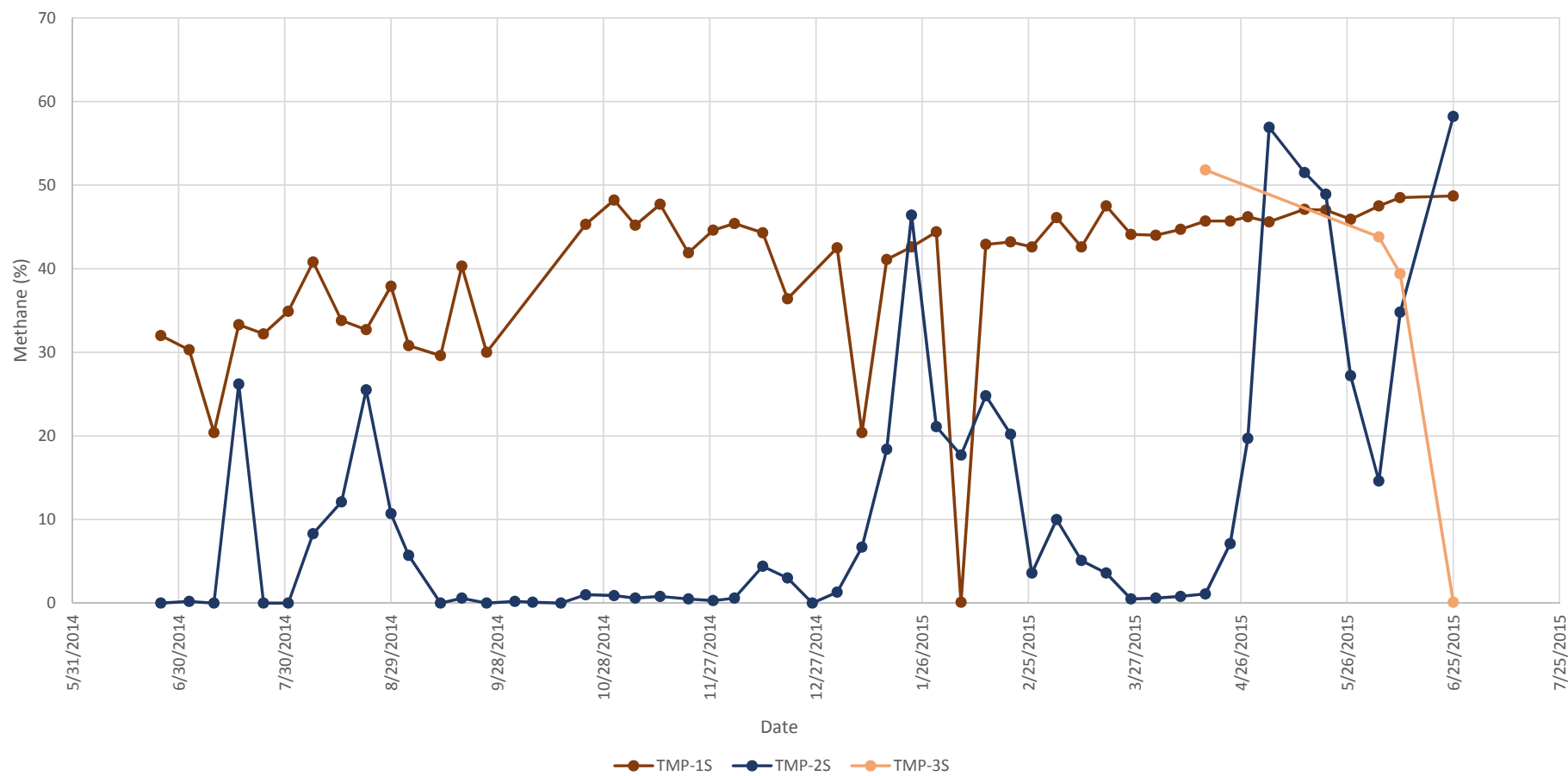
APPENDIX B

GAS MONITORING PROBE METHANE LEVEL GRAPHS

South & West Compliance Probes

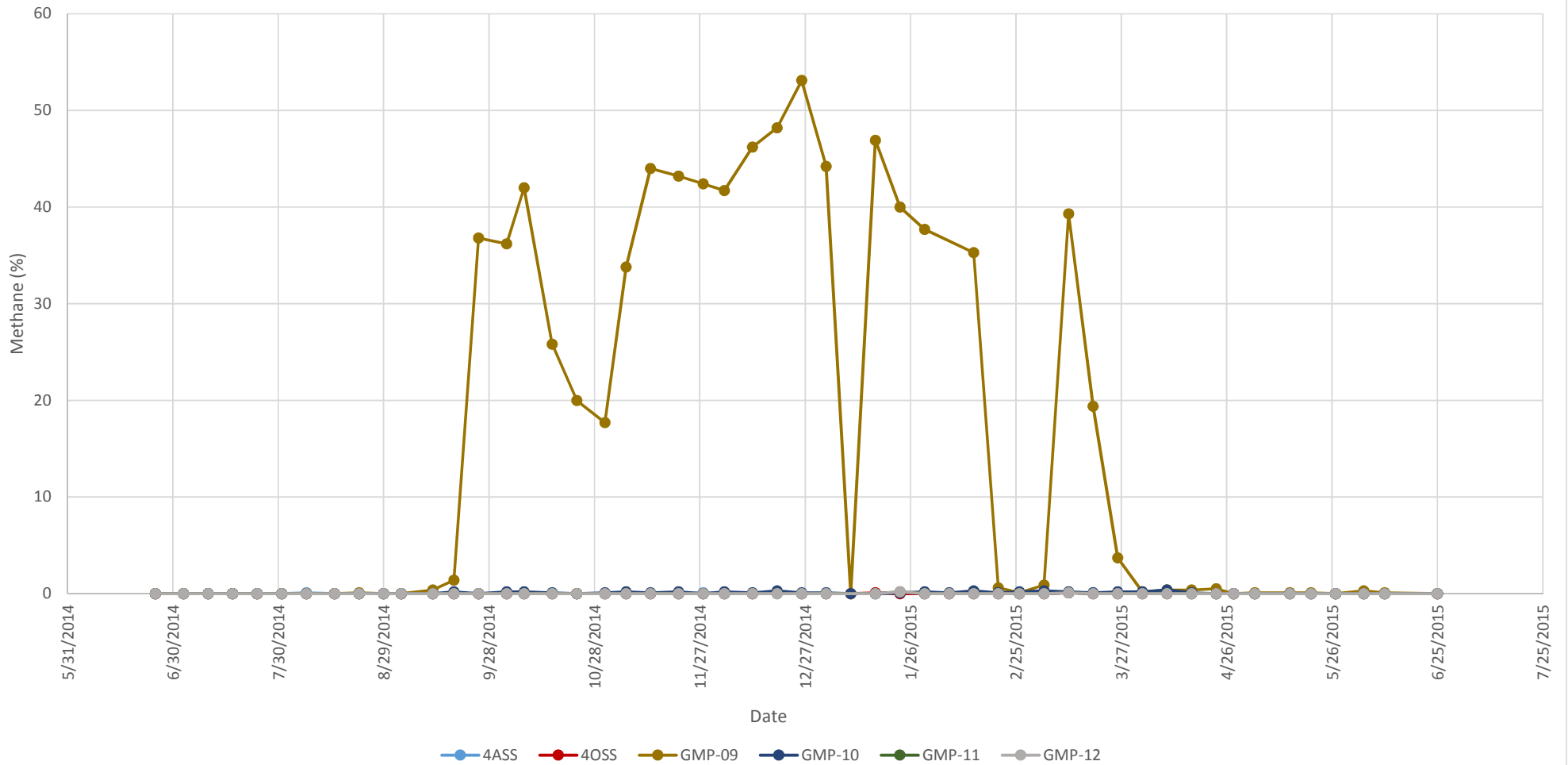


Shallow Investigative Probes

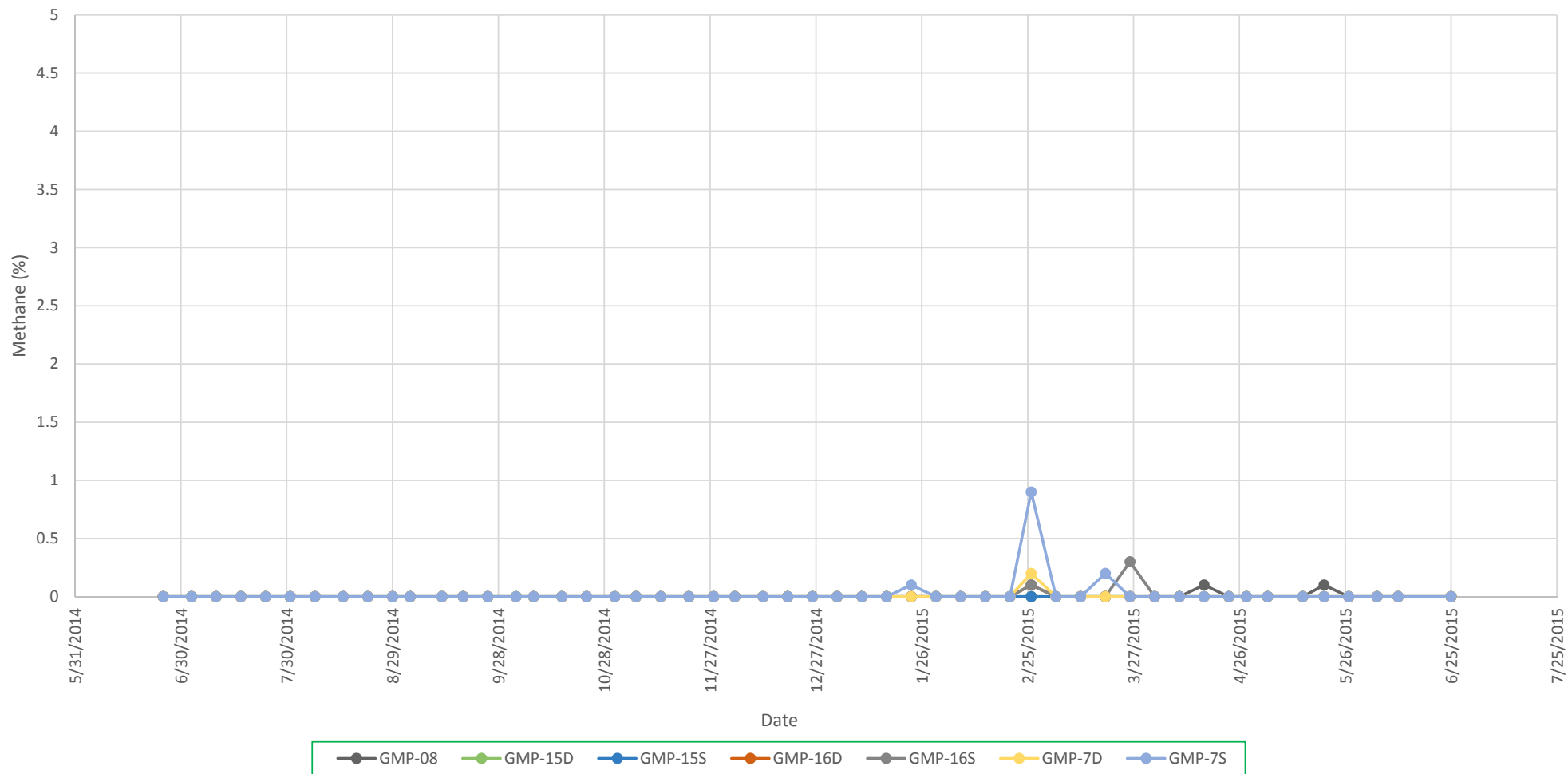




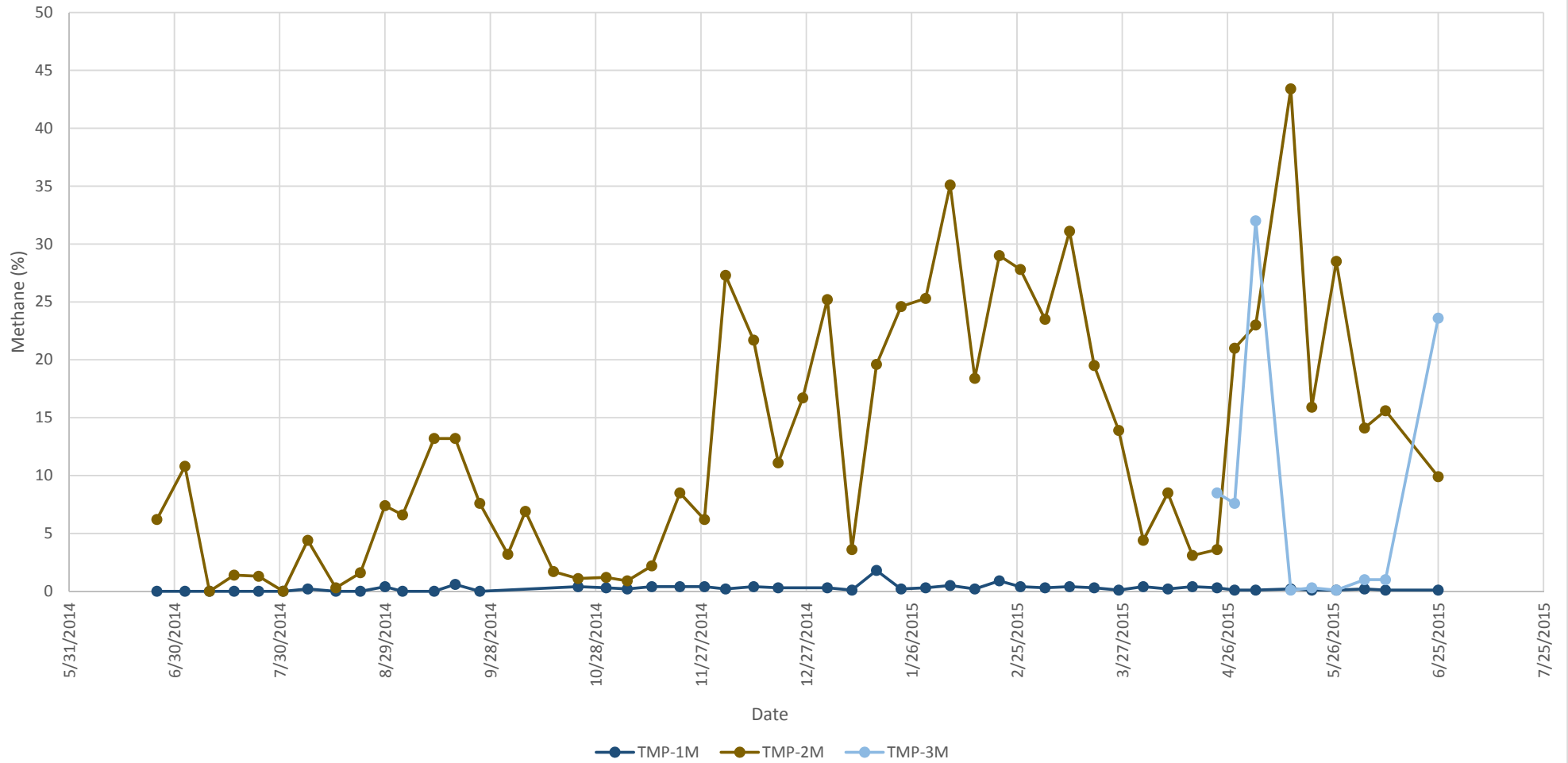
Public Safety Probes



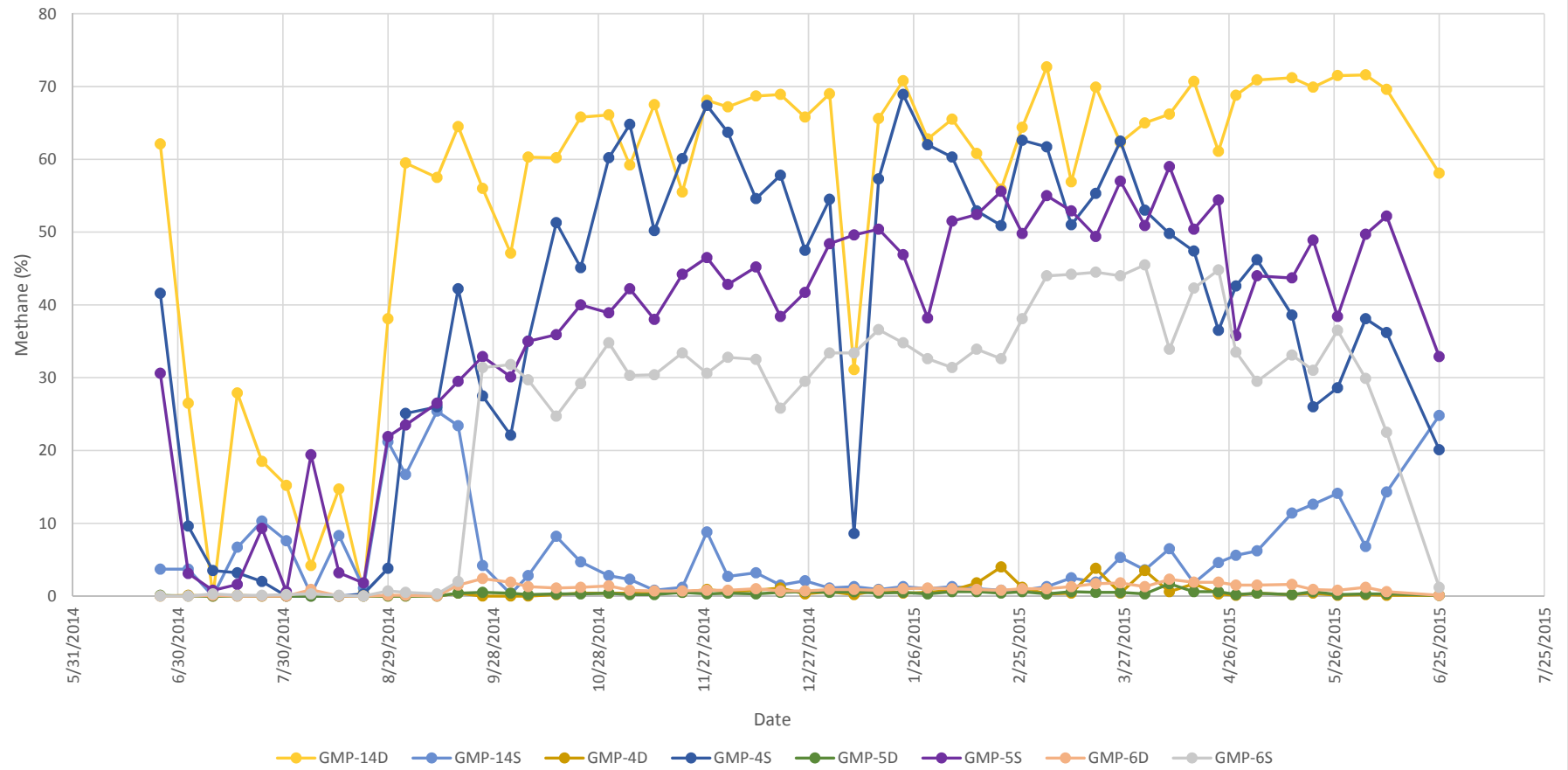
Northern Compliance Probes



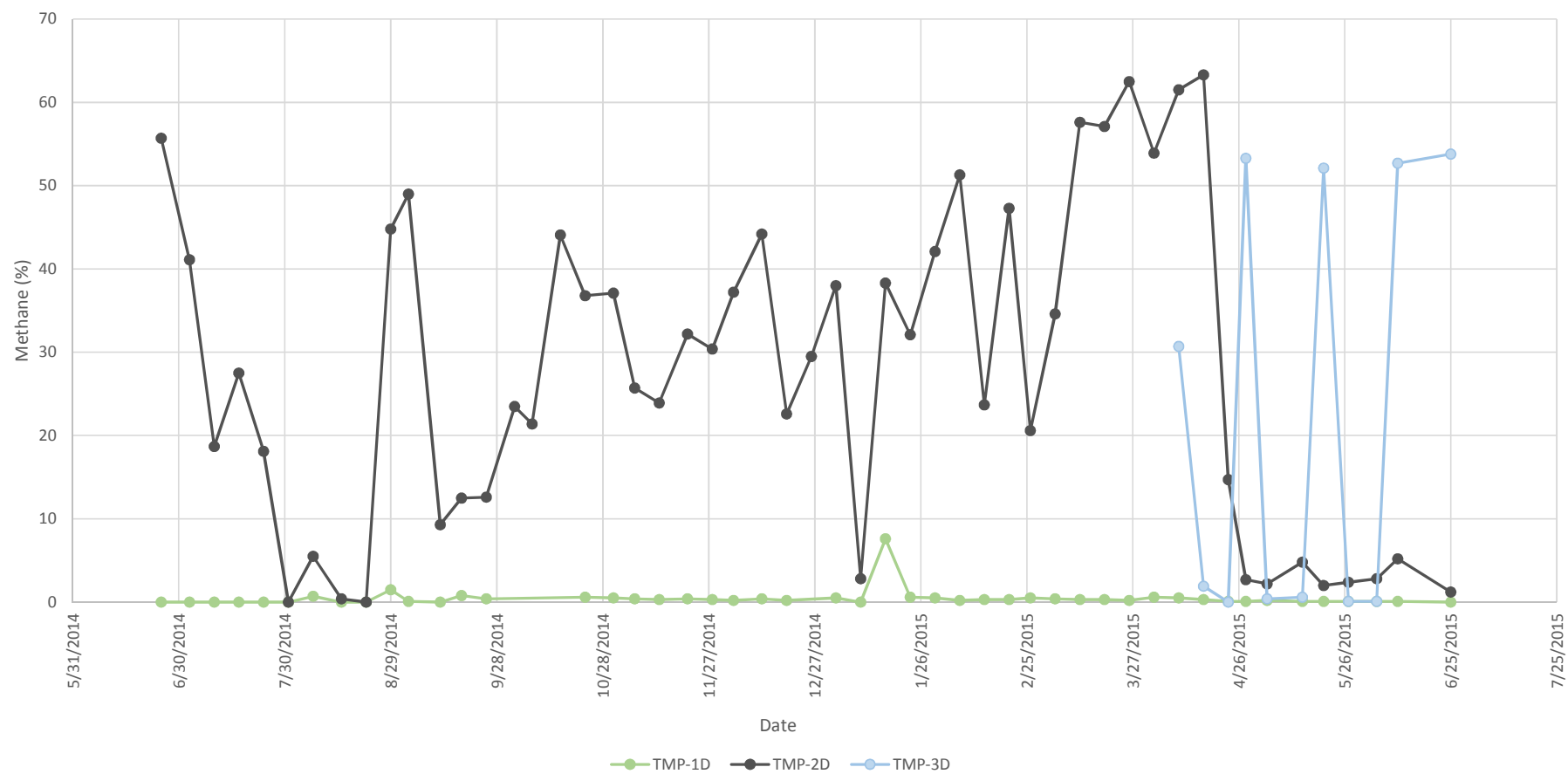
Mid Investigative Probes



Eastern Compliance Probes



Deep Investigative Probes



APPENDIX C

INFRASTRUCTURE SITE PLAN, GAS MONITORING PROBE LOCATIONS

LEGEND



LFG WEEKLY MONITORING PROBE



LFG QUARTERLY MONITORING PROBE



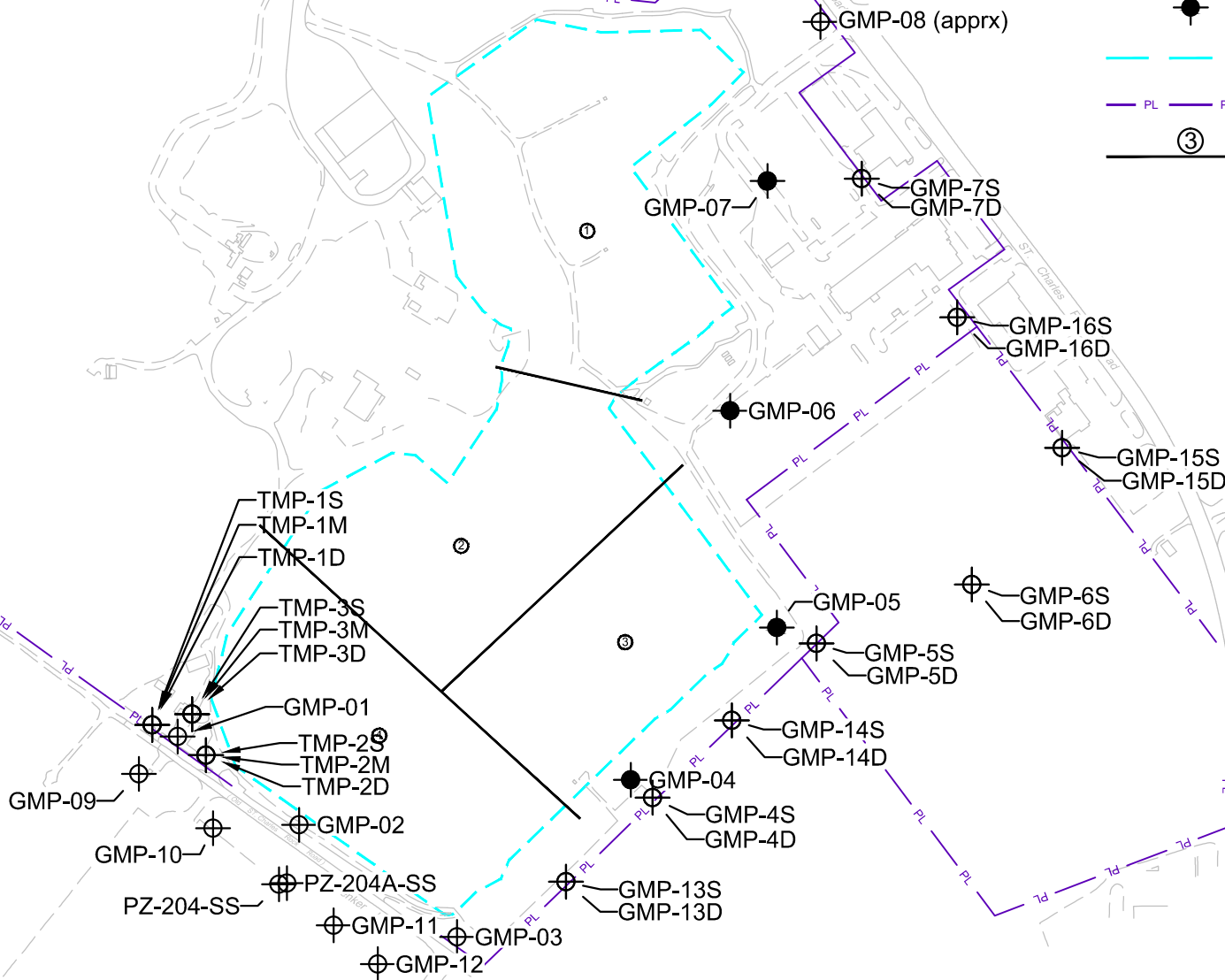
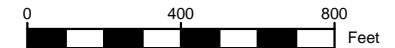
PERMITTED WASTE LIMIT



PROPERTY LINE



QUADRANT BOUNDARIES



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

BRIDGETON LANDFILL
SITE INFRASTRUCTURE

GAS MONITORING PROBES



DECEMBER 2013

DESIGNED BY: PML

APPROVED BY: ---

REVISION

DATE

DRAWING NO.:

001

PROJECT NUMBER: BT-014

FILE PATH: BT-024/Corrective Action Plan Updates/2014 October/3 - Appendices/Appendix C/Drawing/gas Monitoring System 2nd Quarter 2014.dwg

APPENDIX D

EXPANDED PERIMETER EXTRACTION SYSTEM AREA



SOLID WASTE BOUNDARY
GAS MONITORING PROBE
PIEZOMETER MONITORING WELL
GAS EXTRACTION WELL
DUAL GAS EXTRACTION WELL
SURFACE EXTRACTION WELL
PERIMETER GAS EXTRACTION WELL
LFG ISOLATION VALVE
LEACHATE ISOLATION VALVE
FLOW METER
GRIT CHAMBER
LIFT STATION
CONDENSATE SUMP
CONDENSATE TRAP/HEADER CONNECTION SUMP
LEACHATE COLLECTION SUMP
HORIZONTAL COLLECTION SUMP
PERIMETER SUMP
LEACHATE COLLECTION SUMP
SURFACE COLLECTOR
TEMPERATURE MONITORING PROBE
SUBSURFACE RCP WELLS
TRENCH SUMP
INTERCEPTION TRENCH RISER
PERIMETER LEACHATE SUMP
WELL HEAD RISER
WELL BORE BOOT
TRENCH SUMP
OVER LINER TIE IN POINT
GAS INTERCEPTOR WELL
CLEAN OUT

POWER PANEL

QUARRY WALL

LEACHATE COLLECTION PIPING

DUAL CONTAINED LCS FORCEMAIN (SIZE VARIES)

DUAL CONTAINED PERIMETER FORCEMAIN (SIZE VARIES)

LEACHATE COLLECTION PIPING (SIZE VARIES)

4" PERFORATED TRENCH DRAIN

4 PERFORATED TRENCH DRAIN
BUBBLE SUCKER

DOBBLE DOCKETS
AIR LINE

AIR LINE
AIR LINE

BLURIED / EGG COLLECTION PIPING (SIZE VA

2" ABOVE GROUND LEG COLLECTION LATERAL

4" ABOVE GROUND LFG COLLECTION LATERAL PIPING

5" ABOVE GROUND LFG COLLECTION LATERAL PIPING

3" ABOVE GROUND LFG COLLECTION LATERAL PIPING

0" STEEL GROUND LFG COLLECTION PIPING
 ABOVE GROUND LFG COLLECTION HEADER PIPING

ABOVE GROUND LFG COLLECTION HEADER PIPING
(SIZE VARIES)

2" PRESSURIZED AIR / 2" FORCEMAIN IN COMMON TRENCH

ABOVEGROUND ELECTRIC LINE

NATURAL GAS LINE

WATERMAIN

UNDERGROUND ELECTRIC LINE
FIBER OPTIC LINE

FIBER OPTIC LINE
REFERENCE LINE

INTERCEPTION TRENCH

BUILDING

ALL ROAD

PRICE ROAD



APPENDIX E

18" LANDFILL GAS COLLECTION HEADER EXPANSION

