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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

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Project No.: BT-133

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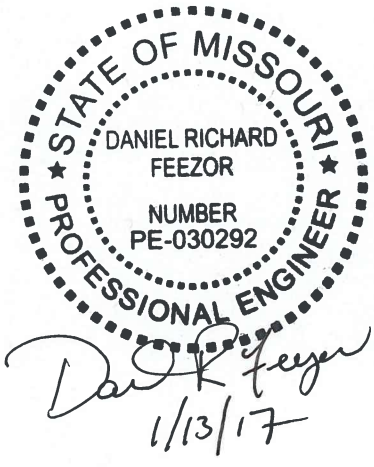

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1.0 INTRODUCTION

On May 13, 2013, Bridgeton Landfill entered into an Agreed Order with the State of Missouri which requires actions to address a subsurface reaction (SSR) occurring in the South Quarry area of the Bridgeton Landfill. Section 23 of the Agreed Order requires the preparation of an updated "Landfill Gas Corrective Action Plan" (CAP) and requests that the update consider SSR 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 to be submitted on the 15th day of the month following each quarter. The Missouri Department of Natural Resources (MDNR) accepted this proposal with a letter dated October 18, 2013. Bridgeton Landfill has subsequently submitted updated Quarterly Corrective Action Plans Updates each quarter. The purpose of this document is to provide monitoring data for the fourth quarter (September 27 – December 27, 2016) 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.

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 as measured in the probes from December 29, 2015 to December 27, 2016 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 September 27, 2016 through December 27, 2016.

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 by the October 18, 2013 MDNR letter and are provided as depth to water (from top of well). Results of weekly water level measurements for the monitoring period are provided in **Table 6**.

The following discussion highlights observations regarding methane specific to the data observed this monitoring period. A site plan that depicts locations of the gas monitoring probes is provided 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 current monitoring quarter. Weekly sampling shows methane percentages above 2.5% in these probes: GMP-03, GMP-09, GMP-14D, GMP-14S, GMP-4D, GMP-4S, TMP-1S, TMP-2D, TMP-2M, TMP-2S, TMP-3D, TMP-3M, TMP-3S.

Probes Below 2.5% Methane

The following probes exhibited methane concentrations less than 2.5% threshold during this quarterly monitoring period: GMP-01, GMP-02, GMP-05, GMP-5D, GMP-5S, GMP-6D, GMP-6S, GMP-7D, GMP-7S, GMP-08, GMP-10, GMP-11, GMP-12, GMP-13D, GMP-13S, GMP-15D, GMP-15S, GMP-16D, GMP-16S, TMP-1D, TMP-1M, PZ-204A-SS, and PZ-204-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 quarterly reading (October 3, 2016). GMP-05, GMP-06, and GMP-07 exhibited methane concentrations below the 2.5% threshold. 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 exhibited methane concentrations below the 2.5% threshold during this quarterly monitoring period.

Data Review

A review of the probe readings for this quarterly monitoring period indicates that three probes (GMP-05, GMP-10, and PZ-204A-SS) that had exhibited methane concentrations above the 2.5% threshold during the previous monitoring period were below the 2.5% threshold for this period. GMP-09 exhibited methane concentrations above the 2.5% threshold during this monitoring period for the first time since March 3rd, 2015. However, monitoring data from the last reading (December 27th, 2016) indicated that the concentration has returned to below the 2.5% threshold. TMP-3D exhibited methane above 2.5% threshold during the November 28th and December 20th readings, but has since returned to below the 2.5% threshold.

3.0 RECENT GAS MIGRATION CONTROL EFFORTS

The July 2013 CAP and subsequent quarterly updates provide an overview of several ongoing and planned measures that are expected to reduce gas migration. The following are gas migration control efforts initiated, continued or completed in the fourth quarter of 2016.

Leachate Conveyance System

The continued operation of multiple upgraded lift stations around the perimeter of the South Quarry.

General LFG System Modifications and Improvements:

The following improvements have been completed in the South Quarry at the Bridgeton Landfill within the last 12 months:

- Installation of sixteen (16) new landfill gas extraction wells in the south quarry. These wells have been installed to increase the gas extraction capacity in each respective area. The locations of these new extraction wells are shown in **Appendix D**. The locations were targeted to provide additional source control adjacent to areas displaying migration. Wells GEW-175 and -176 were installed to provide source control in the northeast corner of the South Quarry. Wells GEW-171, -172, -173, and -174 were installed to enhance source control of landfill gas on the east side of the South Quarry. The ten (10) additional wells were installed to enhance source control on the south side of the South Quarry.

- The sixteen (16) new landfill gas extraction wells have been connected to the gas collection and control system. The initial gas flow has assisted with the removal of the landfill gas from the south slope area and continued effectiveness is being enhanced by ongoing liquid level monitoring and liquid removal.

- Continued operation and monitoring of the landfill gas extraction system adjacent to Metropolitan Sewer District lift station just southwest of the South Quarry. Extracted gas vapor from this gas extraction point is directed to a “Pure-Air” system of activated carbon to allow for direct atmospheric discharge, removing a large air source from the landfill’s gas collection and control system (GCCS).

- The installation of Phase F 18” Diameter Landfill Gas Header Piping. This improvement included the installation of 18” diameter HDPE piping to be utilized as landfill gas collection header. This improvement increased the overall system vacuum available on the north and southeast sides of the south quarry. Nearly every gas extraction point, perimeter extraction point, interceptor trench point and laterals connected to the new 18” header was improved. These improvements included enhancing drainage for condensate management within laterals and multiple upgrades to the aforementioned connections.

The location of the new header is presented graphically in **Appendix D**. This system continues to provide adequate vacuum to the South Quarry.

- Installation of five (5) new liquid extraction sumps (IT-2, IT-3, IT-4, IT-5, and IT-7) connected to existing landfill gas interceptor trench located on the south side of the South Quarry at the Bridgeton Landfill. These sumps were installed to increase the capacity for liquid removal and thus increase the efficiency of landfill gas extraction. These items are presented in **Appendix D**.

- The newly installed IT sumps have been connected to the GCCS and have been outfitted with pumps to enhance liquid removal and increase gas collection. The initial gas flow has assisted with the removal of the landfill gas from the south slope area and continued effectiveness is being enhanced by ongoing liquid level monitoring and liquids removal.

- The BL is currently utilizing a modified submersible diaphragm pump in a number of gas extraction points to enhance liquid extraction to increase gas collection.

- Additional improvements included abandonment of non-functioning facilities and installation of multiple landfill gas flow control devices.

Leachate Pretreatment Facility:

The leachate pretreatment facility continued operation during the fourth quarter of 2016.

4.0 PROPOSED AND ONGOING GAS MIGRATION CONTROL EFFORTS

In the last quarterly update, new corrective actions were required due to newly elevated monitoring probes, GMP-10 and PZ-204A-SS. A six-month protocol was recommended, which is summarized below. These actions were initiated in the fourth quarter of 2016, and will be continued through the first quarter of 2017.

1) Weekly portable gas analyzer readings of GEW-163, GEW-164, GEW-165, GEW-166, GEW-167, GEW-168 and GEW-169 gas extraction wells and PEW-4, PEW -5, PEW-6, PEW-7, PEW-8, PEW-9, and PEW-10 perimeter extraction wells, and gas probes along the south side perimeter.

2) Based upon data collected in the above item, the gas extraction wells GEW-163, GEW-164, GEW-165, GEW-166, GEW-167, GEW-168 and GEW-169 were retuned and dewatered to maximize gas flow rates and wellhead temperatures.

    a. The noted GEWs were checked weekly, and monitoring and retuning will continue for a period of 3 months.

b. The goal is to remove as much of the reaction landfill gas in this area as possible. Historical flowing gas wellhead temperatures in these wells has been 145 degrees F to 185 degrees F. Lower temperatures and/or lower flows suggest the gas extraction wells are becoming saturated. Dewatering the wells will allow for improved gas extraction which will benefit gas control in the area proximate to these wells.

c. Dedicated modified submersible diaphragm pumps or equivalent will be installed in GEW-163, GEW-164, GEW-165, GEW-167, and GEW-169. Liquid management infrastructure servicing these GEW wells will be checked weekly to verify the ability to pump and discharge the liquids to the surrounding leachate lift station sumps and conveyance system.

3) Tune and dewater IT-trenches on south perimeter to maximize flow and migration control.

   a. Confirm with water loading test that IT-trenches are functional and not silted in. The water loading test will be conducted on IT sumps ITS-2, ITS-3, ITS-4, ITS-5 and ITS-7 on a monthly basis.

4) Data trending of these field results will provide insight and as to recommended tuning revisions and progress of subsurface gas mitigation.

5) Operational goal to control reaction gas at the source (GEW wells) and use the IT trenches and the PEW wells for secondary cleanup.

Three tests were completed on the IT-Trench last quarter. The test's purpose was to determine if the IT sumps were hydraulically connected, as verified by a "pumping test". Liquid was vacated from one of the sumps and if there was a drop of liquid in another IT sump, that would demonstrate hydraulic communication between the sumps. The tests were performed on October 27th, November 29th and December 21st. There were evidences of hydraulic communication during each test (except IT-1), however, the tests remained inconclusive of liquid recharge rate. Weekly soundings of depth to liquid confirmed that the pumps in the IT-sumps are operational and keeping liquids pumped down to each respective pump inlet elevation. The liquid level in sump IT-1 is at the sump bottom; however, IT-2 through IT-7 range from 1.5 feet to 6.5 feet above sump bottom. The BL plans to lower the pump inlet valve in each IT-sump to within 1 foot of sump bottom, and continue weekly soundings of liquid elevations. The monthly "pumping test" will continue at each IT-sump, with the procedure modified to include recharge rate of each respective IT-sump prior to the "pumping test".

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 April 15, 2017 (first quarter 2017) 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

SEPTEMBER 27 – DECEMBER 27, 2016

Point Name	Frequency	Quadrant	Date	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	Barometric Pressure	Relative Pressure
GMP-7D	Weekly	1	10/3/2016	0.0	0.3	20.9	78.8	30	0.0
GMP-7D	Weekly	1	10/10/2016	0.0	2.9	21.4	75.7	30	-0.01
GMP-7D	Weekly	1	10/17/2016	0.0	0.2	21.4	78.4	30	0.0
GMP-7D	Weekly	1	10/24/2016	0.0	0.8	20.9	78.3	30	0.0
GMP-7D	Weekly	1	10/31/2016	0.0	0.4	20.2	79.4	30	0.0
GMP-7D	Weekly	1	11/7/2016	0.0	0.9	22.5	76.6	30	0.01
GMP-7D	Weekly	1	11/10/2016	0.0	1.3	20.5	78.2	30	0.0
GMP-7D	Weekly	1	11/14/2016	0.0	1.2	20.0	78.8	30	-0.01
GMP-7D	Weekly	1	11/22/2016	0.0	1.4	21.2	77.4	30	-0.01
GMP-7D	Weekly	1	11/28/2016	0.0	0.5	20.8	78.7	30	-0.02
GMP-7D	Weekly	1	12/5/2016	0.0	0.4	20.6	79.0	30	-0.04
GMP-7D	Weekly	1	12/12/2016	0.0	1.1	20.1	78.8	30	0.01
GMP-7D	Weekly	1	12/20/2016	0.0	1.7	20.0	78.3	30	0.02
GMP-7D	Weekly	1	12/27/2016	0.0	0.1	22.0	77.9	30	0.02
GMP-7S	Weekly	1	10/3/2016	0.0	4.3	5.2	90.5	30	0.0
GMP-7S	Weekly	1	10/10/2016	0.0	1.7	5.3	93.0	30	0.0
GMP-7S	Weekly	1	10/17/2016	0.0	4.0	4.1	91.9	30	-0.05
GMP-7S	Weekly	1	10/24/2016	0.0	2.1	4.5	93.4	30	0.0
GMP-7S	Weekly	1	10/31/2016	0.0	2.3	5.3	92.4	30	-0.01
GMP-7S	Weekly	1	11/7/2016	0.0	0.5	5.4	94.1	30	0.01
GMP-7S	Weekly	1	11/14/2016	0.0	3.6	4.3	92.1	30	0.0
GMP-7S	Weekly	1	11/22/2016	0.0	4.5	4.1	91.4	30	0.0
GMP-7S	Weekly	1	11/28/2016	0.0	9.4	3.1	87.5	30	-0.11
GMP-7S	Weekly	1	12/5/2016	0.0	3.2	4.2	92.6	30	3.25
GMP-7S	Weekly	1	12/12/2016	0.0	0.7	5.9	93.4	30	0.01
GMP-7S	Weekly	1	12/20/2016	0.0	4.3	5.9	89.8	30	0.01
GMP-7S	Weekly	1	12/27/2016	0.0	1.8	6.4	91.8	30	0.0
GMP-08	Weekly	1	10/3/2016	0.0	0.1	18.8	81.1	30	0.01
GMP-08	Weekly	1	10/10/2016	0.0	0.3	19.2	80.5	30	0.03
GMP-08	Weekly	1	10/17/2016	0.0	0.9	17.2	81.9	30	0.02
GMP-08	Weekly	1	10/24/2016	0.0	0.5	19.5	80.0	30	0.0
GMP-08	Weekly	1	10/31/2016	0.0	0.7	16.9	82.4	30	0.0
GMP-08	Weekly	1	11/7/2016	0.0	0.3	19.5	80.2	30	0.02
GMP-08	Weekly	1	11/10/2016	0.0	1.3	16.1	82.6	30	0.04

Point Name	Frequency	Quadrant	Date	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	Barometric Pressure	Relative Pressure
GMP-08	Weekly	1	11/14/2016	0.0	1.4	14.9	83.7	30	0.0
GMP-08	Weekly	1	11/22/2016	0.0	3.5	14.6	81.9	30	0.03
GMP-08	Weekly	1	11/28/2016	0.0	15.5	2.9	81.6	30	0.01
GMP-08	Weekly	1	12/5/2016	0.0	1.5	15.3	83.2	30	0.0
GMP-08	Weekly	1	12/12/2016	0.0	0.2	18.9	80.9	30	0.04
GMP-08	Weekly	1	12/20/2016	0.0	0.6	13.5	85.9	30	0.03
GMP-08	Weekly	1	12/27/2016	0.0	0.8	19.0	80.2	30	0.01
GMP-16D	Weekly	1	10/3/2016	0.0	0.5	20.2	79.3	30	0.31
GMP-16D	Weekly	1	10/10/2016	0.0	0.3	21.3	78.4	30	0.01
GMP-16D	Weekly	1	10/17/2016	0.0	0.6	18.4	81.0	30	0.01
GMP-16D	Weekly	1	10/24/2016	0.0	0.0	20.4	79.6	30	0.01
GMP-16D	Weekly	1	10/31/2016	0.0	0.5	16.7	82.8	30	0.01
GMP-16D	Weekly	1	11/7/2016	0.0	0.0	21.9	78.1	30	0.02
GMP-16D	Weekly	1	11/10/2016	0.0	0.1	20.8	79.1	30	0.02
GMP-16D	Weekly	1	11/14/2016	0.0	6.9	10.5	82.6	30	0.1
GMP-16D	Weekly	1	11/22/2016	0.0	0.5	20.1	79.4	30	0.0
GMP-16D	Weekly	1	11/28/2016	0.0	6.7	12.1	81.2	30	0.11
GMP-16D	Weekly	1	12/5/2016	0.0	0.3	19.2	80.5	30	0.01
GMP-16D	Weekly	1	12/12/2016	0.0	2.1	14.8	83.1	30	0.02
GMP-16D	Weekly	1	12/20/2016	0.0	0.2	19.6	80.2	30	0.01
GMP-16D	Weekly	1	12/27/2016	0.0	0.0	22.0	78.0	30	0.02
GMP-16S	Weekly	1	10/3/2016	0.0	0.4	20.9	78.7	30	0.00
GMP-16S	Weekly	1	10/10/2016	0.0	0.7	21.7	77.6	30	0.05
GMP-16S	Weekly	1	10/17/2016	0.0	0.1	21.1	78.8	30	0.00
GMP-16S	Weekly	1	10/24/2016	0.0	0.1	20.9	79.0	30	-2.86
GMP-16S	Weekly	1	10/31/2016	0.0	0.2	20.0	79.8	30	0.02
GMP-16S	Weekly	1	11/7/2016	0.0	0.2	22.8	77.0	30	-0.09
GMP-16S	Weekly	1	11/10/2016	0.0	0.4	20.5	79.1	30	0.02
GMP-16S	Weekly	1	11/14/2016	0.0	3.0	19.8	77.2	30	0.01
GMP-16S	Weekly	1	11/22/2016	0.0	0.4	21.3	78.3	30	0.01
GMP-16S	Weekly	1	11/28/2016	0.0	0.3	20.9	78.8	30	-0.04
GMP-16S	Weekly	1	12/5/2016	0.0	0.1	20.5	79.4	30	0.38
GMP-16S	Weekly	1	12/12/2016	0.0	3.9	19.7	76.4	30	0.02
GMP-16S	Weekly	1	12/20/2016	0.0	0.3	20.1	79.6	30	2.93

Point Name	Frequency	Quadrant	Date	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	Barometric Pressure	Relative Pressure
GMP-16S	Weekly	1	12/27/2016	0.0	0.0	21.5	78.5	30	-2.01
GMP-15D	Weekly	2	10/3/2016	0.0	0.1	21.0	78.9	30	-0.02
GMP-15D	Weekly	2	10/10/2016	0.0	0.1	22.1	77.8	30	0.00
GMP-15D	Weekly	2	10/17/2016	0.0	0.1	21.4	78.5	30	0.04
GMP-15D	Weekly	2	10/24/2016	0.0	0.1	21.1	78.8	30	0.03
GMP-15D	Weekly	2	10/31/2016	0.0	0.3	20.2	79.5	30	-0.02
GMP-15D	Weekly	2	11/7/2016	0.0	0.3	23.0	76.7	30	0.02
GMP-15D	Weekly	2	11/10/2016	0.0	0.8	20.6	78.6	30	0.03
GMP-15D	Weekly	2	11/14/2016	0.0	0.6	20.2	79.2	30	-0.06
GMP-15D	Weekly	2	11/22/2016	0.0	0.5	21.4	78.1	30	0.01
GMP-15D	Weekly	2	11/28/2016	0.0	0.4	20.9	78.7	30	0.01
GMP-15D	Weekly	2	12/5/2016	0.0	0.5	20.5	79.0	30	0.06
GMP-15D	Weekly	2	12/12/2016	0.0	1.0	20.2	78.8	30	-0.01
GMP-15D	Weekly	2	12/20/2016	0.0	0.8	19.6	79.6	30	-0.10
GMP-15D	Weekly	2	12/27/2016	0.0	1.3	21.2	77.5	30	0.15
GMP-15S	Weekly	2	10/3/2016	0.0	0.1	21.0	78.9	30	0.00
GMP-15S	Weekly	2	10/10/2016	0.0	0.2	22.0	77.8	30	0.01
GMP-15S	Weekly	2	10/17/2016	0.0	0.5	21.1	78.4	30	0.02
GMP-15S	Weekly	2	10/24/2016	0.0	0.2	21.0	78.8	30	0.03
GMP-15S	Weekly	2	10/31/2016	0.0	1.2	19.6	79.2	30	-0.01
GMP-15S	Weekly	2	11/7/2016	0.0	1.2	22.6	76.2	30	0.01
GMP-15S	Weekly	2	11/10/2016	0.0	0.6	20.5	78.9	30	0.02
GMP-15S	Weekly	2	11/14/2016	0.0	1.5	19.8	78.7	30	-0.02
GMP-15S	Weekly	2	11/22/2016	0.0	0.8	21.1	78.1	30	-0.01
GMP-15S	Weekly	2	11/28/2016	0.0	0.5	20.7	78.8	30	-0.02
GMP-15S	Weekly	2	12/5/2016	0.0	1.2	20.3	78.5	30	0.01
GMP-15S	Weekly	2	12/12/2016	0.0	1.3	20.0	78.7	30	0.01
GMP-15S	Weekly	2	12/20/2016	0.0	0.6	19.7	79.7	30	0.00
GMP-15S	Weekly	2	12/27/2016	0.0	0.9	21.3	77.8	30	0.05
GMP-4D	Weekly	3	10/3/2016	0.2	0.2	21.0	78.6	30	-0.01
GMP-4D	Weekly	3	10/10/2016	5.4	5.6	20.4	68.6	30	0.03
GMP-4D	Weekly	3	10/17/2016	0.7	1.2	21.1	77.0	30	0.02
GMP-4D	Weekly	3	10/24/2016	0.5	0.9	21.3	77.3	30	0.02
GMP-4D	Weekly	3	10/31/2016	0.2	0.4	20.0	79.4	30	0.00

NA: Relative pressure not available

Point Name	Frequency	Quadrant	Date	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	Barometric Pressure	Relative Pressure
GMP-4D	Weekly	3	11/7/2016	2.6	2.2	21.6	73.6	30	-0.01
GMP-4D	Weekly	3	11/10/2016	0.1	0.0	20.7	79.2	30	0.01
GMP-4D	Weekly	3	11/14/2016	0.4	0.7	20.2	78.7	30	-0.01
GMP-4D	Weekly	3	11/22/2016	0.6	1.1	21.1	77.2	30	0.03
GMP-4D	Weekly	3	11/28/2016	0.5	1.0	20.6	77.9	30	0.04
GMP-4D	Weekly	3	12/5/2016	0.6	1.1	20.3	78.0	30	-0.01
GMP-4D	Weekly	3	12/12/2016	1.1	2.8	19.6	76.5	30	-0.06
GMP-4D	Weekly	3	12/20/2016	0.7	2.3	19.2	77.8	30	0.25
GMP-4D	Weekly	3	12/27/2016	0.2	1.6	21.4	76.8	30	0.13
GMP-4S	Weekly	3	10/3/2016	36.0	6.3	11.3	46.4	30	0.00
GMP-4S	Weekly	3	10/10/2016	60.8	12.0	4.2	23.0	30	0.01
GMP-4S	Weekly	3	10/17/2016	49.0	11.7	8.0	31.3	30	0.00
GMP-4S	Weekly	3	10/24/2016	37.4	5.9	11.6	45.1	30	0.02
GMP-4S	Weekly	3	10/31/2016	53.6	8.0	6.7	31.7	30	0.02
GMP-4S	Weekly	3	11/7/2016	67.0	7.4	3.5	22.1	30	0.05
GMP-4S	Weekly	3	11/14/2016	53.9	9.2	6.5	30.4	30	0.02
GMP-4S	Weekly	3	11/22/2016	56.9	9.4	5.9	27.8	30	0.01
GMP-4S	Weekly	3	11/28/2016	56.2	12.1	5.9	25.8	30	0.02
GMP-4S	Weekly	3	12/5/2016	46.6	11.5	8.1	33.8	30	0.01
GMP-4S	Weekly	3	12/12/2016	61.3	12.5	4.9	21.3	30	0.07
GMP-4S	Weekly	3	12/20/2016	67.3	12.0	2.9	17.8	30	0.04
GMP-4S	Weekly	3	12/27/2016	54.0	10.5	7.4	28.1	30	0.02
GMP-5D	Weekly	3	10/3/2016	0.1	0.3	20.9	78.7	30	0.0
GMP-5D	Weekly	3	10/10/2016	0.0	0.7	20.6	78.7	30	0.02
GMP-5D	Weekly	3	10/17/2016	0.1	1.6	20.0	78.3	30	0.01
GMP-5D	Weekly	3	10/24/2016	0.0	1.2	20.5	78.3	30	0.03
GMP-5D	Weekly	3	10/31/2016	0.0	0.8	19.5	79.7	30	0.01
GMP-5D	Weekly	3	11/7/2016	0.2	1.1	22.1	76.6	30	-3.60
GMP-5D	Weekly	3	11/10/2016	0.0	1.0	20.0	79.0	30	0.01
GMP-5D	Weekly	3	11/14/2016	0.0	0.8	19.9	79.3	30	0.00
GMP-5D	Weekly	3	11/22/2016	0.0	0.6	21.0	78.4	30	0.05
GMP-5D	Weekly	3	11/28/2016	0.0	1.0	20.3	78.7	30	0.02
GMP-5D	Weekly	3	12/5/2016	0.1	0.8	19.9	79.2	30	0.03
GMP-5D	Weekly	3	12/12/2016	0.0	1.0	19.8	79.2	30	-0.02

NA: Relative pressure not available

Point Name	Frequency	Quadrant	Date	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	Barometric Pressure	Relative Pressure
GMP-5D	Weekly	3	12/20/2016	0.0	0.7	20.0	79.3	30	0.11
GMP-5D	Weekly	3	12/27/2016	0.0	1.7	21.0	77.3	30	0.06
GMP-5S	Weekly	3	10/3/2016	0.1	1.4	19.8	78.7	30	NA
GMP-5S	Weekly	3	10/10/2016	0.1	0.3	21.8	77.8	30	0.01
GMP-5S	Weekly	3	10/17/2016	0.2	0.8	21.1	77.9	30	0.00
GMP-5S	Weekly	3	10/24/2016	0.0	0.4	21.5	78.1	30	0.01
GMP-5S	Weekly	3	10/31/2016	0.1	0.4	20.1	79.4	30	0.0
GMP-5S	Weekly	3	11/7/2016	0.8	3.4	21.6	74.2	30	0.0
GMP-5S	Weekly	3	11/10/2016	0.0	0.3	20.6	79.1	30	0.02
GMP-5S	Weekly	3	11/14/2016	0.1	0.8	20.1	79.0	30	0.0
GMP-5S	Weekly	3	11/22/2016	0.1	0.4	21.4	78.1	30	0.0
GMP-5S	Weekly	3	11/28/2016	0.3	2.5	20.4	76.8	30	0.02
GMP-5S	Weekly	3	12/5/2016	0.1	0.7	20.5	78.7	30	0.03
GMP-5S	Weekly	3	12/12/2016	0.2	1.2	20.1	78.5	30	0.0
GMP-5S	Weekly	3	12/20/2016	0.0	1.2	20.3	78.5	30	2.16
GMP-5S	Weekly	3	12/27/2016	0.0	1.3	21.5	77.2	30	-0.01
GMP-6D	Weekly	3	10/3/2016	0.0	0.1	21.0	78.9	30	0.0
GMP-6D	Weekly	3	10/10/2016	0.1	0.5	21.8	77.6	30	0.02
GMP-6D	Weekly	3	10/17/2016	0.0	0.1	21.5	78.4	30	0.02
GMP-6D	Weekly	3	10/24/2016	0.0	0.2	21.4	78.4	30	0.02
GMP-6D	Weekly	3	10/31/2016	0.0	0.1	20.3	79.6	30	0.01
GMP-6D	Weekly	3	11/7/2016	0.0	0.3	22.4	77.3	30	-4.90
GMP-6D	Weekly	3	11/10/2016	0.0	0.1	20.7	79.2	30	0.01
GMP-6D	Weekly	3	11/14/2016	0.0	0.2	20.3	79.5	30	-0.01
GMP-6D	Weekly	3	11/22/2016	0.0	0.1	21.5	78.4	30	0.01
GMP-6D	Weekly	3	11/28/2016	0.0	0.1	21.0	78.9	30	0.01
GMP-6D	Weekly	3	12/5/2016	0.0	0.3	20.5	79.2	30	0.01
GMP-6D	Weekly	3	12/12/2016	0.0	0.5	20.3	79.2	30	0.01
GMP-6D	Weekly	3	12/20/2016	0.0	0.6	20.2	79.2	30	0.02
GMP-6D	Weekly	3	12/27/2016	0.0	0.8	21.6	77.6	30	0.02
GMP-6S	Weekly	3	10/3/2016	0.0	0.3	20.7	79.0	30	0.01
GMP-6S	Weekly	3	10/10/2016	0.2	1.4	21.5	76.9	30	-0.92
GMP-6S	Weekly	3	10/17/2016	0.0	0.5	21.1	78.4	30	0.03
GMP-6S	Weekly	3	10/24/2016	0.0	1.1	21.0	77.9	30	0.00

NA: Relative pressure not available

Point Name	Frequency	Quadrant	Date	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	Barometric Pressure	Relative Pressure
GMP-6S	Weekly	3	10/31/2016	0.0	0.4	20.0	79.6	30	0.00
GMP-6S	Weekly	3	11/7/2016	0.0	0.5	22.2	77.3	30	0.00
GMP-6S	Weekly	3	11/10/2016	0.0	0.6	20.4	79.0	30	0.04
GMP-6S	Weekly	3	11/14/2016	0.0	0.5	19.9	79.6	30	0.01
GMP-6S	Weekly	3	11/22/2016	0.0	0.6	20.9	78.5	30	0.0
GMP-6S	Weekly	3	11/28/2016	0.0	0.8	20.4	78.8	30	-0.03
GMP-6S	Weekly	3	12/5/2016	0.0	0.7	20.1	79.2	30	0.01
GMP-6S	Weekly	3	12/12/2016	0.0	1.1	19.5	79.4	30	0.02
GMP-6S	Weekly	3	12/20/2016	0.0	0.8	19.5	79.7	30	0.01
GMP-6S	Weekly	3	12/27/2016	0.0	0.9	20.5	78.6	30	0.02
GMP-14D	Weekly	3	10/3/2016	37.1	18.2	9.1	35.6	30	0.47
GMP-14D	Weekly	3	10/10/2016	55.5	15.9	2.7	25.9	30	1.04
GMP-14D	Weekly	3	10/17/2016	51.7	25.4	5.4	17.5	30	1.45
GMP-14D	Weekly	3	10/24/2016	37.1	14.2	10.7	38.0	30	0.91
GMP-14D	Weekly	3	10/31/2016	48.4	24.7	5.5	21.4	30	1.21
GMP-14D	Weekly	3	11/7/2016	49.3	16.1	7.1	27.5	30	0.02
GMP-14D	Weekly	3	11/14/2016	57.9	18.7	4.5	18.9	30	0.18
GMP-14D	Weekly	3	11/22/2016	55.7	20.1	5.9	18.3	30	0.18
GMP-14D	Weekly	3	11/28/2016	38.6	17.8	9.0	34.6	30	0.69
GMP-14D	Weekly	3	12/5/2016	36.4	16.8	9.8	37.0	30	0.07
GMP-14D	Weekly	3	12/12/2016	38.8	17.2	8.9	35.1	30	0.02
GMP-14D	Weekly	3	12/20/2016	54.9	20.5	4.0	20.6	30	0.39
GMP-14D	Weekly	3	12/27/2016	58.2	20.4	5.1	16.3	30	0.09
GMP-14S	Weekly	3	10/3/2016	2.3	1.2	19.7	76.8	30	0.0
GMP-14S	Weekly	3	10/10/2016	4.4	1.8	19.0	74.8	30	0.01
GMP-14S	Weekly	3	10/17/2016	4.5	2.0	19.3	74.2	30	0.0
GMP-14S	Weekly	3	10/24/2016	3.2	1.7	20.2	74.9	30	0.0
GMP-14S	Weekly	3	10/31/2016	4.3	1.5	18.5	75.7	30	0.0
GMP-14S	Weekly	3	11/7/2016	4.0	1.0	20.2	74.8	30	0.0
GMP-14S	Weekly	3	11/14/2016	1.3	0.6	19.8	78.3	30	0.0
GMP-14S	Weekly	3	11/22/2016	0.2	0.3	21.4	78.1	30	0.0
GMP-14S	Weekly	3	11/28/2016	0.1	0.3	20.9	78.7	30	-0.01
GMP-14S	Weekly	3	12/5/2016	0.6	0.4	20.4	78.6	30	0.01
GMP-14S	Weekly	3	12/12/2016	0.7	1.0	20.0	78.3	30	0.01

NA: Relative pressure not available

Point Name	Frequency	Quadrant	Date	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	Barometric Pressure	Relative Pressure
GMP-14S	Weekly	3	12/20/2016	0.7	0.6	20.1	78.6	30	-0.02
GMP-14S	Weekly	3	12/27/2016	0.5	0.7	21.6	77.2	30	0.01
GMP-01	Weekly	4	10/3/2016	0.0	0.4	21.1	78.5	30	-0.01
GMP-01	Weekly	4	10/10/2016	0.1	0.7	21.3	77.9	30	0.04
GMP-01	Weekly	4	10/17/2016	0.0	0.3	21.7	78.0	30	-0.01
GMP-01	Weekly	4	10/24/2016	0.0	0.1	21.8	78.1	30	0.0
GMP-01	Weekly	4	10/31/2016	0.0	0.2	20.3	79.5	30	0.0
GMP-01	Weekly	4	11/7/2016	0.2	1.3	22.6	75.9	30	0.0
GMP-01	Weekly	4	11/10/2016	0.0	0.0	20.7	79.3	30	0.01
GMP-01	Weekly	4	11/14/2016	0.0	0.6	20.1	79.3	30	0.01
GMP-01	Weekly	4	11/22/2016	0.0	0.6	21.3	78.1	30	0.0
GMP-01	Weekly	4	11/28/2016	0.0	0.8	21.2	78.0	30	0.01
GMP-01	Weekly	4	12/5/2016	0.0	0.3	21.0	78.7	30	0.00
GMP-01	Weekly	4	12/12/2016	0.0	0.5	20.4	79.1	30	-0.09
GMP-01	Weekly	4	12/20/2016	0.0	0.8	19.4	79.8	30	0.0
GMP-01	Weekly	4	12/27/2016	0.0	1.5	21.4	77.1	30	-0.01
GMP-02	Weekly	4	10/3/2016	0.0	0.0	20.6	79.4	30	0.04
GMP-02	Weekly	4	10/10/2016	1.6	1.3	19.8	77.3	30	0.02
GMP-02	Weekly	4	10/17/2016	2.1	2.1	20.4	75.4	30	0.03
GMP-02	Weekly	4	10/24/2016	0.0	0.0	19.3	80.7	30	0.08
GMP-02	Weekly	4	10/31/2016	0.0	0.0	20.3	79.7	30	0.00
GMP-02	Weekly	4	11/7/2016	0.0	0.2	22.7	77.1	30	0.06
GMP-02	Weekly	4	11/10/2016	0.0	0.0	20.4	79.6	30	0.05
GMP-02	Weekly	4	11/14/2016	0.0	0.1	20.0	79.9	30	0.04
GMP-02	Weekly	4	11/22/2016	0.0	0.0	21.5	78.5	30	0.04
GMP-02	Weekly	4	11/28/2016	0.0	0.0	20.6	79.4	30	0.03
GMP-02	Weekly	4	12/5/2016	0.0	0.1	20.9	79.0	30	0.05
GMP-02	Weekly	4	12/12/2016	0.0	0.0	19.6	80.4	30	0.05
GMP-02	Weekly	4	12/20/2016	1.3	1.0	19.5	78.2	30	0.10
GMP-02	Weekly	4	12/27/2016	0.0	0.5	21.1	78.4	30	-3.23
GMP-03	Weekly	4	10/3/2016	41.7	52.7	0.0	5.6	30	0.21
GMP-03	Weekly	4	10/10/2016	42.6	38.9	0.1	18.4	30	0.20
GMP-03	Weekly	4	10/17/2016	42.8	50.0	0.0	7.2	30	0.19
GMP-03	Weekly	4	10/24/2016	42.8	49.5	0.0	7.7	30	0.16

Point Name	Frequency	Quadrant	Date	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	Barometric Pressure	Relative Pressure
GMP-03	Weekly	4	10/31/2016	42.1	53.1	0.0	4.8	30	0.14
GMP-03	Weekly	4	11/7/2016	44.7	43.7	0.4	11.2	30	0.17
GMP-03	Weekly	4	11/14/2016	42.8	50.1	0.0	7.1	30	0.17
GMP-03	Weekly	4	11/22/2016	47.3	47.8	0.0	4.9	30	0.13
GMP-03	Weekly	4	11/28/2016	47.3	48.4	0.0	4.3	30	0.18
GMP-03	Weekly	4	12/5/2016	47.4	45.3	0.4	6.9	30	0.20
GMP-03	Weekly	4	12/12/2016	48.7	44.1	0.1	7.1	30	0.19
GMP-03	Weekly	4	12/20/2016	51.5	41.4	0.0	7.1	30	0.16
GMP-03	Weekly	4	12/27/2016	56.3	39.2	0.3	4.2	30	0.13
GMP-13D	Weekly	4	10/3/2016	0.0	0.6	21.0	78.4	30	0.01
GMP-13D	Weekly	4	10/10/2016	0.1	4.7	20.8	74.4	30	0.02
GMP-13D	Weekly	4	10/17/2016	0.1	1.0	21.5	77.4	30	0.03
GMP-13D	Weekly	4	10/24/2016	0.1	5.2	20.8	73.9	30	0.02
GMP-13D	Weekly	4	10/31/2016	0.0	1.5	20.0	78.5	30	0.02
GMP-13D	Weekly	4	11/7/2016	0.2	5.3	21.6	72.9	30	0.03
GMP-13D	Weekly	4	11/10/2016	0.0	0.0	20.7	79.3	30	0.03
GMP-13D	Weekly	4	11/14/2016	0.0	0.9	20.3	78.8	30	0.02
GMP-13D	Weekly	4	11/22/2016	0.1	3.2	20.8	75.9	30	0.01
GMP-13D	Weekly	4	11/28/2016	0.0	0.4	20.9	78.7	30	0.04
GMP-13D	Weekly	4	12/5/2016	0.0	1.1	20.7	78.2	30	0.01
GMP-13D	Weekly	4	12/12/2016	0.0	1.4	20.1	78.5	30	0.04
GMP-13D	Weekly	4	12/20/2016	0.0	1.9	19.4	78.7	30	0.07
GMP-13D	Weekly	4	12/27/2016	0.0	4.3	21.2	74.5	30	0.06
GMP-13S	Weekly	4	10/3/2016	0.1	4.7	15.6	79.6	30	0.0
GMP-13S	Weekly	4	10/10/2016	0.1	6.5	14.7	78.7	30	-0.01
GMP-13S	Weekly	4	10/17/2016	0.2	5.9	16.2	77.7	30	-0.01
GMP-13S	Weekly	4	10/24/2016	0.1	7.5	16.4	76.0	30	-0.01
GMP-13S	Weekly	4	10/31/2016	0.2	6.1	16.2	77.5	30	-0.01
GMP-13S	Weekly	4	11/7/2016	0.5	9.2	15.4	74.9	30	-0.01
GMP-13S	Weekly	4	11/14/2016	0.1	6.4	14.5	79.0	30	0.00
GMP-13S	Weekly	4	11/22/2016	0.4	7.7	16.2	75.7	30	-0.01
GMP-13S	Weekly	4	11/28/2016	0.1	5.6	15.2	79.1	30	-0.01
GMP-13S	Weekly	4	12/5/2016	0.2	5.4	14.0	80.4	30	0.00
GMP-13S	Weekly	4	12/12/2016	0.2	5.8	14.4	79.6	30	0.01

NA: Relative pressure not available

Point Name	Frequency	Quadrant	Date	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	Barometric Pressure	Relative Pressure
GMP-13S	Weekly	4	12/20/2016	0.2	6.3	14.9	78.6	30	0.02
GMP-13S	Weekly	4	12/27/2016	0.2	8.9	16.4	74.5	30	-0.01

NA: Relative pressure not available

TABLE 3

SENTRY GAS MONITORING PROBE DATA

SEPTEMBER 27 – DECEMBER 27, 2016

Point Name	Frequency	Quadrant	Date	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	Barometric Pressure	Relative Pressure
GMP-06	Quarterly	1	10/3/2016	0.0	0.4	21.0	78.6	30	0.0
GMP-07	Quarterly	1	10/3/2016	0.0	4.7	17.3	78.0	30	0.01
GMP-05	Quarterly	3	10/3/2016	2.1	0.6	20.4	76.9	30	0.4

TABLE 4

INVESTIGATIVE GAS MONITORING PROBE DATA

SEPTEMBER 27 – DECEMBER 27, 2016

Point Name	Frequency	Quadrant	Date	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	Barometric Pressure	Relative Pressure
TMP-1D	Weekly	4	10/3/2016	0.3	0.5	21.0	78.2	30	0.6
TMP-1D	Weekly	4	10/10/2016	0.9	0.9	21.2	77.0	30	0.7
TMP-1D	Weekly	4	10/17/2016	0.1	0.2	21.7	78.0	30	0.74
TMP-1D	Weekly	4	10/24/2016	0.1	0.2	21.7	78.0	30	0.54
TMP-1D	Weekly	4	10/31/2016	0.1	0.1	20.3	79.5	30	0.51
TMP-1D	Weekly	4	11/7/2016	0.5	1.8	22.3	75.4	30	0.25
TMP-1D	Weekly	4	11/10/2016	0.5	0.1	20.1	79.3	30	-0.01
TMP-1D	Weekly	4	11/14/2016	0.2	0.4	20.0	79.4	30	1.02
TMP-1D	Weekly	4	11/22/2016	0.1	0.3	21.2	78.4	30	0.67
TMP-1D	Weekly	4	11/28/2016	0.1	0.7	21.1	78.1	30	0.15
TMP-1D	Weekly	4	12/5/2016	0.1	0.4	21.0	78.5	30	0.09
TMP-1D	Weekly	4	12/12/2016	0.1	0.5	20.1	79.3	30	0.62
TMP-1D	Weekly	4	12/20/2016	0.2	0.6	19.8	79.4	30	0.37
TMP-1D	Weekly	4	12/27/2016	0.3	1.3	21.1	77.3	30	0.27
TMP-1M	Weekly	4	10/3/2016	0.2	0.8	21.2	77.8	30	-0.01
TMP-1M	Weekly	4	10/10/2016	0.6	2.2	21.2	76.0	30	-0.01
TMP-1M	Weekly	4	10/17/2016	0.1	0.7	21.6	77.6	30	-0.04
TMP-1M	Weekly	4	10/24/2016	0.1	1.1	21.5	77.3	30	-0.05
TMP-1M	Weekly	4	10/31/2016	0.1	0.4	20.3	79.2	30	-0.03
TMP-1M	Weekly	4	11/7/2016	0.9	7.4	21.6	70.1	30	-0.03
TMP-1M	Weekly	4	11/10/2016	0.1	0.2	20.6	79.1	30	0.01
TMP-1M	Weekly	4	11/14/2016	0.2	1.3	19.9	78.6	30	-0.05
TMP-1M	Weekly	4	11/22/2016	0.1	0.5	21.1	78.3	30	-0.04
TMP-1M	Weekly	4	11/28/2016	0.4	4.0	20.4	75.2	30	-0.02
TMP-1M	Weekly	4	12/5/2016	0.2	1.3	20.8	77.7	30	-0.02
TMP-1M	Weekly	4	12/12/2016	0.3	2.5	19.7	77.5	30	-0.09
TMP-1M	Weekly	4	12/20/2016	0.2	1.3	19.6	78.9	30	-0.06
TMP-1M	Weekly	4	12/27/2016	0.2	2.7	20.9	76.2	30	-0.06
TMP-1S	Weekly	4	10/3/2016	52.1	45.8	0.0	2.1	30	0.11
TMP-1S	Weekly	4	10/10/2016	52.4	33.8	0.0	13.8	30	0.08
TMP-1S	Weekly	4	10/17/2016	50.1	45.7	0.0	4.2	30	0.07

Point Name	Frequency	Quadrant	Date	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	Barometric Pressure	Relative Pressure
TMP-1S	Weekly	4	10/24/2016	53.0	42.2	0.0	4.8	30	0.22
TMP-1S	Weekly	4	10/31/2016	51.6	46.8	0.0	1.6	30	0.16
TMP-1S	Weekly	4	11/7/2016	54.6	42.2	0.0	3.2	30	0.33
TMP-1S	Weekly	4	11/14/2016	53.3	42.9	0.0	3.8	30	0.21
TMP-1S	Weekly	4	11/22/2016	53.5	43.7	0.0	2.8	30	0.12
TMP-1S	Weekly	4	11/28/2016	51.6	46.7	0.0	1.7	30	0.12
TMP-1S	Weekly	4	12/5/2016	52.0	43.9	0.0	4.1	30	0.15
TMP-1S	Weekly	4	12/12/2016	55.4	40.7	0.0	3.9	30	0.23
TMP-1S	Weekly	4	12/20/2016	54.2	40.9	0.0	4.9	30	0.21
TMP-1S	Weekly	4	12/27/2016	54.4	40.5	0.0	5.1	30	0.69
TMP-2D	Weekly	4	10/3/2016	0.8	0.9	20.9	77.4	30	0.04
TMP-2D	Weekly	4	10/10/2016	5.0	3.7	19.7	71.6	30	0.01
TMP-2D	Weekly	4	10/17/2016	0.9	0.8	21.4	76.9	30	0.04
TMP-2D	Weekly	4	10/24/2016	0.9	1.1	21.5	76.5	30	0.04
TMP-2D	Weekly	4	10/31/2016	1.2	0.9	19.8	78.1	30	0.04
TMP-2D	Weekly	4	11/7/2016	3.8	3.7	21.5	71.0	30	0.05
TMP-2D	Weekly	4	11/10/2016	1.1	1.2	20.3	77.4	30	0.02
TMP-2D	Weekly	4	11/14/2016	1.1	1.6	19.7	77.6	30	0.02
TMP-2D	Weekly	4	11/22/2016	0.7	0.5	21.2	77.6	30	0.01
TMP-2D	Weekly	4	11/28/2016	0.5	0.5	20.9	78.1	30	-0.02
TMP-2D	Weekly	4	12/5/2016	0.6	1.0	20.7	77.7	30	0.01
TMP-2D	Weekly	4	12/12/2016	0.8	2.1	20.0	77.1	30	0.02
TMP-2D	Weekly	4	12/20/2016	1.0	2.8	18.8	77.4	30	0.01
TMP-2D	Weekly	4	12/27/2016	0.6	2.0	21.3	76.1	30	0.01
TMP-2M	Weekly	4	10/3/2016	0.1	0.5	21.1	78.3	30	-0.01
TMP-2M	Weekly	4	10/10/2016	0.3	3.2	20.9	75.6	30	-0.05
TMP-2M	Weekly	4	10/17/2016	0.2	3.2	21.0	75.6	30	-0.06
TMP-2M	Weekly	4	10/24/2016	0.7	1.1	21.5	76.7	30	-0.07
TMP-2M	Weekly	4	10/31/2016	0.3	0.6	20.0	79.1	30	-0.04
TMP-2M	Weekly	4	11/7/2016	1.3	8.3	20.1	70.3	30	-0.14
TMP-2M	Weekly	4	11/14/2016	0.1	2.4	19.1	78.4	30	0.01

Point Name	Frequency	Quadrant	Date	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	Barometric Pressure	Relative Pressure
TMP-2M	Weekly	4	11/22/2016	0.1	1.0	21.2	77.7	30	-0.03
TMP-2M	Weekly	4	11/28/2016	0.3	2.6	20.1	77.0	30	-0.03
TMP-2M	Weekly	4	12/5/2016	0.1	1.1	20.8	78.0	30	-0.03
TMP-2M	Weekly	4	12/12/2016	0.2	4.4	19.4	76.0	30	0.0
TMP-2M	Weekly	4	12/20/2016	2.3	6.4	15.6	75.7	30	0.0
TMP-2M	Weekly	4	12/27/2016	2.8	7.2	19.7	70.3	30	0.0
TMP-2S	Weekly	4	10/3/2016	47.3	47.3	0.0	5.4	30	0.0
TMP-2S	Weekly	4	10/10/2016	27.4	21.8	8.8	42.0	30	0.0
TMP-2S	Weekly	4	10/17/2016	44.0	42.7	0.8	12.5	30	0.02
TMP-2S	Weekly	4	10/24/2016	33.1	28.4	7.6	30.9	30	0.0
TMP-2S	Weekly	4	10/31/2016	30.0	31.3	7.2	31.5	30	0.0
TMP-2S	Weekly	4	11/7/2016	31.0	13.5	9.8	45.7	30	0.0
TMP-2S	Weekly	4	11/14/2016	34.6	29.9	5.7	29.8	30	0.0
TMP-2S	Weekly	4	11/22/2016	33.0	28.8	6.3	31.9	30	0.01
TMP-2S	Weekly	4	11/28/2016	31.6	18.2	8.7	41.5	30	0.0
TMP-2S	Weekly	4	12/5/2016	26.0	21.2	9.7	43.1	30	0.0
TMP-2S	Weekly	4	12/12/2016	40.1	36.3	3.8	19.8	30	0.0
TMP-2S	Weekly	4	12/20/2016	24.8	20.3	9.8	45.1	30	0.0
TMP-2S	Weekly	4	12/27/2016	49.4	41.1	0.3	9.2	30	0.01
TMP-3D	Weekly	4	10/3/2016	1.2	1.6	20.6	76.6	30	-1.07
TMP-3D	Weekly	4	10/10/2016	0.9	4.4	20.8	73.9	30	-1.22
TMP-3D	Weekly	4	10/17/2016	0.2	1.8	21.2	76.8	30	-1.27
TMP-3D	Weekly	4	10/24/2016	0.2	0.9	21.5	77.4	30	-1.81
TMP-3D	Weekly	4	10/31/2016	0.1	0.4	20.3	79.2	30	-2.55
TMP-3D	Weekly	4	11/7/2016	0.9	5.4	21.9	71.8	30	-0.65
TMP-3D	Weekly	4	11/10/2016	0.0	0.1	20.8	79.1	30	-3.35
TMP-3D	Weekly	4	11/14/2016	0.3	2.5	19.6	77.6	30	-0.47
TMP-3D	Weekly	4	11/22/2016	0.3	3.1	20.7	75.9	30	0.28
TMP-3D	Weekly	4	11/28/2016	4.2	4.5	19.1	72.2	30	-1.39
TMP-3D	Weekly	4	12/5/2016	0.7	3.6	20.0	75.7	30	-1.83
TMP-3D	Weekly	4	12/12/2016	0.6	3.7	19.6	76.1	30	-0.84

Point Name	Frequency	Quadrant	Date	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	Barometric Pressure	Relative Pressure
TMP-3D	Weekly	4	12/20/2016	3.9	5.0	17.8	73.3	30	-1.1
TMP-3D	Weekly	4	12/27/2016	1.5	7.0	20.0	71.5	30	-1.77
TMP-3M	Weekly	4	10/3/2016	35.3	21.7	9.1	33.9	30	0.05
TMP-3M	Weekly	4	10/10/2016	51.7	27.2	2.9	18.2	30	0.02
TMP-3M	Weekly	4	10/17/2016	52.5	22.4	5.0	20.1	30	-0.05
TMP-3M	Weekly	4	10/24/2016	18.8	2.1	16.9	62.2	30	0.0
TMP-3M	Weekly	4	10/31/2016	1.4	5.3	19.1	74.2	30	-6.98
TMP-3M	Weekly	4	11/7/2016	36.9	16.4	10.3	36.4	30	-0.05
TMP-3M	Weekly	4	11/14/2016	63.7	27.9	1.1	7.3	30	-0.99
TMP-3M	Weekly	4	11/22/2016	47.5	30.9	4.8	16.8	30	-0.02
TMP-3M	Weekly	4	11/28/2016	63.6	32.3	0.4	3.7	30	-1.58
TMP-3M	Weekly	4	12/5/2016	57.8	35.1	1.2	5.9	30	-1.27
TMP-3M	Weekly	4	12/12/2016	61.8	29.0	1.5	7.7	30	0.0
TMP-3M	Weekly	4	12/20/2016	49.3	33.3	3.4	14.0	30	-0.13
TMP-3M	Weekly	4	12/27/2016	51.2	18.9	5.6	24.3	30	-0.06
TMP-3S	Weekly	4	10/3/2016	21.9	18.5	12.3	47.3	30	1.66
TMP-3S	Weekly	4	10/10/2016	17.0	8.0	14.4	60.6	30	1.04
TMP-3S	Weekly	4	10/17/2016	0.0	0.1	21.7	78.2	30	0.51
TMP-3S	Weekly	4	10/24/2016	0.0	0.1	21.8	78.1	30	0.83
TMP-3S	Weekly	4	10/31/2016	51.9	43.9	0.0	4.2	30	0.89
TMP-3S	Weekly	4	11/7/2016	0.2	0.9	22.7	76.2	30	-4.30
TMP-3S	Weekly	4	11/10/2016	0.0	0.2	20.7	79.1	30	0.01
TMP-3S	Weekly	4	11/14/2016	0.0	0.2	20.2	79.6	30	1.05
TMP-3S	Weekly	4	11/22/2016	0.0	0.2	21.3	78.5	30	1.22
TMP-3S	Weekly	4	11/28/2016	36.5	13.3	9.1	41.1	30	-0.36
TMP-3S	Weekly	4	12/5/2016	10.6	0.4	18.2	70.8	30	-1.36
TMP-3S	Weekly	4	12/12/2016	0.0	0.4	20.3	79.3	30	0.98
TMP-3S	Weekly	4	12/20/2016	34.0	29.6	6.5	29.9	30	1.01
TMP-3S	Weekly	4	12/27/2016	13.2	1.1	18.6	67.1	30	-1.12

TABLE 5

PUBLIC SAFETY GAS MONITORING PROBE DATA

SEPTEMBER 27 – DECEMBER 27, 2016

Point Name	Frequency	Quadrant	Date	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	Barometric Pressure	Relative Pressure
4ASS	Weekly	4	10/3/2016	0.0	12.9	2.0	85.1	30	-3.95
4ASS	Weekly	4	10/10/2016	0.0	12.8	4.5	82.7	30	-1.34
4ASS	Weekly	4	10/17/2016	0.0	6.9	13.1	80.0	30	0.02
4ASS	Weekly	4	10/24/2016	0.0	9.0	13.7	77.3	30	-1.03
4ASS	Weekly	4	10/31/2016	0.0	2.5	13.2	84.3	30	0.13
4ASS	Weekly	4	11/7/2016	0.1	5.3	14.1	80.5	30	1.19
4ASS	Weekly	4	11/14/2016	0.0	2.5	18.9	78.6	30	0.81
4ASS	Weekly	4	11/22/2016	0.0	1.4	20.9	77.7	30	0.0
4ASS	Weekly	4	11/28/2016	0.1	2.1	20.4	77.4	30	0.0
4ASS	Weekly	4	12/5/2016	0.0	2.3	19.0	78.7	30	0.04
4ASS	Weekly	4	12/12/2016	0.0	3.5	18.1	78.4	30	0.03
4ASS	Weekly	4	12/20/2016	0.0	3.5	17.8	78.7	30	0.04
4ASS	Weekly	4	12/27/2016	0.3	4.7	19.2	75.8	30	0.93
4OSS	Weekly	4	10/3/2016	0.0	6.3	19.8	73.9	30	-1.97
4OSS	Weekly	4	10/10/2016	0.0	9.0	20.4	70.6	30	-1.24
4OSS	Weekly	4	10/17/2016	0.0	3.8	20.8	75.4	30	0.0
4OSS	Weekly	4	10/24/2016	0.0	3.5	21.1	75.4	30	-0.24
4OSS	Weekly	4	10/31/2016	0.0	2.5	19.6	77.9	30	2.22
4OSS	Weekly	4	11/7/2016	0.0	4.8	21.9	73.3	30	0.12
4OSS	Weekly	4	11/10/2016	0.0	0.0	20.7	79.3	30	1.66
4OSS	Weekly	4	11/14/2016	0.0	1.3	20.0	78.7	30	3.74
4OSS	Weekly	4	11/22/2016	0.0	1.0	21.1	77.9	30	-3.12
4OSS	Weekly	4	11/28/2016	0.0	1.0	20.8	78.2	30	3.25
4OSS	Weekly	4	12/5/2016	0.0	2.3	20.4	77.3	30	-3.37
4OSS	Weekly	4	12/12/2016	0.0	3.9	19.1	77.0	30	-0.26
4OSS	Weekly	4	12/20/2016	0.0	3.1	18.9	78.0	30	-5.45
4OSS	Weekly	4	12/27/2016	0.0	6.2	20.5	73.3	30	-0.97
GMP-09	Weekly	4	10/3/2016	0.0	0.6	20.7	78.7	30	0.02
GMP-09	Weekly	4	10/10/2016	0.0	1.1	21.0	77.9	30	-0.6
GMP-09	Weekly	4	10/17/2016	0.0	1.0	20.6	78.4	30	0.03
GMP-09	Weekly	4	10/24/2016	0.0	1.1	19.5	79.4	30	2.22
GMP-09	Weekly	4	10/31/2016	0.0	2.8	17.2	80.0	30	0.54
GMP-09	Weekly	4	11/7/2016	2.2	6.2	16.3	75.3	30	0.36
GMP-09	Weekly	4	11/8/2016	2.4	9.4	16.1	72.1	30	0.28

Point Name	Frequency	Quadrant	Date	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	Barometric Pressure	Relative Pressure
GMP-09	Weekly	4	11/14/2016	0.3	3.2	18.1	78.4	30	-9.49
GMP-09	Weekly	4	11/22/2016	2.0	19.7	18.0	60.3	30	4.63
GMP-09	Weekly	4	11/28/2016	11.6	30.0	0.0	58.4	30	7.59
GMP-09	Weekly	4	12/5/2016	9.3	27.0	0.0	63.7	30	1.06
GMP-09	Weekly	4	12/12/2016	12.4	28.4	0.0	59.2	30	9.68
GMP-09	Weekly	4	12/20/2016	16.5	32.0	0.0	51.5	30	7.29
GMP-09	Weekly	4	12/27/2016	2.0	7.7	18.5	71.8	30	0.99
GMP-10	Weekly	4	10/3/2016	2.2	7.3	14.6	75.9	30	1.25
GMP-10	Weekly	4	10/10/2016	1.9	16.6	3.4	78.1	30	-9.51
GMP-10	Weekly	4	10/17/2016	2.0	6.5	16.2	75.3	30	1.52
GMP-10	Weekly	4	10/24/2016	0.0	7.1	1.1	91.8	30	-1.61
GMP-10	Weekly	4	10/31/2016	0.2	1.2	19.3	79.3	30	1.17
GMP-10	Weekly	4	11/7/2016	1.3	6.3	0.6	91.8	30	-7.35
GMP-10	Weekly	4	11/8/2016	0.0	6.2	4.6	89.2	30	-5.02
GMP-10	Weekly	4	11/14/2016	2.1	6.0	0.6	91.3	30	-13.9
GMP-10	Weekly	4	11/22/2016	1.1	8.8	1.1	89.0	30	-8.39
GMP-10	Weekly	4	11/28/2016	0.1	10.9	1.2	87.8	30	-3.35
GMP-10	Weekly	4	12/5/2016	0.1	2.9	17.3	79.7	30	-3.32
GMP-10	Weekly	4	12/12/2016	0.0	5.4	13.0	81.6	30	-4.81
GMP-10	Weekly	4	12/20/2016	0.0	4.1	18.9	77.0	30	0.25
GMP-10	Weekly	4	12/27/2016	0.0	4.4	8.4	87.2	30	0.0
GMP-11	Weekly	4	10/3/2016	0.0	1.3	20.8	77.9	30	0.0
GMP-11	Weekly	4	10/10/2016	0.0	1.8	21.4	76.8	30	0.01
GMP-11	Weekly	4	10/17/2016	0.0	1.2	21.4	77.4	30	0.0
GMP-11	Weekly	4	10/24/2016	0.0	0.1	21.9	78.0	30	0.0
GMP-11	Weekly	4	10/31/2016	0.0	0.3	20.2	79.5	30	0.0
GMP-11	Weekly	4	11/7/2016	0.0	1.1	22.9	76.0	30	0.0
GMP-11	Weekly	4	11/10/2016	0.0	0.0	20.8	79.2	30	0.0
GMP-11	Weekly	4	11/14/2016	0.0	0.2	20.4	79.4	30	-0.01
GMP-11	Weekly	4	11/22/2016	0.0	0.1	21.6	78.3	30	0.0
GMP-11	Weekly	4	11/28/2016	0.0	0.1	21.2	78.7	30	0.01
GMP-11	Weekly	4	12/5/2016	0.0	0.3	21.0	78.7	30	0.0
GMP-11	Weekly	4	12/12/2016	0.0	2.1	20.0	77.9	30	0.01
GMP-11	Weekly	4	12/20/2016	0.0	0.5	19.8	79.7	30	0.01

Point Name	Frequency	Quadrant	Date	CH_4 (%)	CO_2 (%)	O_2 (%)	Balance Gas (%)	Barometric Pressure	Relative Pressure
GMP-11	Weekly	4	12/27/2016	0.0	1.7	21.7	76.6	30	0.0
GMP-12	Weekly	4	10/3/2016	0.0	0.2	21.1	78.7	30	0.0
GMP-12	Weekly	4	10/10/2016	0.0	0.5	21.5	78.0	30	0.0
GMP-12	Weekly	4	10/17/2016	0.0	0.1	21.7	78.2	30	0.0
GMP-12	Weekly	4	10/24/2016	0.0	0.0	21.9	78.1	30	0.0
GMP-12	Weekly	4	10/31/2016	0.0	0.0	20.3	79.7	30	0.0
GMP-12	Weekly	4	11/7/2016	0.0	0.3	23.1	76.6	30	0.0
GMP-12	Weekly	4	11/10/2016	0.0	0.0	20.8	79.2	30	0.01
GMP-12	Weekly	4	11/14/2016	0.0	0.0	20.5	79.5	30	0.0
GMP-12	Weekly	4	11/22/2016	0.0	0.0	21.6	78.4	30	0.0
GMP-12	Weekly	4	11/28/2016	0.0	0.0	21.3	78.7	30	-0.03
GMP-12	Weekly	4	12/5/2016	0.0	0.0	21.1	78.9	30	0.0
GMP-12	Weekly	4	12/12/2016	0.0	0.1	20.4	79.5	30	0.01
GMP-12	Weekly	4	12/20/2016	0.0	0.1	19.9	80.0	30	0.01
GMP-12	Weekly	4	12/27/2016	0.0	0.2	22.1	77.7	30	0.0

TABLE 6

GAS MONITORING PROBE WATER LEVEL DATA

SEPTEMBER 27 – DECEMBER 27, 2016

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
4ASS	10/3/2016	4	4.1	No Comment
4ASS	10/10/2016	4	4.8	No Comment
4ASS	10/17/2016	4	4.7	No Comment
4ASS	10/24/2016	4	4.3	No Comment
4ASS	10/31/2016	4	4.5	No Comment
4ASS	11/7/2016	4	4.4	No Comment
4ASS	11/14/2016	4	4.5	No Comment
4ASS	11/22/2016	4	4.7	No Comment
4ASS	11/28/2016	4	3.5	No Comment
4ASS	12/5/2016	4	4.8	No Comment
4ASS	12/12/2016	4	4.9	No Comment
4ASS	12/20/2016	4	5.0	No Comment
4ASS	12/27/2016	4	4.6	No Comment
4OSS	10/3/2016	4	6.8	No Comment
4OSS	10/10/2016	4	9.0	No Comment
4OSS	10/17/2016	4	8.4	No Comment
4OSS	10/24/2016	4	8.1	No Comment
4OSS	10/31/2016	4	8.3	No Comment
4OSS	11/7/2016	4	8.0	No Comment
4OSS	11/14/2016	4	7.9	No Comment
4OSS	11/22/2016	4	7.8	No Comment
4OSS	11/28/2016	4	7.9	No Comment
4OSS	12/5/2016	4	8.4	No Comment
4OSS	12/12/2016	4	8.6	No Comment
4OSS	12/20/2016	4	8.5	No Comment
4OSS	12/27/2016	4	9.1	No Comment
GMP-01	10/3/2016	4	11.8	No Comment
GMP-01	10/10/2016	4	11.8	No Comment
GMP-01	10/17/2016	4	11.8	No Comment
GMP-01	10/24/2016	4	11.8	No Comment
GMP-01	10/31/2016	4	11.8	No Comment
GMP-01	11/7/2016	4	11.8	No Comment
GMP-01	11/14/2016	4	11.8	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-01	11/22/2016	4	11.8	No Comment
GMP-01	11/28/2016	4	11.8	No Comment
GMP-01	12/5/2016	4	11.8	No Comment
GMP-01	12/12/2016	4	11.8	No Comment
GMP-01	12/20/2016	4	11.8	No Comment
GMP-01	12/27/2016	4	11.8	No Comment
GMP-02	10/3/2016	4	8.6	No Comment
GMP-02	10/10/2016	4	8.0	No Comment
GMP-02	10/17/2016	4	9.0	No Comment
GMP-02	10/24/2016	4	9.5	No Comment
GMP-02	10/31/2016	4	10.6	No Comment
GMP-02	11/7/2016	4	9.7	No Comment
GMP-02	11/14/2016	4	9.7	No Comment
GMP-02	11/22/2016	4	9.3	No Comment
GMP-02	11/28/2016	4	9.5	No Comment
GMP-02	12/5/2016	4	9.3	No Comment
GMP-02	12/12/2016	4	9.6	No Comment
GMP-02	12/20/2016	4	9.7	No Comment
GMP-02	12/27/2016	4	8.4	No Comment
GMP-03	10/3/2016	4	11.9	No Comment
GMP-03	10/10/2016	4	15.8	No Comment
GMP-03	10/17/2016	4	12.6	No Comment
GMP-03	10/24/2016	4	12.8	No Comment
GMP-03	10/31/2016	4	13.1	No Comment
GMP-03	11/7/2016	4	11.7	No Comment
GMP-03	11/14/2016	4	12.0	No Comment
GMP-03	11/22/2016	4	12.6	No Comment
GMP-03	11/28/2016	4	11.7	No Comment
GMP-03	12/5/2016	4	12.4	No Comment
GMP-03	12/12/2016	4	12.6	No Comment
GMP-03	12/20/2016	4	13.1	No Comment
GMP-03	12/27/2016	4	13.4	No Comment
GMP-05	10/3/2016	3	8.5	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-06	10/3/2016	1	6.3	No Comment
GMP-07	10/3/2016	1	21.5	No Comment
GMP-08	10/3/2016	1	32.8	No Comment
GMP-08	10/10/2016	1	32.8	No Comment
GMP-08	10/17/2016	1	32.1	No Comment
GMP-08	10/24/2016	1	32.4	No Comment
GMP-08	10/31/2016	1	32.6	No Comment
GMP-08	11/7/2016	1	32.0	No Comment
GMP-08	11/14/2016	1	32.1	No Comment
GMP-08	11/22/2016	1	32.0	No Comment
GMP-08	11/28/2016	1	31.2	No Comment
GMP-08	12/5/2016	1	32.5	No Comment
GMP-08	12/12/2016	1	31.4	No Comment
GMP-08	12/20/2016	1	31.6	No Comment
GMP-08	12/27/2016	1	32.5	No Comment
GMP-09	10/3/2016	4	9.3	No Comment
GMP-09	10/10/2016	4	10.5	No Comment
GMP-09	10/17/2016	4	10.6	No Comment
GMP-09	10/24/2016	4	10.1	No Comment
GMP-09	10/31/2016	4	10.6	No Comment
GMP-09	11/7/2016	4	9.5	No Comment
GMP-09	11/14/2016	4	10.8	No Comment
GMP-09	11/22/2016	4	10.7	No Comment
GMP-09	11/28/2016	4	8.2	No Comment
GMP-09	12/5/2016	4	10.1	No Comment
GMP-09	12/12/2016	4	11.5	No Comment
GMP-09	12/20/2016	4	11.4	No Comment
GMP-09	12/27/2016	4	10.0	No Comment
GMP-10	10/3/2016	4	3.2	No Comment
GMP-10	10/10/2016	4	8.5	No Comment
GMP-10	10/17/2016	4	7.7	No Comment
GMP-10	10/24/2016	4	9.0	No Comment
GMP-10	10/31/2016	4	9.4	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-10	11/7/2016	4	8.8	No Comment
GMP-10	11/14/2016	4	8.1	No Comment
GMP-10	11/22/2016	4	8.9	No Comment
GMP-10	11/28/2016	4	9.2	No Comment
GMP-10	12/5/2016	4	9.5	No Comment
GMP-10	12/12/2016	4	9.7	No Comment
GMP-10	12/20/2016	4	8.7	No Comment
GMP-10	12/27/2016	4	6.0	No Comment
GMP-11	10/3/2016	4	0.0	No Comment
GMP-11	10/10/2016	4	0.0	No Comment
GMP-11	10/17/2016	4	0.0	No Comment
GMP-11	10/24/2016	4	0.0	No Comment
GMP-11	10/31/2016	4	0.0	No Comment
GMP-11	11/7/2016	4	0.0	No Comment
GMP-11	11/14/2016	4	0.0	No Comment
GMP-11	11/22/2016	4	0.0	No Comment
GMP-11	11/28/2016	4	0.0	No Comment
GMP-11	12/5/2016	4	0.0	No Comment
GMP-11	12/12/2016	4	0.0	No Comment
GMP-11	12/20/2016	4	0.0	No Comment
GMP-11	12/27/2016	4	0.0	No Comment
GMP-12	10/3/2016	4	0.0	No Comment
GMP-12	10/10/2016	4	0.0	No Comment
GMP-12	10/17/2016	4	0.0	No Comment
GMP-12	10/24/2016	4	0.0	No Comment
GMP-12	10/31/2016	4	0.0	No Comment
GMP-12	11/7/2016	4	0.0	No Comment
GMP-12	11/14/2016	4	0.0	No Comment
GMP-12	11/22/2016	4	0.0	No Comment
GMP-12	11/28/2016	4	0.0	No Comment
GMP-12	12/5/2016	4	0.0	No Comment
GMP-12	12/12/2016	4	0.0	No Comment
GMP-12	12/20/2016	4	0.0	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-12	12/27/2016	4	0.0	No Comment
GMP-13D	10/3/2016	4	11.2	No Comment
GMP-13D	10/10/2016	4	11.4	No Comment
GMP-13D	10/17/2016	4	11.5	No Comment
GMP-13D	10/24/2016	4	11.6	No Comment
GMP-13D	10/31/2016	4	11.7	No Comment
GMP-13D	11/7/2016	4	11.8	No Comment
GMP-13D	11/14/2016	4	11.8	No Comment
GMP-13D	11/22/2016	4	11.7	No Comment
GMP-13D	11/28/2016	4	10.7	No Comment
GMP-13D	12/5/2016	4	11.7	No Comment
GMP-13D	12/12/2016	4	11.8	No Comment
GMP-13D	12/20/2016	4	11.9	No Comment
GMP-13D	12/27/2016	4	12.0	No Comment
GMP-13S	10/3/2016	4	11.8	No Comment
GMP-13S	10/10/2016	4	12.3	No Comment
GMP-13S	10/17/2016	4	11.9	No Comment
GMP-13S	10/24/2016	4	12.2	No Comment
GMP-13S	10/31/2016	4	12.1	No Comment
GMP-13S	11/7/2016	4	10.6	No Comment
GMP-13S	11/14/2016	4	10.9	No Comment
GMP-13S	11/22/2016	4	11.6	No Comment
GMP-13S	11/28/2016	4	10.8	No Comment
GMP-13S	12/5/2016	4	11.8	No Comment
GMP-13S	12/12/2016	4	12.1	No Comment
GMP-13S	12/20/2016	4	12.3	No Comment
GMP-13S	12/27/2016	4	12.4	No Comment
GMP-14D	10/3/2016	3	9.6	No Comment
GMP-14D	10/10/2016	3	10.0	No Comment
GMP-14D	10/17/2016	3	10.1	No Comment
GMP-14D	10/24/2016	3	9.1	No Comment
GMP-14D	10/31/2016	3	9.6	No Comment
GMP-14D	11/7/2016	3	8.0	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-14D	11/14/2016	3	8.1	No Comment
GMP-14D	11/22/2016	3	9.1	No Comment
GMP-14D	11/28/2016	3	8.8	No Comment
GMP-14D	12/5/2016	3	9.6	No Comment
GMP-14D	12/12/2016	3	10.0	No Comment
GMP-14D	12/20/2016	3	10.3	No Comment
GMP-14D	12/27/2016	3	9.9	No Comment
GMP-14S	10/3/2016	3	10.8	No Comment
GMP-14S	10/10/2016	3	11.4	No Comment
GMP-14S	10/17/2016	3	11.4	No Comment
GMP-14S	10/24/2016	3	11.3	No Comment
GMP-14S	10/31/2016	3	11.4	No Comment
GMP-14S	11/7/2016	3	10.2	No Comment
GMP-14S	11/14/2016	3	10.1	No Comment
GMP-14S	11/22/2016	3	10.6	No Comment
GMP-14S	11/28/2016	3	10.4	No Comment
GMP-14S	12/5/2016	3	11.0	No Comment
GMP-14S	12/12/2016	3	11.5	No Comment
GMP-14S	12/20/2016	3	11.6	No Comment
GMP-14S	12/27/2016	3	11.8	No Comment
GMP-15D	10/3/2016	2	10.2	No Comment
GMP-15D	10/10/2016	2	9.8	No Comment
GMP-15D	10/17/2016	2	10.3	No Comment
GMP-15D	10/24/2016	2	10.2	No Comment
GMP-15D	10/31/2016	2	10.2	No Comment
GMP-15D	11/7/2016	2	16.8	No Comment
GMP-15D	11/14/2016	2	10.8	No Comment
GMP-15D	11/22/2016	2	10.7	No Comment
GMP-15D	11/28/2016	2	10.6	No Comment
GMP-15D	12/5/2016	2	11.1	No Comment
GMP-15D	12/12/2016	2	11.1	No Comment
GMP-15D	12/20/2016	2	10.8	No Comment
GMP-15D	12/27/2016	2	12.4	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-15S	10/3/2016	2	7.4	No Comment
GMP-15S	10/10/2016	2	7.5	No Comment
GMP-15S	10/17/2016	2	8.7	No Comment
GMP-15S	10/24/2016	2	7.3	No Comment
GMP-15S	10/31/2016	2	7.1	No Comment
GMP-15S	11/7/2016	2	13.5	No Comment
GMP-15S	11/14/2016	2	7.2	No Comment
GMP-15S	11/22/2016	2	7.3	No Comment
GMP-15S	11/28/2016	2	7.2	No Comment
GMP-15S	12/5/2016	2	7.4	No Comment
GMP-15S	12/12/2016	2	7.6	No Comment
GMP-15S	12/20/2016	2	7.9	No Comment
GMP-15S	12/27/2016	2	7.5	No Comment
GMP-16D	10/3/2016	1	6.7	No Comment
GMP-16D	10/10/2016	1	7.1	No Comment
GMP-16D	10/17/2016	1	7.2	No Comment
GMP-16D	10/24/2016	1	7.3	No Comment
GMP-16D	10/31/2016	1	7.4	No Comment
GMP-16D	11/7/2016	1	6.7	No Comment
GMP-16D	11/14/2016	1	6.6	No Comment
GMP-16D	11/22/2016	1	7.2	No Comment
GMP-16D	11/28/2016	1	7.3	No Comment
GMP-16D	12/5/2016	1	7.3	No Comment
GMP-16D	12/12/2016	1	7.7	No Comment
GMP-16D	12/20/2016	1	7.8	No Comment
GMP-16D	12/27/2016	1	7.8	No Comment
GMP-16S	10/3/2016	1	6.9	No Comment
GMP-16S	10/10/2016	1	7.4	No Comment
GMP-16S	10/17/2016	1	7.4	No Comment
GMP-16S	10/24/2016	1	7.6	No Comment
GMP-16S	10/31/2016	1	7.2	No Comment
GMP-16S	11/7/2016	1	6.9	No Comment
GMP-16S	11/14/2016	1	7.2	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-16S	11/22/2016	1	7.6	No Comment
GMP-16S	11/28/2016	1	6.8	No Comment
GMP-16S	12/5/2016	1	7.6	No Comment
GMP-16S	12/12/2016	1	8.0	No Comment
GMP-16S	12/20/2016	1	8.1	No Comment
GMP-16S	12/27/2016	1	8.1	No Comment
GMP-4D	10/3/2016	3	11.4	No Comment
GMP-4D	10/10/2016	3	11.9	No Comment
GMP-4D	10/17/2016	3	11.5	No Comment
GMP-4D	10/24/2016	3	11.4	No Comment
GMP-4D	10/31/2016	3	11.5	No Comment
GMP-4D	11/7/2016	3	10.1	No Comment
GMP-4D	11/14/2016	3	10.3	No Comment
GMP-4D	11/22/2016	3	10.9	No Comment
GMP-4D	11/28/2016	3	10.7	No Comment
GMP-4D	12/5/2016	3	11.3	No Comment
GMP-4D	12/12/2016	3	11.4	No Comment
GMP-4D	12/20/2016	3	12.1	No Comment
GMP-4D	12/27/2016	3	12.0	No Comment
GMP-4S	10/3/2016	3	11.2	No Comment
GMP-4S	10/10/2016	3	11.3	No Comment
GMP-4S	10/17/2016	3	11.3	No Comment
GMP-4S	10/24/2016	3	11.4	No Comment
GMP-4S	10/31/2016	3	11.3	No Comment
GMP-4S	11/7/2016	3	4.5	No Comment
GMP-4S	11/14/2016	3	9.6	No Comment
GMP-4S	11/22/2016	3	10.9	No Comment
GMP-4S	11/28/2016	3	10.2	No Comment
GMP-4S	12/5/2016	3	10.9	No Comment
GMP-4S	12/12/2016	3	11.4	No Comment
GMP-4S	12/20/2016	3	11.3	No Comment
GMP-4S	12/27/2016	3	11.5	No Comment
GMP-5D	10/3/2016	3	19.5	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-5D	10/10/2016	3	20.0	No Comment
GMP-5D	10/17/2016	3	19.8	No Comment
GMP-5D	10/24/2016	3	19.7	No Comment
GMP-5D	10/31/2016	3	19.6	No Comment
GMP-5D	11/7/2016	3	19.1	No Comment
GMP-5D	11/14/2016	3	19.1	No Comment
GMP-5D	11/22/2016	3	19.5	No Comment
GMP-5D	11/28/2016	3	19.3	No Comment
GMP-5D	12/5/2016	3	19.7	No Comment
GMP-5D	12/12/2016	3	19.6	No Comment
GMP-5D	12/20/2016	3	20.1	No Comment
GMP-5D	12/27/2016	3	19.9	No Comment
GMP-5S	10/3/2016	3	14.5	No Comment
GMP-5S	10/10/2016	3	14.3	No Comment
GMP-5S	10/17/2016	3	14.8	No Comment
GMP-5S	10/24/2016	3	14.3	No Comment
GMP-5S	10/31/2016	3	14.3	No Comment
GMP-5S	11/7/2016	3	13.6	No Comment
GMP-5S	11/14/2016	3	14.7	No Comment
GMP-5S	11/22/2016	3	14.2	No Comment
GMP-5S	11/28/2016	3	14.4	No Comment
GMP-5S	12/5/2016	3	14.3	No Comment
GMP-5S	12/12/2016	3	14.5	No Comment
GMP-5S	12/20/2016	3	14.7	No Comment
GMP-5S	12/27/2016	3	14.3	No Comment
GMP-6D	10/3/2016	3	11.0	No Comment
GMP-6D	10/10/2016	3	11.3	No Comment
GMP-6D	10/17/2016	3	11.2	No Comment
GMP-6D	10/24/2016	3	11.1	No Comment
GMP-6D	10/31/2016	3	10.9	No Comment
GMP-6D	11/7/2016	3	10.4	No Comment
GMP-6D	11/14/2016	3	7.4	No Comment
GMP-6D	11/22/2016	3	9.9	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-6D	11/28/2016	3	10.8	No Comment
GMP-6D	12/5/2016	3	10.9	No Comment
GMP-6D	12/12/2016	3	11.1	No Comment
GMP-6D	12/20/2016	3	11.3	No Comment
GMP-6D	12/27/2016	3	11.3	No Comment
GMP-6S	10/3/2016	3	7.6	No Comment
GMP-6S	10/10/2016	3	8.0	No Comment
GMP-6S	10/17/2016	3	8.0	No Comment
GMP-6S	10/24/2016	3	7.4	No Comment
GMP-6S	10/31/2016	3	7.3	No Comment
GMP-6S	11/7/2016	3	6.2	No Comment
GMP-6S	11/14/2016	3	6.7	No Comment
GMP-6S	11/22/2016	3	7.6	No Comment
GMP-6S	11/28/2016	3	7.2	No Comment
GMP-6S	12/5/2016	3	7.2	No Comment
GMP-6S	12/12/2016	3	7.2	No Comment
GMP-6S	12/20/2016	3	8.1	No Comment
GMP-6S	12/27/2016	3	7.5	No Comment
GMP-7D	10/3/2016	1	17.3	No Comment
GMP-7D	10/10/2016	1	17.3	No Comment
GMP-7D	10/17/2016	1	17.5	No Comment
GMP-7D	10/24/2016	1	17.9	No Comment
GMP-7D	10/31/2016	1	17.7	No Comment
GMP-7D	11/7/2016	1	17.2	No Comment
GMP-7D	11/14/2016	1	17.3	No Comment
GMP-7D	11/22/2016	1	17.2	No Comment
GMP-7D	11/28/2016	1	17.3	No Comment
GMP-7D	12/5/2016	1	17.4	No Comment
GMP-7D	12/12/2016	1	18.0	No Comment
GMP-7D	12/20/2016	1	18.0	No Comment
GMP-7D	12/27/2016	1	17.5	No Comment
GMP-7S	10/3/2016	1	16.5	No Comment
GMP-7S	10/10/2016	1	16.5	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
GMP-7S	10/17/2016	1	17.2	No Comment
GMP-7S	10/24/2016	1	16.9	No Comment
GMP-7S	10/31/2016	1	17.1	No Comment
GMP-7S	11/7/2016	1	16.4	No Comment
GMP-7S	11/14/2016	1	16.7	No Comment
GMP-7S	11/22/2016	1	17.8	No Comment
GMP-7S	11/28/2016	1	16.7	No Comment
GMP-7S	12/5/2016	1	16.6	No Comment
GMP-7S	12/12/2016	1	17.4	No Comment
GMP-7S	12/20/2016	1	17.4	No Comment
GMP-7S	12/27/2016	1	15.8	No Comment
TMP-1D	10/3/2016	4	20.1	No Comment
TMP-1D	10/10/2016	4	21.0	No Comment
TMP-1D	10/17/2016	4	20.7	No Comment
TMP-1D	10/24/2016	4	20.8	No Comment
TMP-1D	10/31/2016	4	21.0	No Comment
TMP-1D	11/7/2016	4	20.1	No Comment
TMP-1D	11/14/2016	4	20.1	No Comment
TMP-1D	11/22/2016	4	21.0	No Comment
TMP-1D	11/28/2016	4	20.8	No Comment
TMP-1D	12/5/2016	4	21.5	No Comment
TMP-1D	12/12/2016	4	21.8	No Comment
TMP-1D	12/20/2016	4	22.0	No Comment
TMP-1D	12/27/2016	4	22.2	No Comment
TMP-1M	10/3/2016	4	20.7	No Comment
TMP-1M	10/10/2016	4	21.3	No Comment
TMP-1M	10/17/2016	4	21.0	No Comment
TMP-1M	10/24/2016	4	21.3	No Comment
TMP-1M	10/31/2016	4	21.2	No Comment
TMP-1M	11/7/2016	4	20.3	No Comment
TMP-1M	11/14/2016	4	21.1	No Comment
TMP-1M	11/22/2016	4	21.3	No Comment
TMP-1M	11/28/2016	4	21.1	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-1M	12/5/2016	4	21.7	No Comment
TMP-1M	12/12/2016	4	22.2	No Comment
TMP-1M	12/20/2016	4	22.4	No Comment
TMP-1M	12/27/2016	4	22.6	No Comment
TMP-1S	10/3/2016	4	19.3	No Comment
TMP-1S	10/10/2016	4	20.0	No Comment
TMP-1S	10/17/2016	4	20.0	No Comment
TMP-1S	10/24/2016	4	19.9	No Comment
TMP-1S	10/31/2016	4	20.1	No Comment
TMP-1S	11/7/2016	4	20.5	No Comment
TMP-1S	11/14/2016	4	19.2	No Comment
TMP-1S	11/22/2016	4	20.1	No Comment
TMP-1S	11/28/2016	4	20.0	No Comment
TMP-1S	12/5/2016	4	20.5	No Comment
TMP-1S	12/12/2016	4	20.8	No Comment
TMP-1S	12/20/2016	4	21.2	No Comment
TMP-1S	12/27/2016	4	21.2	No Comment
TMP-2D	10/3/2016	4	16.7	No Comment
TMP-2D	10/10/2016	4	19.5	No Comment
TMP-2D	10/17/2016	4	19.0	No Comment
TMP-2D	10/24/2016	4	18.0	No Comment
TMP-2D	10/31/2016	4	19.0	No Comment
TMP-2D	11/7/2016	4	17.7	No Comment
TMP-2D	11/14/2016	4	17.8	No Comment
TMP-2D	11/22/2016	4	18.9	No Comment
TMP-2D	11/28/2016	4	17.4	No Comment
TMP-2D	12/5/2016	4	17.7	No Comment
TMP-2D	12/12/2016	4	18.1	No Comment
TMP-2D	12/20/2016	4	18.4	No Comment
TMP-2D	12/27/2016	4	19.9	No Comment
TMP-2M	10/3/2016	4	19.4	No Comment
TMP-2M	10/10/2016	4	18.3	No Comment
TMP-2M	10/17/2016	4	18.9	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-2M	10/24/2016	4	18.5	No Comment
TMP-2M	10/31/2016	4	18.5	No Comment
TMP-2M	11/7/2016	4	17.7	No Comment
TMP-2M	11/14/2016	4	18.6	No Comment
TMP-2M	11/22/2016	4	18.4	No Comment
TMP-2M	11/28/2016	4	18.7	No Comment
TMP-2M	12/5/2016	4	19.1	No Comment
TMP-2M	12/12/2016	4	18.9	No Comment
TMP-2M	12/20/2016	4	19.2	No Comment
TMP-2M	12/27/2016	4	19.6	No Comment
TMP-2S	10/3/2016	4	17.2	No Comment
TMP-2S	10/10/2016	4	17.4	No Comment
TMP-2S	10/17/2016	4	17.4	No Comment
TMP-2S	10/24/2016	4	17.5	No Comment
TMP-2S	10/31/2016	4	17.5	No Comment
TMP-2S	11/7/2016	4	17.4	No Comment
TMP-2S	11/14/2016	4	17.1	No Comment
TMP-2S	11/22/2016	4	17.6	No Comment
TMP-2S	11/28/2016	4	17.3	No Comment
TMP-2S	12/5/2016	4	17.3	No Comment
TMP-2S	12/12/2016	4	17.3	No Comment
TMP-2S	12/20/2016	4	17.4	No Comment
TMP-2S	12/27/2016	4	17.6	No Comment
TMP-3D	10/3/2016	4	13.2	No Comment
TMP-3D	10/10/2016	4	14.5	No Comment
TMP-3D	10/17/2016	4	13.3	No Comment
TMP-3D	10/24/2016	4	13.5	No Comment
TMP-3D	10/31/2016	4	13.2	No Comment
TMP-3D	11/7/2016	4	13.4	No Comment
TMP-3D	11/14/2016	4	13.5	No Comment
TMP-3D	11/22/2016	4	13.9	No Comment
TMP-3D	11/28/2016	4	12.5	No Comment
TMP-3D	12/5/2016	4	12.4	No Comment

Point Name	Date	Quadrant	Depth to Water (ft)	Comments
TMP-3D	12/12/2016	4	13.5	No Comment
TMP-3D	12/20/2016	4	14.7	No Comment
TMP-3D	12/27/2016	4	14.6	No Comment
TMP-3M	10/3/2016	4	10.5	No Comment
TMP-3M	10/10/2016	4	11.1	No Comment
TMP-3M	10/17/2016	4	14.5	No Comment
TMP-3M	10/24/2016	4	15.0	No Comment
TMP-3M	10/31/2016	4	14.7	No Comment
TMP-3M	11/7/2016	4	13.7	No Comment
TMP-3M	11/14/2016	4	13.6	No Comment
TMP-3M	11/22/2016	4	14.7	No Comment
TMP-3M	11/28/2016	4	13.9	No Comment
TMP-3M	12/5/2016	4	14.7	No Comment
TMP-3M	12/12/2016	4	13.8	No Comment
TMP-3M	12/20/2016	4	14.9	No Comment
TMP-3M	12/27/2016	4	15.2	No Comment
TMP-3S	10/3/2016	4	13.0	No Comment
TMP-3S	10/10/2016	4	17.5	No Comment
TMP-3S	10/17/2016	4	13.0	No Comment
TMP-3S	10/24/2016	4	15.6	No Comment
TMP-3S	10/31/2016	4	17.2	No Comment
TMP-3S	11/7/2016	4	9.0	No Comment
TMP-3S	11/14/2016	4	13.5	No Comment
TMP-3S	11/22/2016	4	13.2	No Comment
TMP-3S	11/28/2016	4	11.3	No Comment
TMP-3S	12/5/2016	4	11.1	No Comment
TMP-3S	12/12/2016	4	12.8	No Comment
TMP-3S	12/20/2016	4	12.8	No Comment
TMP-3S	12/27/2016	4	9.8	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

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July 26, 2013

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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.

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 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.

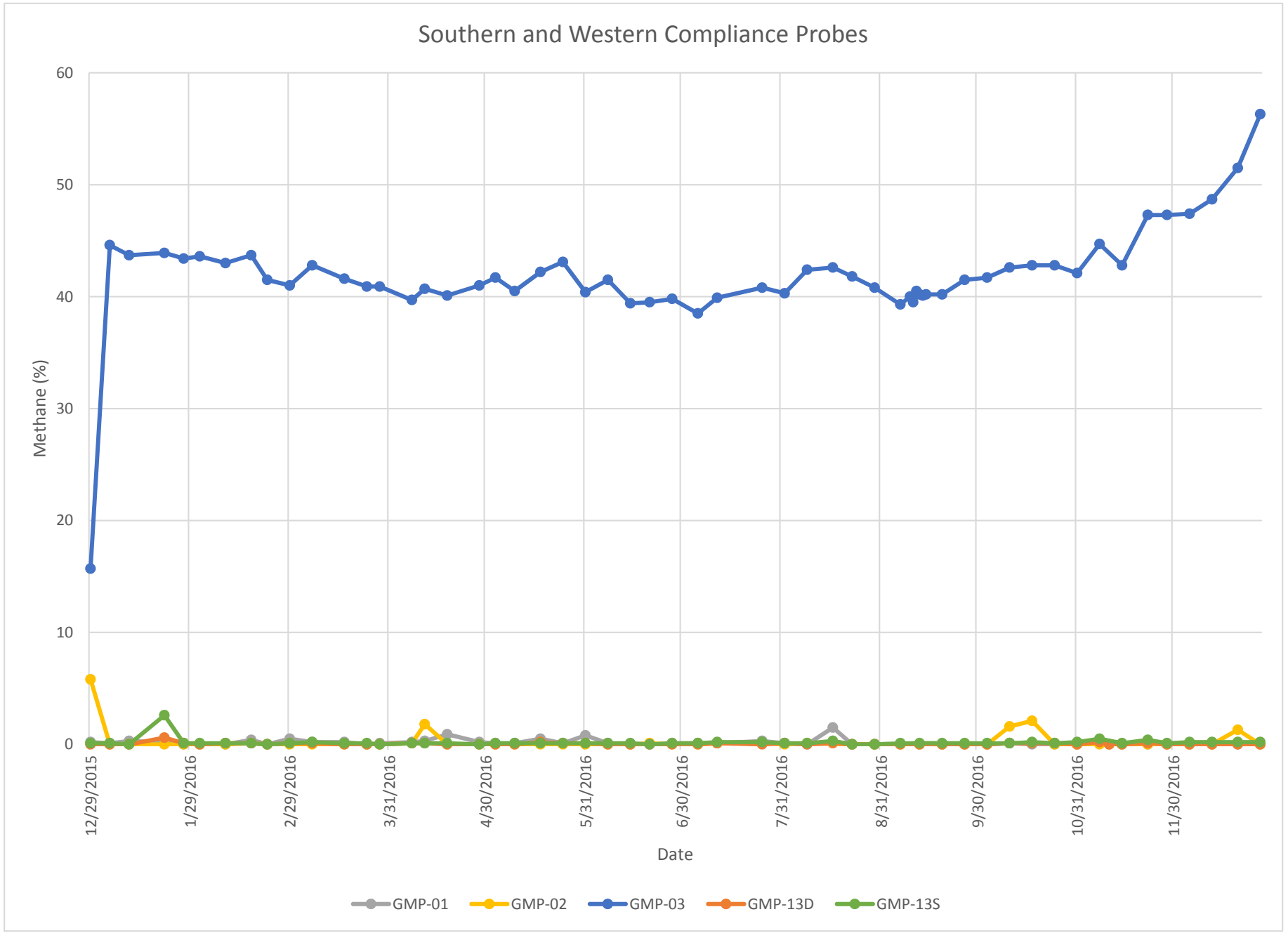
This section of the report will include at a minimum a review previous data, evaluate effectiveness of efforts made to control migration, and propose additional measures directed at eliminating detection levels in gas monitoring probes. As a regular procedure, these reports will be submitted by the 15th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


Southern and Western Compliance Probes
Methane (%)
60
50
40
30
20
10
0
12/29/2015
1/29/2016
2/29/2016
3/31/2016
4/30/2016
5/31/2016
6/30/2016
7/31/2016
8/31/2016
9/30/2016
10/31/2016
11/30/2016
Date
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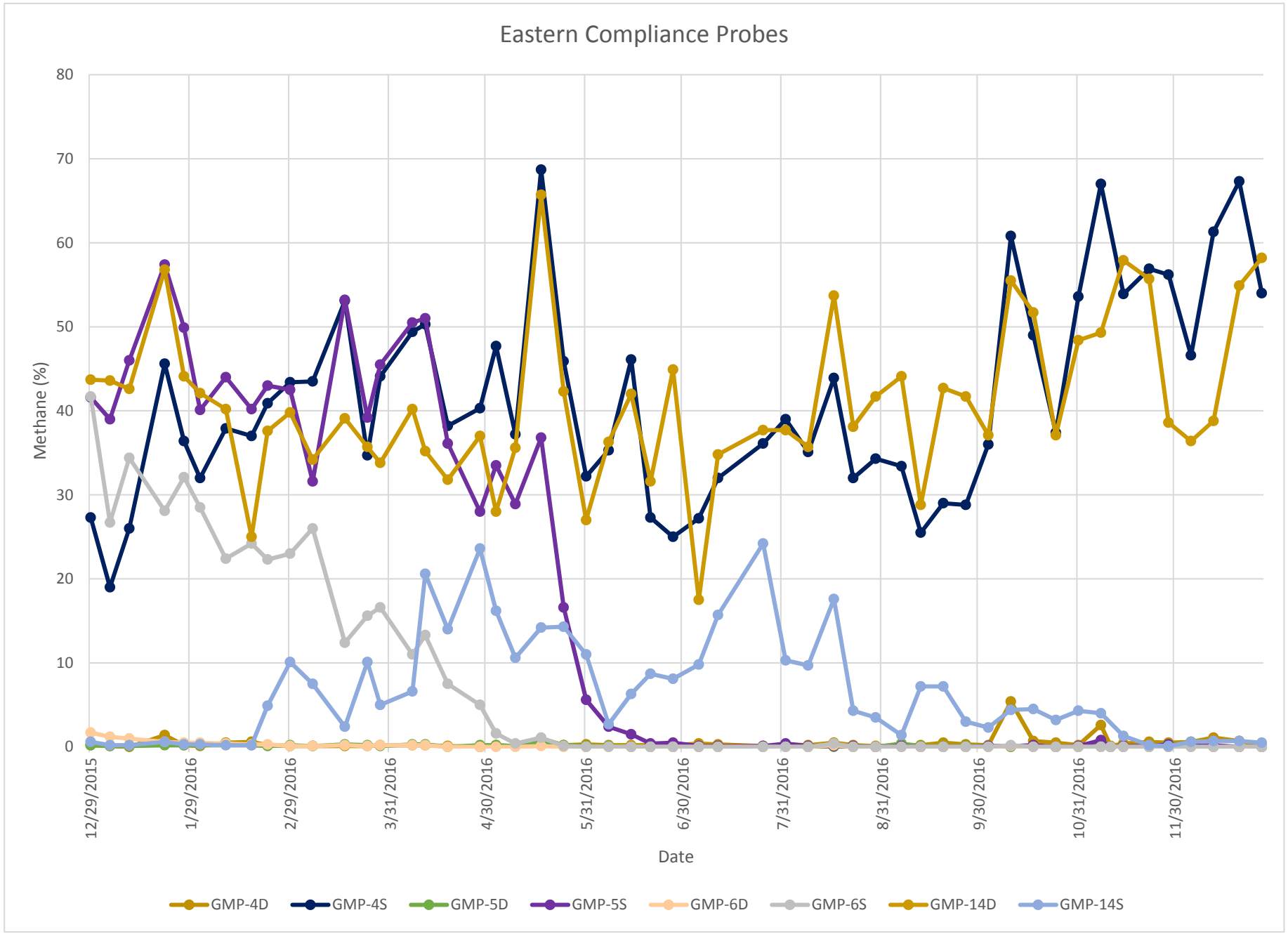
GMP-02
GMP-03
GMP-13D
GMP-13S


Eastern Compliance Probes
Methane (%)
80
70
60
50
40
30
20
10
0
12/29/2015
1/29/2016
2/29/2016
3/31/2016
4/30/2016
5/31/2016
6/30/2016
7/31/2016
8/31/2016
9/30/2016
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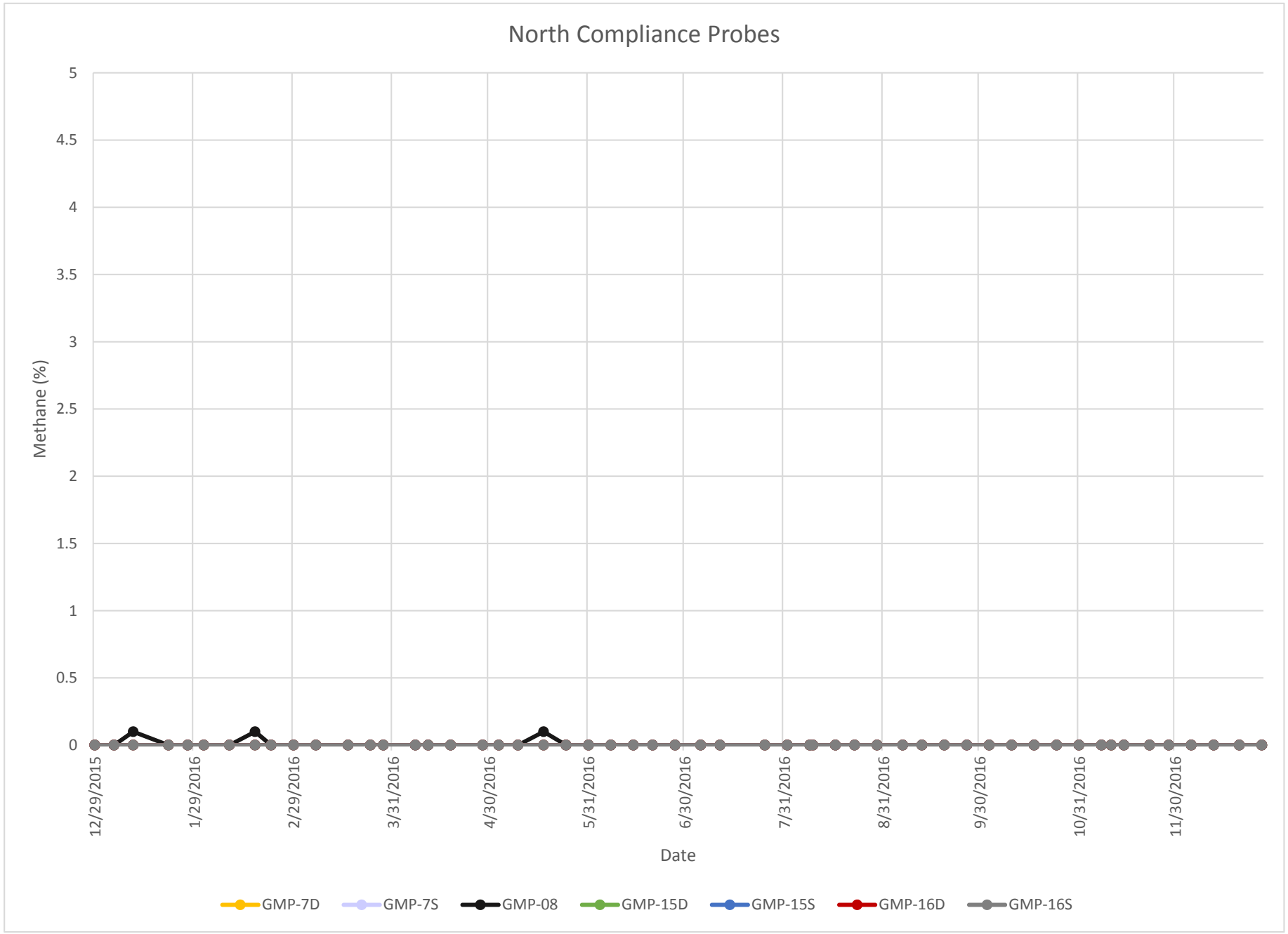
North Compliance Probes
Methane (%)
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
12/29/2015
1/29/2016
2/29/2016
3/31/2016
4/30/2016
5/31/2016
6/30/2016
7/31/2016
8/31/2016
9/30/2016
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GMP-15S
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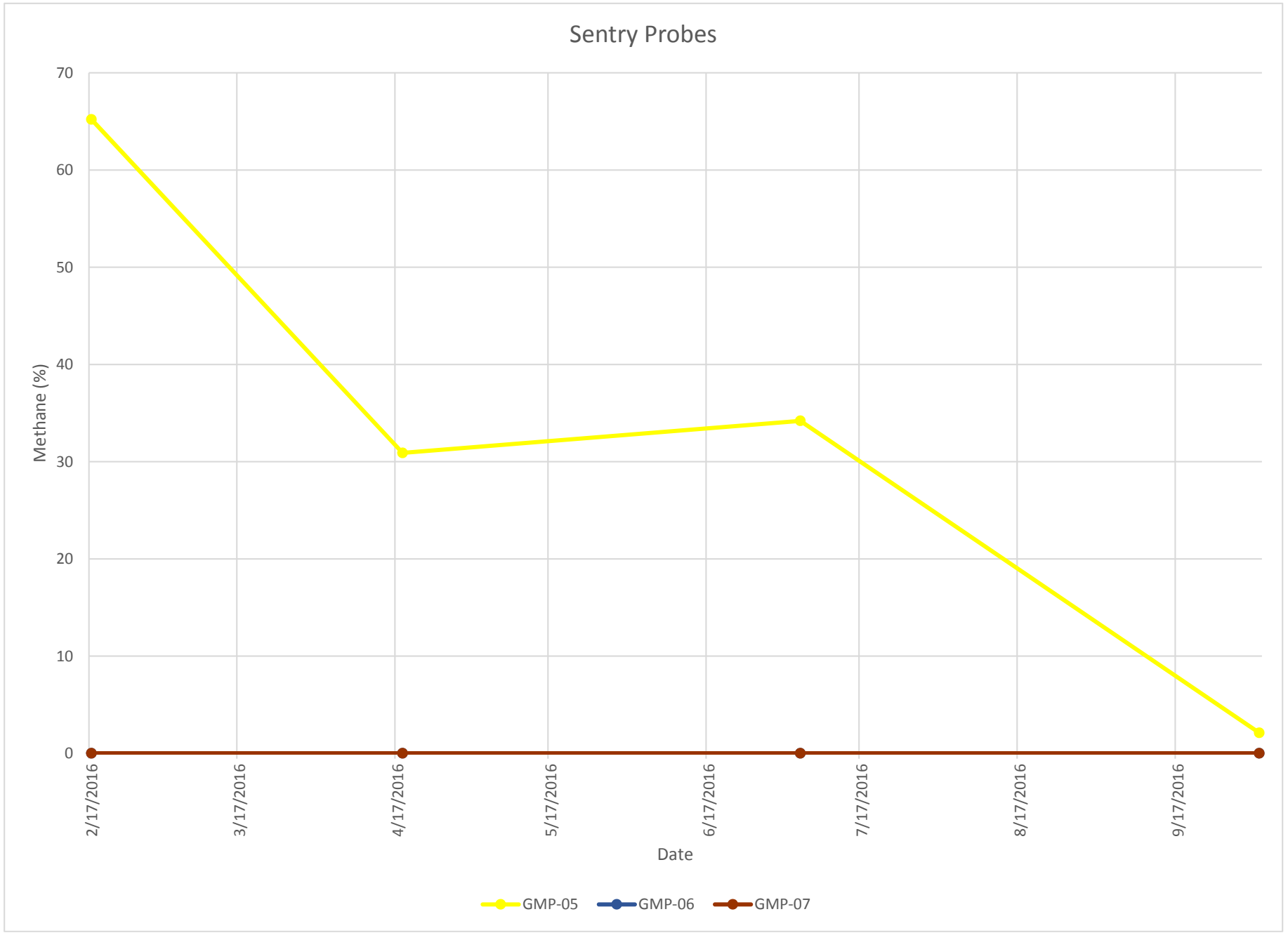
GMP-16S


Sentry Probes
70
60
50
40
30
20
10
0
Methane (%)
2/17/2016
3/17/2016
4/17/2016
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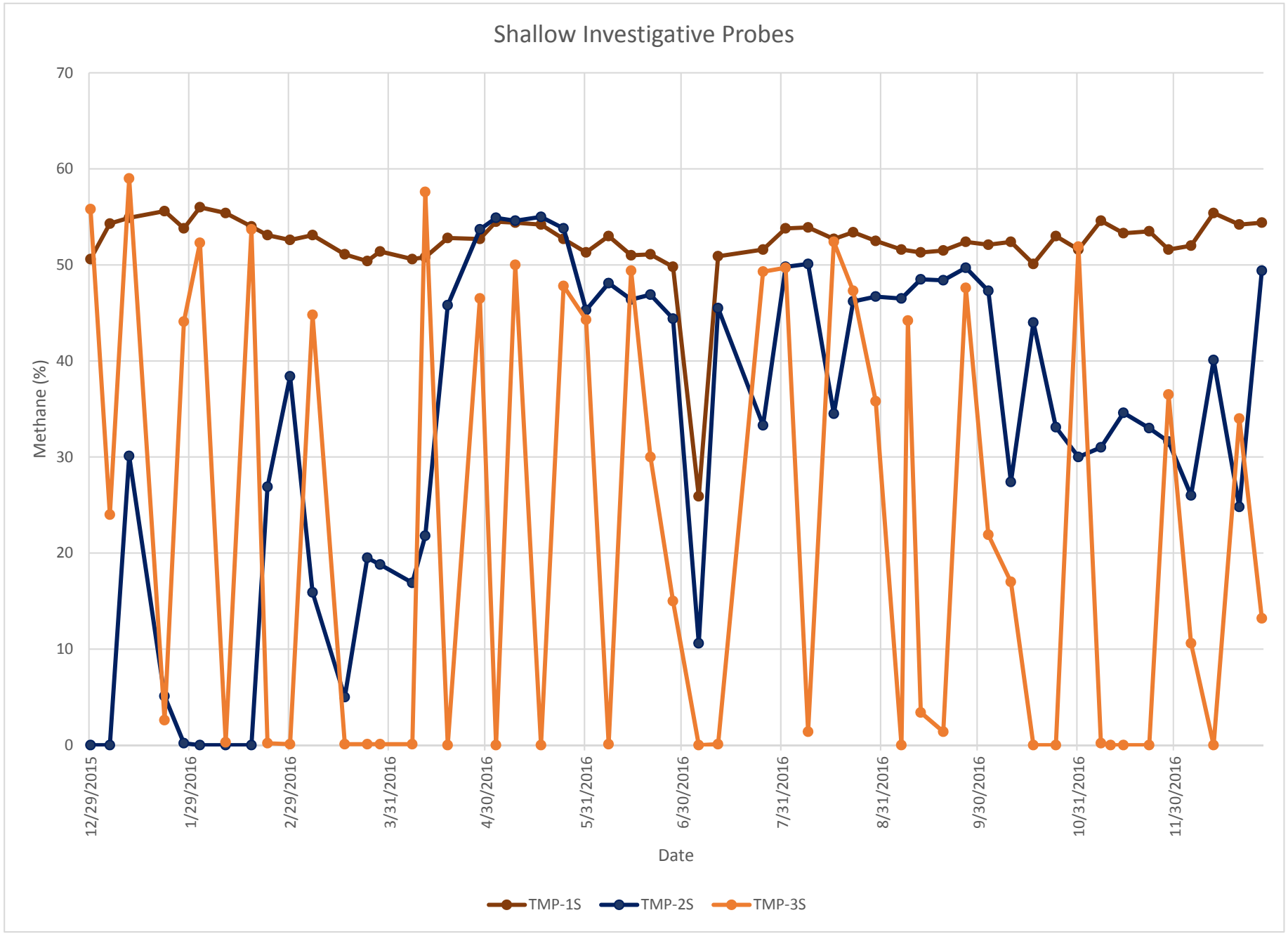
6/17/2016
7/17/2016
8/17/2016
9/17/2016
Date
GMP-05
GMP-06
GMP-07


Shallow Investigative Probes
Methane (%)
70
60
50
40
30
20
10
0
12/29/2015
1/29/2016
2/29/2016
3/31/2016
4/30/2016
5/31/2016
6/30/2016
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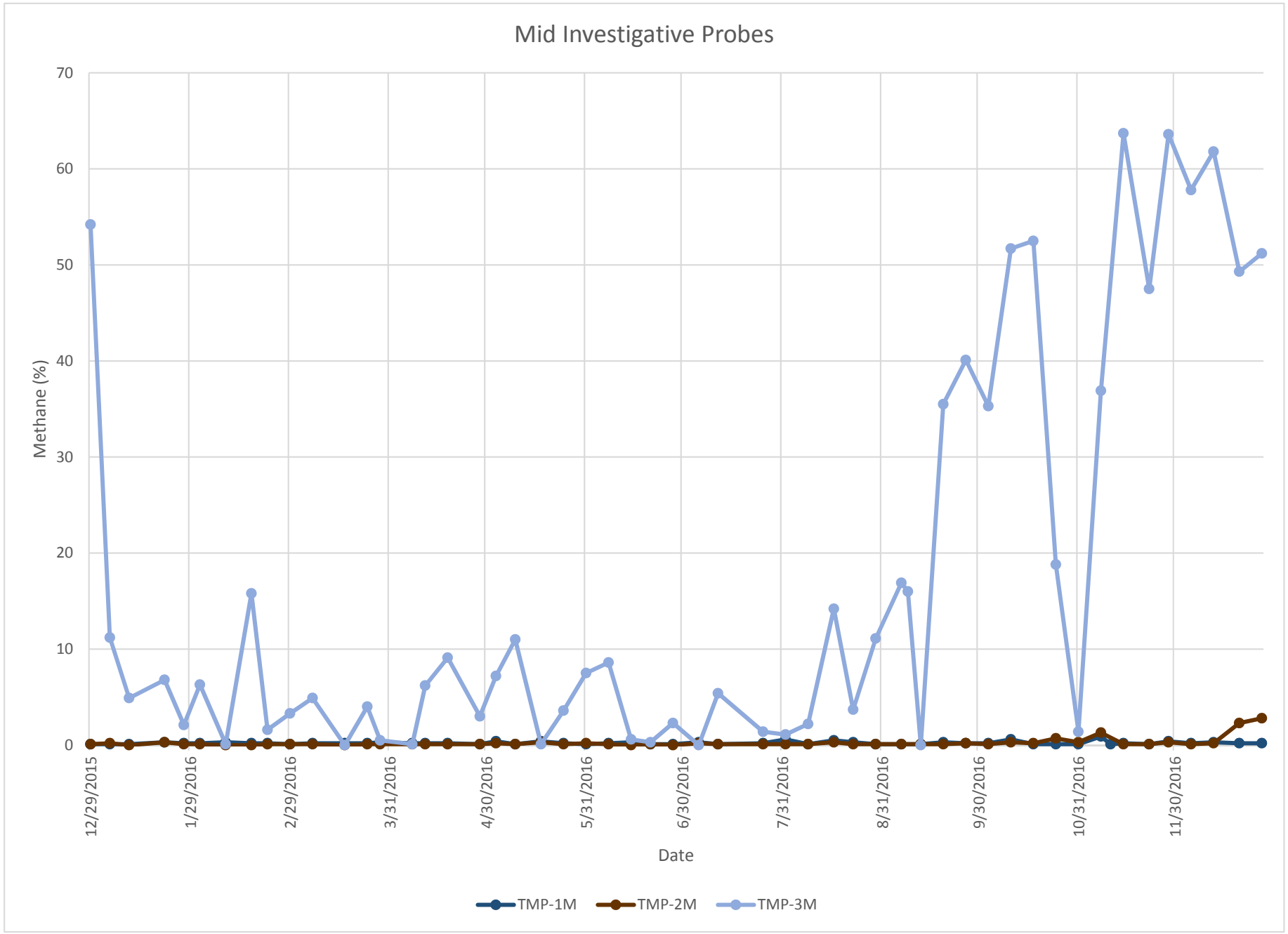
Date
TMP-1S
TMP-2S
TMP-3S


Mid Investigative Probes
Methane (%)
70
60
50
40
30
20
10
0
12/29/2015
1/29/2016
2/29/2016
3/31/2016
4/30/2016
5/31/2016
6/30/2016
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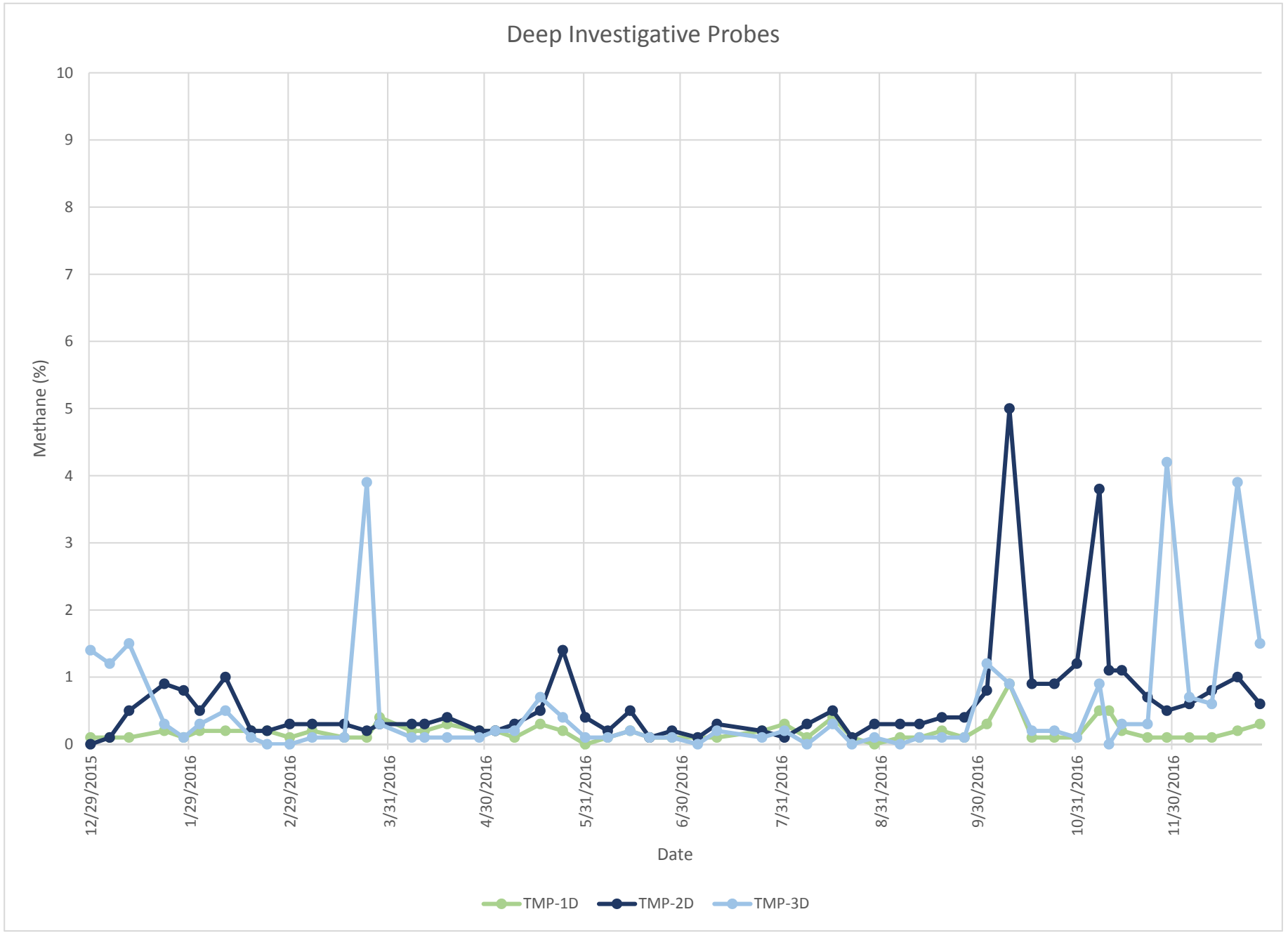
11/30/2016
Date
TMP-1M
TMP-2M
TMP-3M


Deep Investigative Probes
Methane (%)
10
9
8
7
6
5
4
3
2
1
0
12/29/2015
1/29/2016
2/29/2016
3/31/2016
4/30/2016
5/31/2016
6/30/2016
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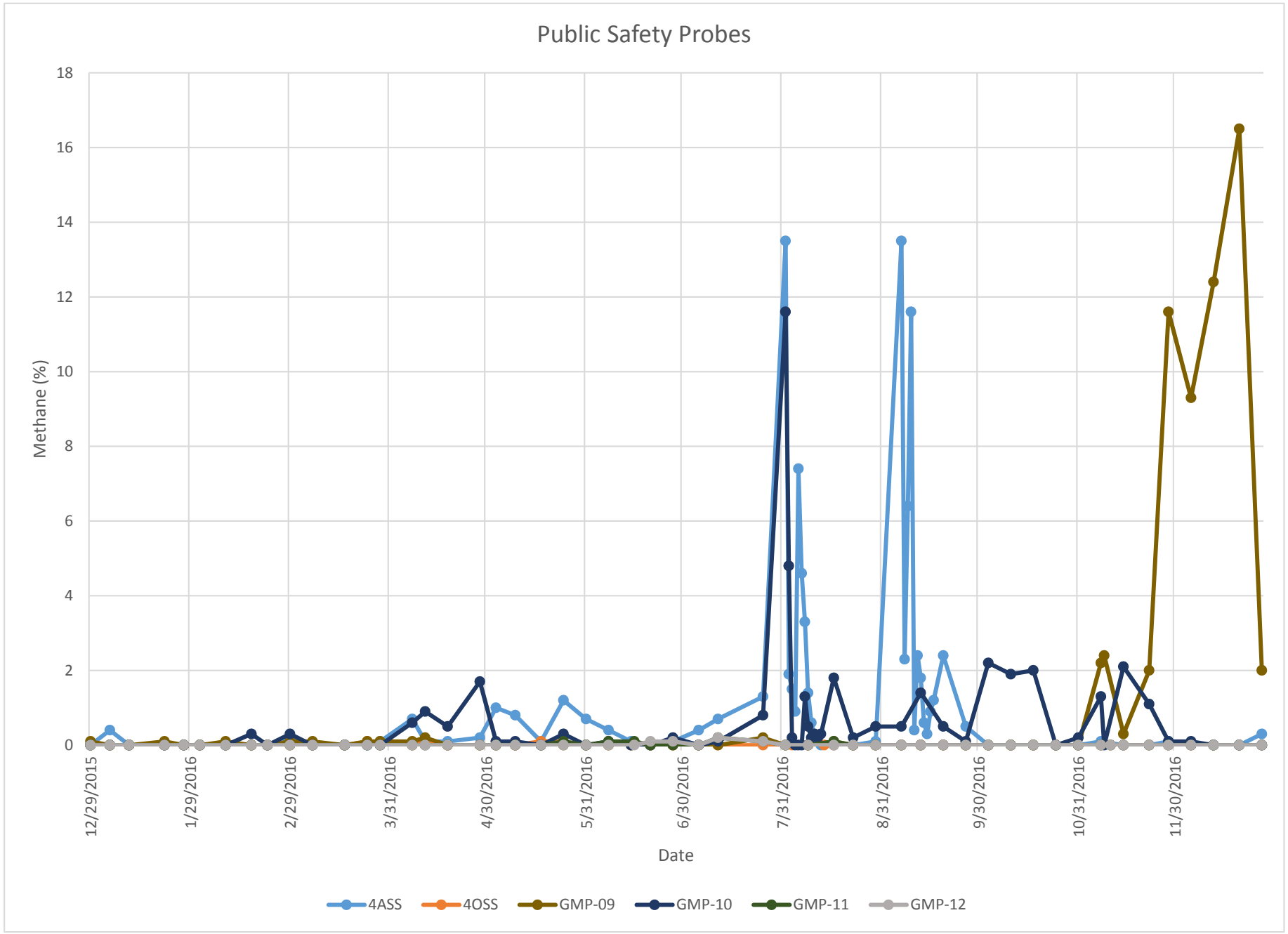
Date
TMP-1D
TMP-2D
TMP-3D


Public Safety Probes
Methane (%)
18
16
14
12
10
8
6
4
2
0
12/29/2015
1/29/2016
2/29/2016
3/31/2016
4/30/2016
5/31/2016
6/30/2016
7/31/2016
8/31/2016
9/30/2016
10/31/2016
11/30/2016
Date
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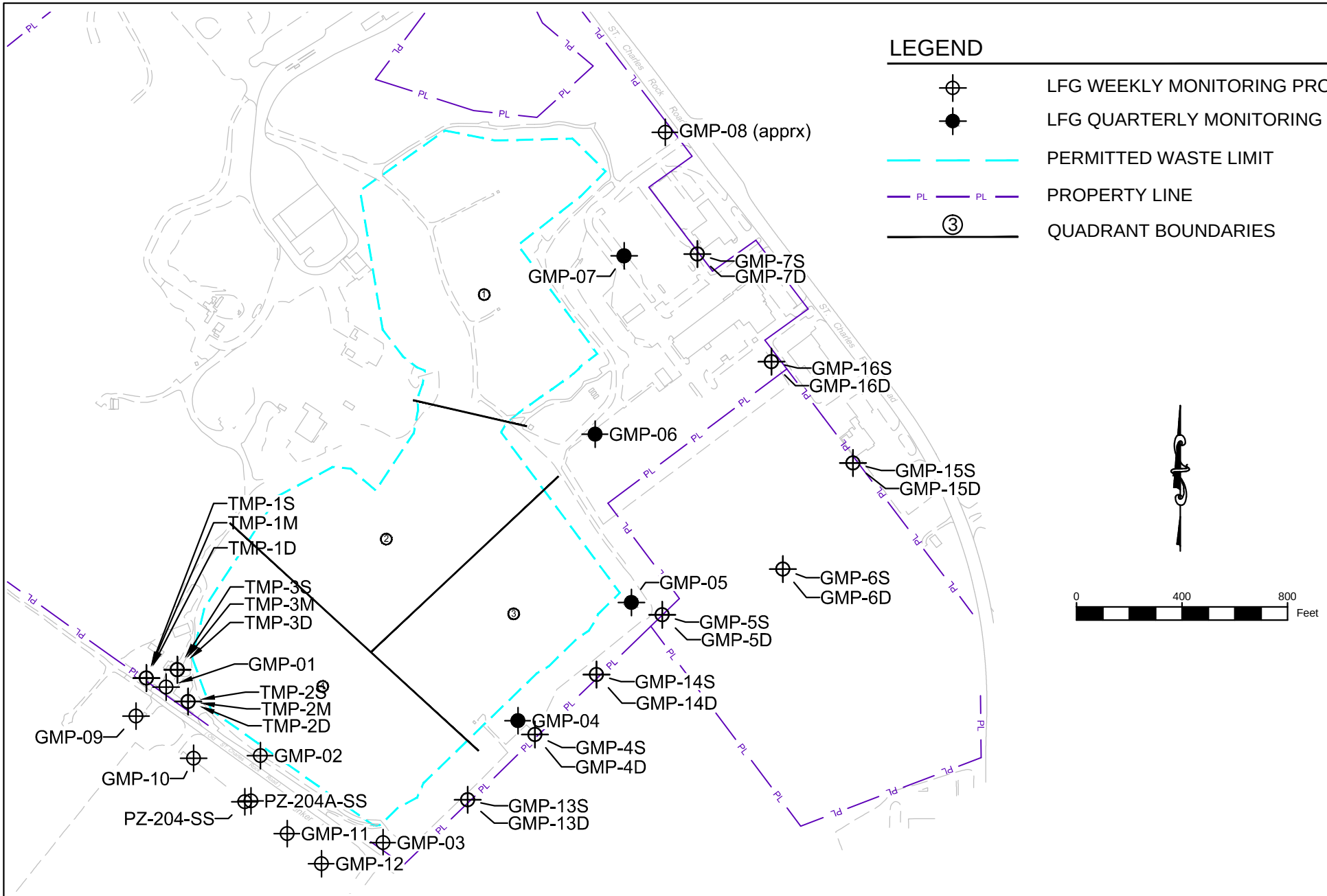
GMP-09
GMP-10
GMP-11
GMP-12

APPENDIX C

INFRASTRUCTURE SITE PLAN, GAS MONITORING PROBE LOCATIONS



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BRIDGETON, MISSOURI 63044

BRIDGETON LANDFILL
SITE INFRASTRUCTURE

GAS MONITORING PROBES

PROJECT NUMBER: BT-024

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

Engineering for a Better World
FEEZOR ENGINEERING, INC.

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

REVISION	DATE

DRAWING NO.:
001

APPENDIX D

LANDFILL GAS COLLECTION ENHANCEMENTS

BRIDGETON LANDFILL 2016
Q2 LFG CORRECTIVE ACTION PLAN

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

INDEX OF DRAWINGS	
	TITLE PAGE
001	ITS AND GEW - SITE VIEW
002	ITS AND GEW - PLAN VIEW

Engineering for a Better World
FEEZOR ENGINEERING, INC.

3405 HOLLENBERG DRIVE
BRIDGETON, MO 63044
TEL. (217) 483-3118
FAX. (217) 483-2356

LEGEND

SOLID WASTE BOUNDARY

WORK AREA

0 200 400 Feet

NOTE: SEVERAL SIGNIFICANT PROJECTS ARE CURRENTLY UNDER CONSTRUCTION AT SITE.

AS-BUILTS TO BE SUBMITTED UPON COMPLETION AND CERTIFICATION.

BRIDGETON LANDFILL, LLC 13570 ST. CHARLES ROCK ROAD BRIDGETON, MISSOURI 63044	BRIDGETON LANDFILL 2016 Q2 LFG CORRECTIVE ACTION PLAN	Engineering for a Better World FEEZOR ENGINEERING, INC.	JULY 2016 DESIGNED BY: AMR APPROVED BY: DRF
ITS AND GEW - SITE VIEW			DRAWING NO.: 001
PROJECT NO: BT-024	FILE PATH: D:\Andrew-FEI\Desktop\Appendix D\BT-024 - 2016 Q2 LFG CAP.dwg		REVISION / DATE

LEGEND

2X4L	2x4" DUAL CONTAINED FORCEMAIN
2A	2" AIRLINE
6G	6" LFG LATERALS
4G	4" LFG LATERALS
3G	3" LFG LATERALS
2G	2" LFG LATERALS
ITS7	ITS 18" SUMPS
GEW-167	GEW 18" LFG WELLS
GEW-177	PROPOSED GEW 18" LFG WELLS

0 60 120 Feet

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

BRIDGETON LANDFILL
2016 Q2 LFG CORRECTIVE ACTION PLAN

Engineering for a Better World
FEEZOR ENGINEERING, INC.

ITS AND GEW - PLAN VIEW

PROJECT NO: BT-024
FILE PATH: D:\Andrew-PC\Desktop\Appendix D\BT-024 - 2016 Q2 LFG CAP.dwg

JULY 2016
DESIGNED BY: AMR
APPROVED BY: DRF
REVISION
DATE

DRAWING NO.:
002

Gas Well ID: GEW-177

Project: Gas Well Installation CQA

Site Location: Bridgeton, MO

Client: Bridgeton Landfill LLC

Project No.: BT-117

Ground Elevation: 495.6' MSL

Northing: 1,066,520.1

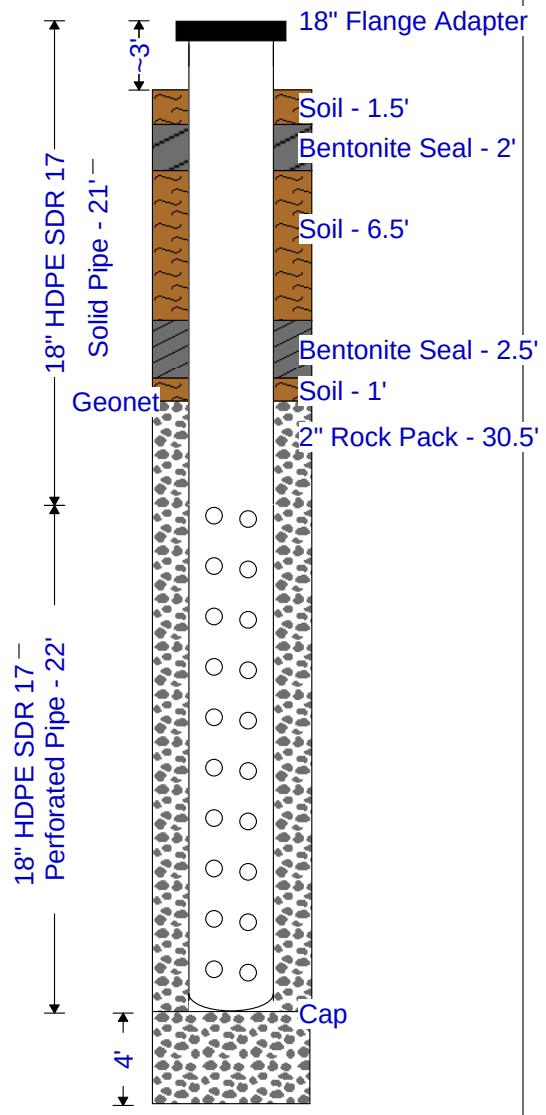
Easting: 516,083.4

Engineering for a Better World
FEEZOR ENGINEERING, INC.

SUBSURFACE PROFILE

Depth	Graphic Log	Description	Notes
-5			
0		Ground Surface	Ground *EL. 495.6'*
		0-6 Soil	Top of Bentonite *EL. 494.1'*
5			Top of Soil *EL. 492.1'*
			Temperature 126.8º F
		6-21 Household, C&D, Carpet, Wood, Metal; DRY	Temperature 148.7º F
10			Top of Bentonite *EL. 485.6'*
			Top of Soil *EL. 483.1'*
			Top of Gravel *EL. 482.1'*
15			Temperature 188.5º F
			Temperature 191.6 F
20		**21-22** Soil	
		22-26 Household, Metal, C&D, Wood, Wire; SLIGHT	Temperature 201.6º F
25			
			Temperature 193.5º F
30		**26-27** Soil	
		27-44 Household, Wood, Cloth, C&D, Wire; SATURATED	Temperature 193.8º F
35			
			Temperature 202.3º F
40			
			EL. 451.6'
45			

Well Completion Details



Drilled By: Recovery Drilling Services

Drill Method: Core Barrel Bucket

Drill Date: 7/19/2016

Boring Size: 36" OD

406 E. Walnut Street, Chatham, IL 62629