Bridgeton Landfill, LLC

Monthly Data Submittals

June 2018

Required by Section 52.E of Agreed Order, Case No. 13SL-CC01088
Effective May 13, 2013

Contents:

Provided Separately:

– Flare Raw Data Excel Spreadsheet
– Gas Wellfield Raw Data Excel Spreadsheet

July 20, 2018

Commentary on Data

July 20, 2018

The following observations and comments are offered during this time period:

Gas Volume

- As seen in Attachment B-1, the gas collection volumetric rate in for this month averaged 286 SCFM from the North Quarry and 1,019 SCFM from the South Quarry, for a total site flow of 1,306 SCFM, as normalized per the MDNR weekly flow and TRS sampling results.

Gas Quality

- Attachments D and E contain the monthly data related to gas quality as measured at the respective wellheads.

- Attachment E-1 contains vertical wells which had oxygen levels over 5% at one (1) or more weekly monitoring events during this reporting period. These consisted of 24 GEW wells that are experiencing low or restricted flows, one (1) leachate collection sumps (LCS), and four (4) GIW wells that have low gas flow due to the cooling loops that are installed within these wells. By the end of the month, 14 of the GEW wells, 1 of the LCS, and 1 of the GIW wells still exhibited oxygen at the wellhead at or greater than 5%. All of these wells are low-flow/vacuum sensitive wells with valves only slightly open. On-going tuning, maintenance, and pump operation are being performed to manage the oxygen content. With the exception of GEW-1A, all of these wells are in the South Quarry area where the flexible membrane liner cap is in place to prevent atmospheric intrusion into the waste mass.

- Attachment E-2 contains gas temperatures as measured at the wellheads. Three (3) vertical wells (excluding GIW wells) increased by 30°F during this reporting period. Additionally, two (2) vertical wells (excluding GIW wells) decreased by 30°F or more. All wells that exhibited changes greater than 30°F are within the historical gas temperature norms for these wells or within the range of temperatures of nearby vertical wells.

- All gas wells in the North Quarry during this reporting period exhibited a maximum wellhead temperature under 145°F. Carbon monoxide (CO) results were non-detect (ND) for North Quarry wells, with the exception of GEW-053 (67 ppm), consistent with past events.

- Site personnel have been performing a comprehensive wellfield investigation to optimize landfill gas collection and control (GCCS). Wells that have been previously decommissioned due to excessive moisture and/or dangerous conditions have been reviewed and monitored to determine if the wells have obstructions that would prohibit pump installation and would therefore preclude leachate and landfill gas collection. Wells that have been identified to have downhole integrity issues will be scheduled for abandonment during the upcoming GCCS system expansion event. Wells

that have been identified not to have downhole integrity issues and are no longer presenting with excessive moisture and/or dangerous conditions have been brought back online. Wells that have been identified not to have downhole integrity issues but still present with excessive moisture and/or dangerous conditions will remain decommissioned until conditions at the location improve. Additional summa samples were collected and results analyzed to optimize the GCCS during the upcoming drilling event. This investigation will continue through Third Quarter 2018, and wellfield expansion and abandonment activities will be reported in the quarterly Landfill Gas Corrective Action Update.

Settlement

- The South Quarry exhibited monthly maximum settlement up to 0.51 feet over 30 days for this reporting period (see Attachment F).

Bird Monitoring and Mitigation

- Bridgeton Landfill conducted bird monitoring during this reporting period in accordance with the Approved Bird Hazard Monitoring and Mitigation Plan, last updated in December 2016. Birds noted on-site are dispersed using pyrotechnics, a cap gun, vehicles, or on foot. Logs of bird population observations are provided to the Airport and the USDA APHIS Wildlife Services on a weekly basis.

Low Fill Project Area

- Enclosed is the requested clean fill placement figure in accordance with the June 19, 2015 letter from the Missouri Department of Natural Resources (MDNR) granting modification approval to Permit number 0118912. This modification allows for the acceptance of clean fill and use thereof as a method of re-establishing positive surface drainage and maintaining structural stability of landfill infrastructure. Condition 4 of this approval is satisfied via the text below and the accompanying figure in Attachment I-1.

- Clean fill activities commenced on June 28th 2017 and continued until January 15th 2018.

ATTACHMENT A

WORK COMPLETED AND PLANNED

Bridgeton Landfill, LLC
Monthly Summary of Work Completed and Planned

Work Completed in June 2018

Gas Collection and Control System (GCCS)

- Continued operation and maintenance of GCCS system.
- Continued upgrades to GCCS system as necessary.
- Began preparatory work for the GCCS expansion

Heat Extraction System (HES)

- Continued operation and maintenance of the HES (pilot and barrier wells).
- Continued installation of HES redundancies.

Leachate Management System

- Continued routine operation of previously installed and upgraded features.
- Initiated pump trial on LCS-1D.

Pre-Treatment Facility

- Continued ongoing operation of facility.
- Continued to optimize operation efficiency of pre-treatment facility.
- Permeate continued to be discharged directly to St. Louis Metropolitan Sewer District (MSD) – Bissell Point Facility or other approved disposal facilities as determined by MSD.

Work Planned for July 2018

Gas Collection and Control System (GCCS)

- Continue operation and maintenance of GCCS system.
- Continue upgrades to GCCS system as necessary.
- Begin the GCCS expansion project.

Heat Extraction System (HES)

- Continue operation and maintenance of the HES.
- Continue upgrades to the HES as necessary.
- Continue installation of HES redundancies.

Leachate Management System

- Continue routine operation of previously installed and upgraded features.
- Continue pump trial on LCS-1D.

Pre-Treatment Facility

- Ongoing operation of facility.
- Continue to optimize operation efficiency of pre-treatment facility.
- Permeate will continue to be discharged directly to MSD – Bissell Point Facility or other approved disposal facilities as determined by MSD.

Other Projects:

- Continue construction of alternative first responder entrance, pending suitable weather conditions and contractor availability.
- Continue abandonment of Perimeter Extraction Wells (PEWs).
- Begin the GEW-1A EVOH cap installation project.

ATTACHMENT B

DAILY FLARE MONITORING DATA

ATTACHMENT B-1

FLOW DATA TABLE

Daily Flare Monitoring Data - Bridgeton Landfill
June 2018

Date	Average Device Flow* (scfm)				Total Avg. Flow** (scfm)
	Utility Flare (FL-100)	Utility Flare (FL-120)	Utility Flare (FL-140)	EP14 NQ Utility Flare***	
6/1/2018	0	1,063	0	303	1,366
6/2/2018	0	1,024	0	291	1,315
6/3/2018	0	1,028	0	289	1,316
6/4/2018	0	1,035	0	290	1,326
6/5/2018	0	1,063	0	291	1,353
6/6/2018	21	875	0	373	1,269
6/7/2018	0	1,005	9	307	1,321
6/8/2018	0	1,053	0	301	1,354
6/9/2018	0	997	0	291	1,288
6/10/2018	0	1,042	0	299	1,341
6/11/2018	0	1,053	0	293	1,346
6/12/2018	0	1,037	0	284	1,321
6/13/2018	0	1,037	0	281	1,318
6/14/2018	0	1,034	0	282	1,316
6/15/2018	0	1,055	0	290	1,344
6/16/2018	0	1,057	0	293	1,349
6/17/2018	0	1,051	0	294	1,345
6/18/2018	0	1,050	0	294	1,344
6/19/2018	0	1,042	0	291	1,334
6/20/2018	0	1,009	0	284	1,293
6/21/2018	0	992	0	281	1,273
6/22/2018	0	957	0	272	1,229
6/23/2018	0	977	0	282	1,259
6/24/2018	0	990	0	285	1,275
6/25/2018	0	987	0	283	1,270
6/26/2018	0	965	0	276	1,241
6/27/2018	0	1,006	0	289	1,295
6/28/2018	0	974	0	208	1,182
6/29/2018	0	1,074	0	199	1,273
6/30/2018	0	1,036	0	297	1,333
AVERAGE	**1**	**1,019**	**0**	**286**	**1,306**

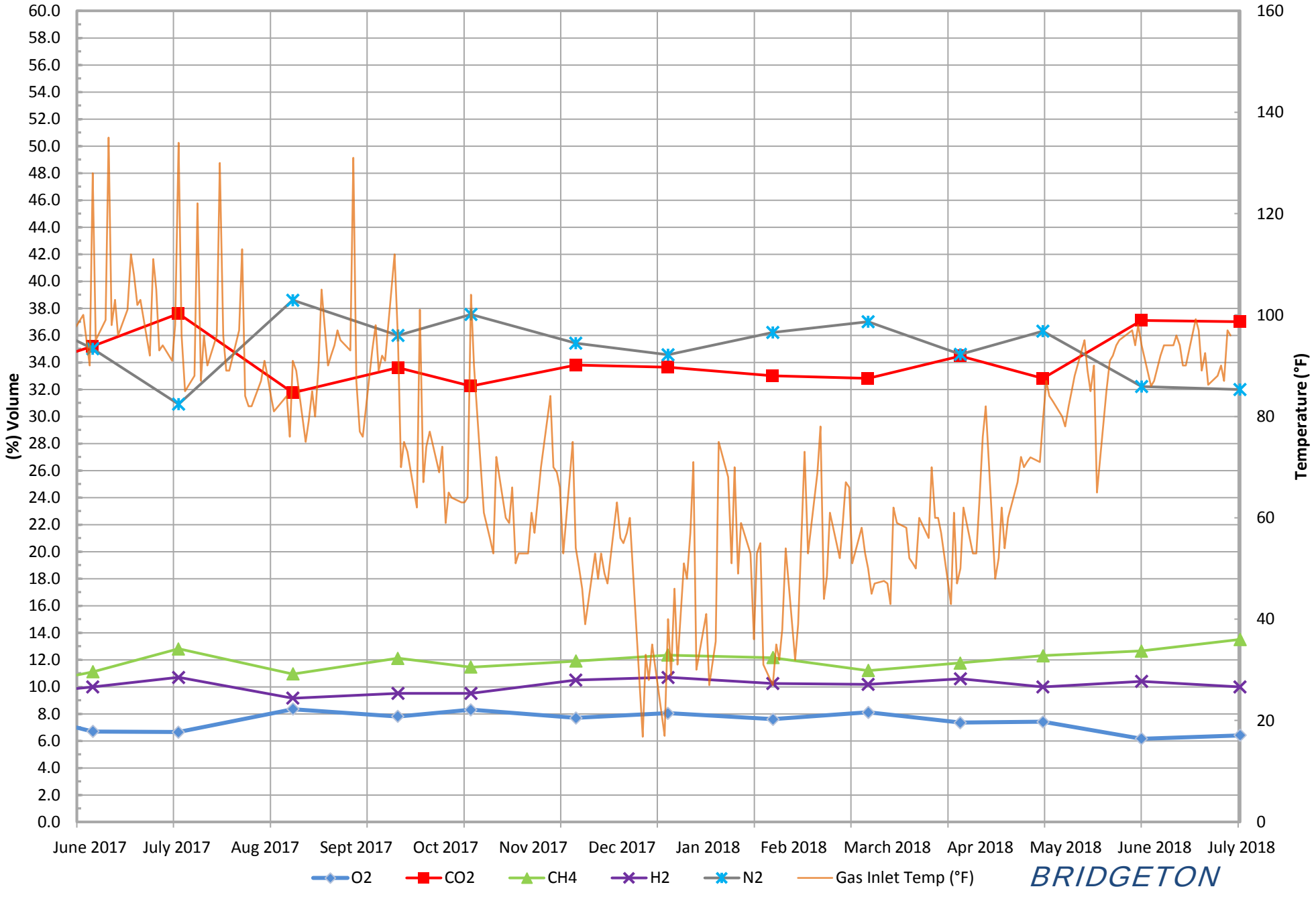
* Flows normalized to **Blower Outlet Flowmeter - EPA Method 2 measurement verified

*** On 3/18/2016, the Bridgeton Landfill began separating the North Quarry gas to the Auxiliary Flare.

ATTACHMENT B-2

FLOW DATA GRAPHS

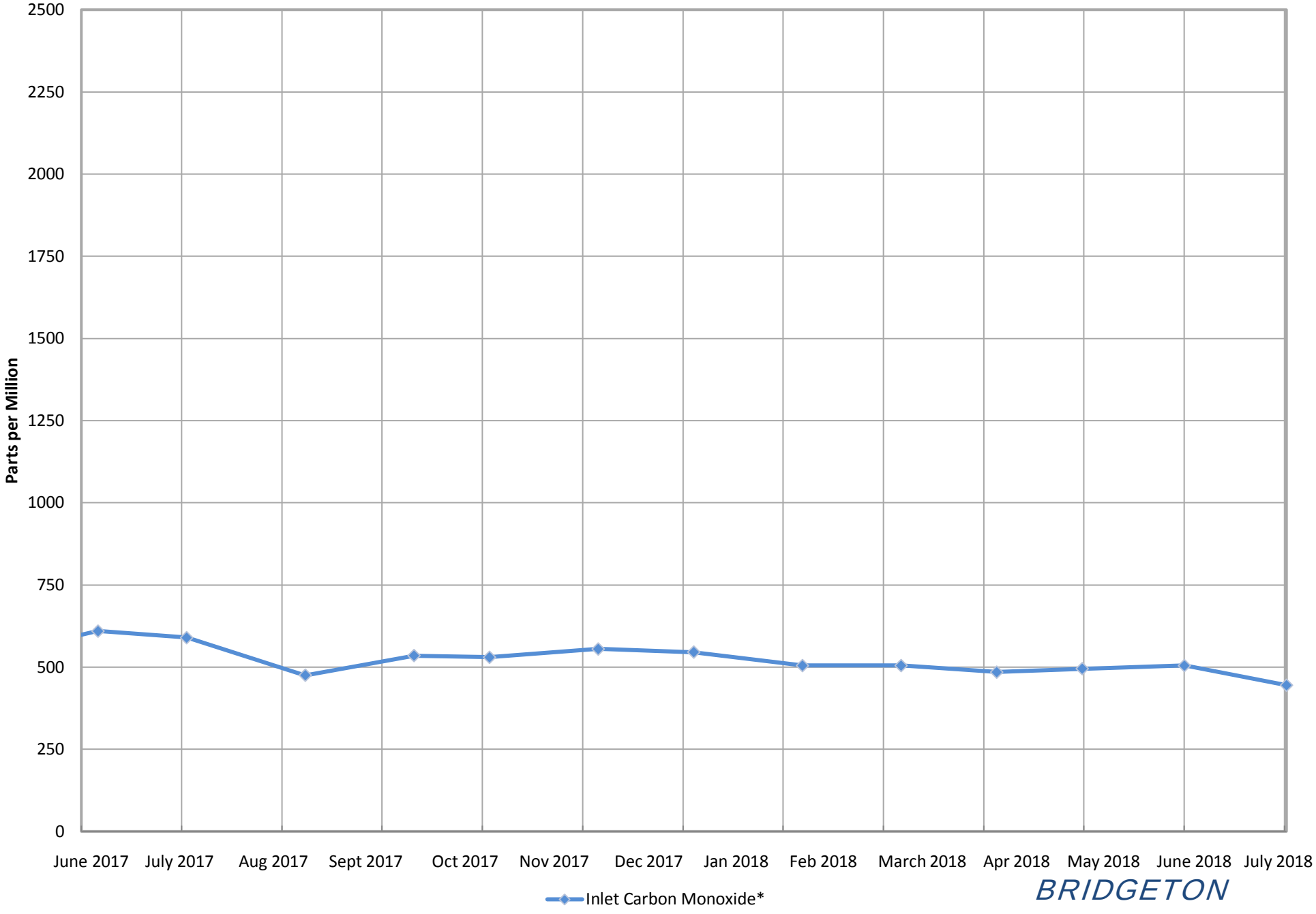
South Quarry Inlet Gas and Temperature*



BRIDGETON LANDFILL

*Gas data collected from Laboratory Reports. Temperature data collected from field readings.

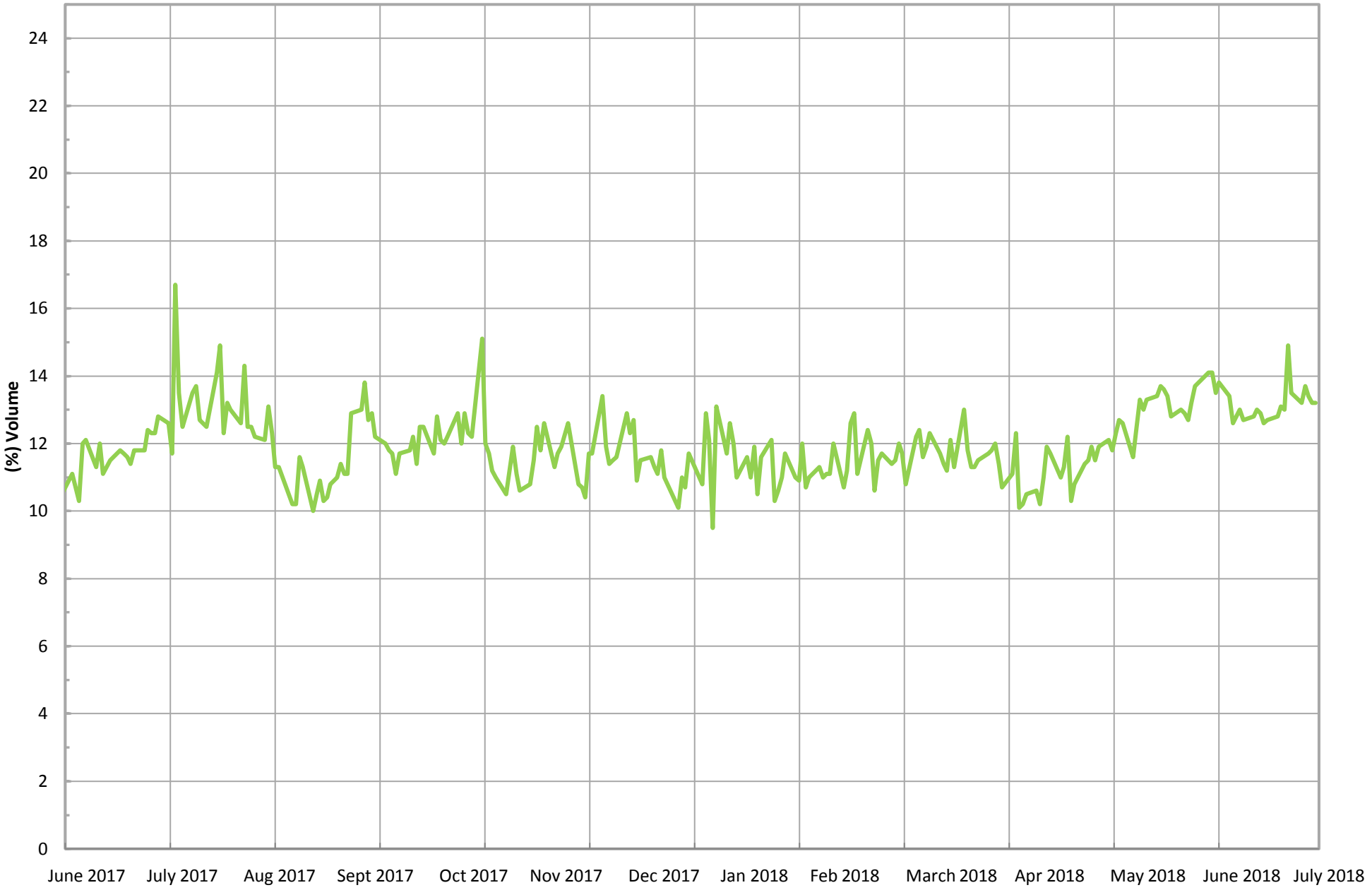
South Quarry Inlet Carbon Monoxide*



*Data collected from Laboratory Reports for the South Quarry.

BRIDGETON LANDFILL

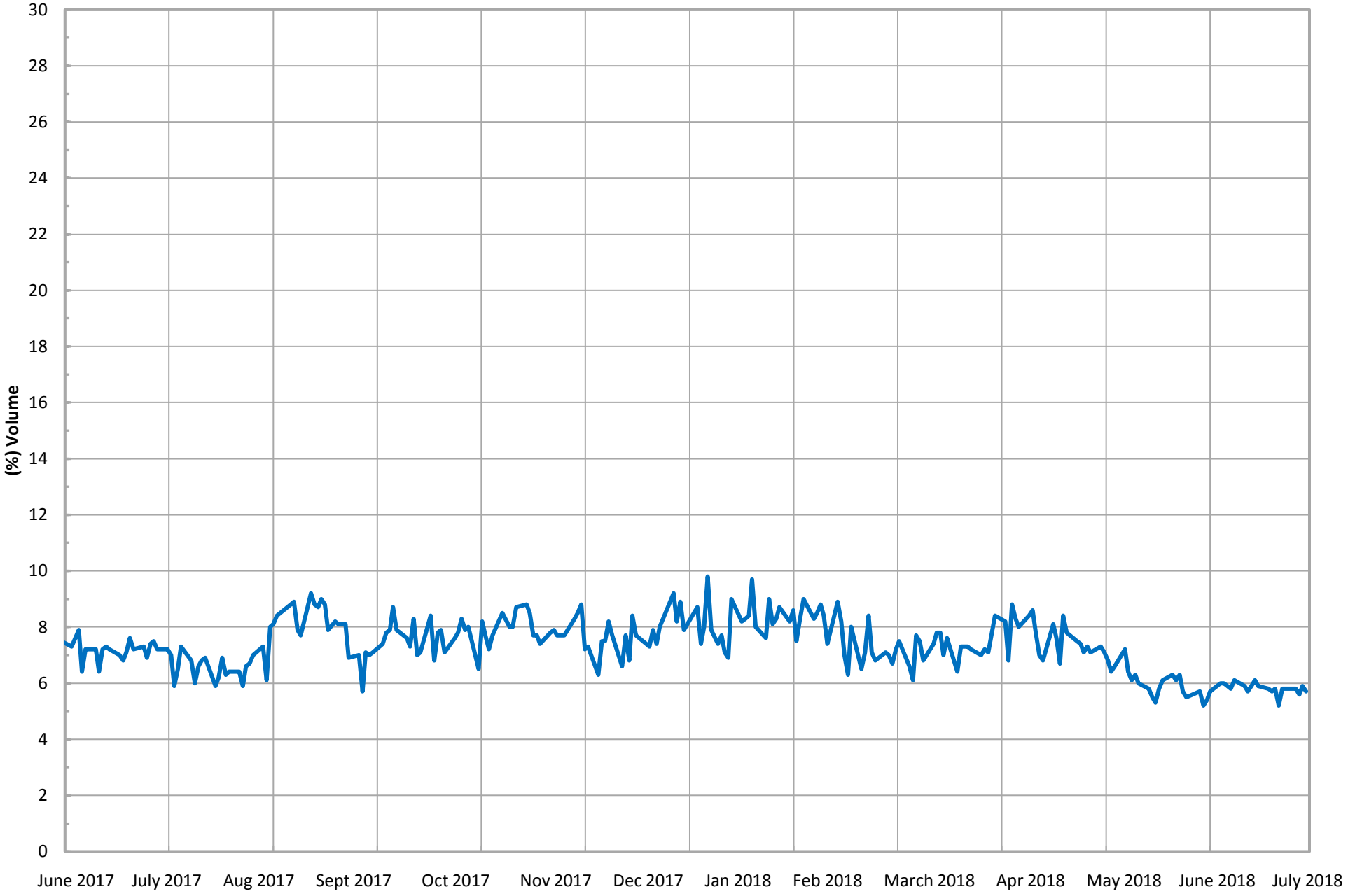
South Quarry Inlet Methane (Field Data)*



*Gas data collected from field monitoring data in the South Quarry.

BRIDGETON LANDFILL

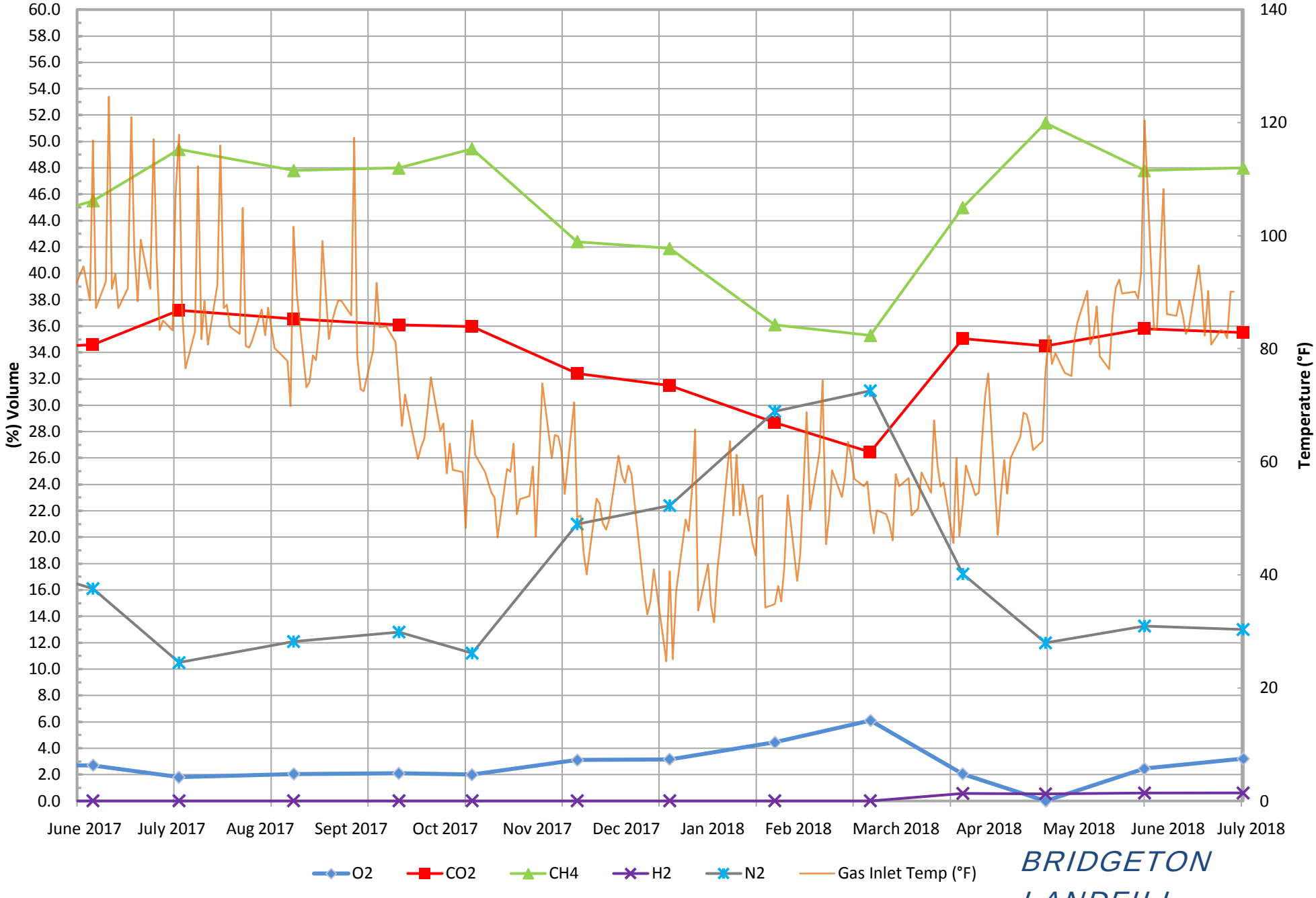
South Quarry Inlet Oxygen (Field Data)*



*Gas data collected from field monitoring data in the South Quarry.

BRIDGETON LANDFILL

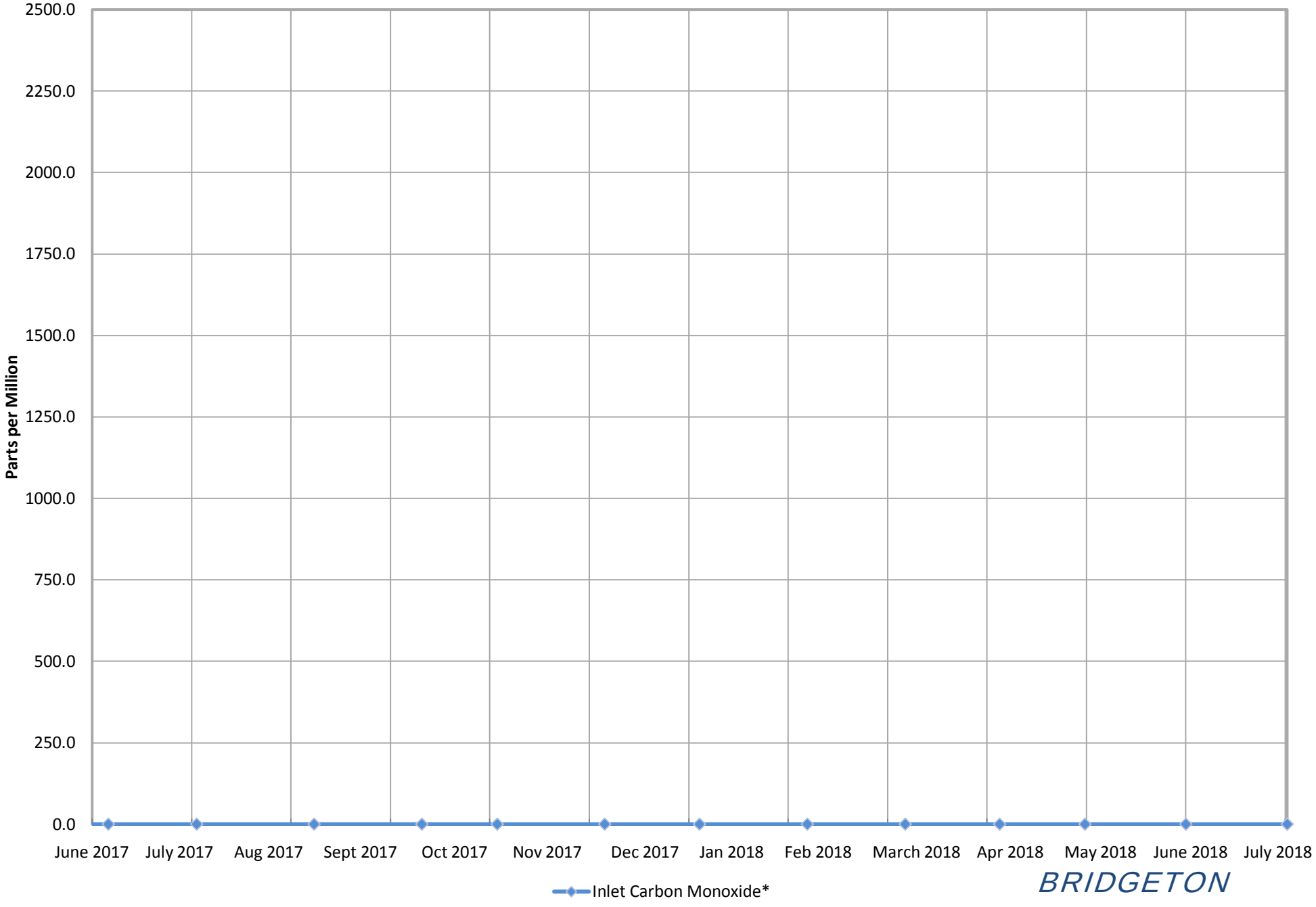
North Quarry Inlet Gas and Temperature*



BRIDGETON LANDFILL

*Gas data collected from Laboratory Reports. Temperature data collected from field readings.

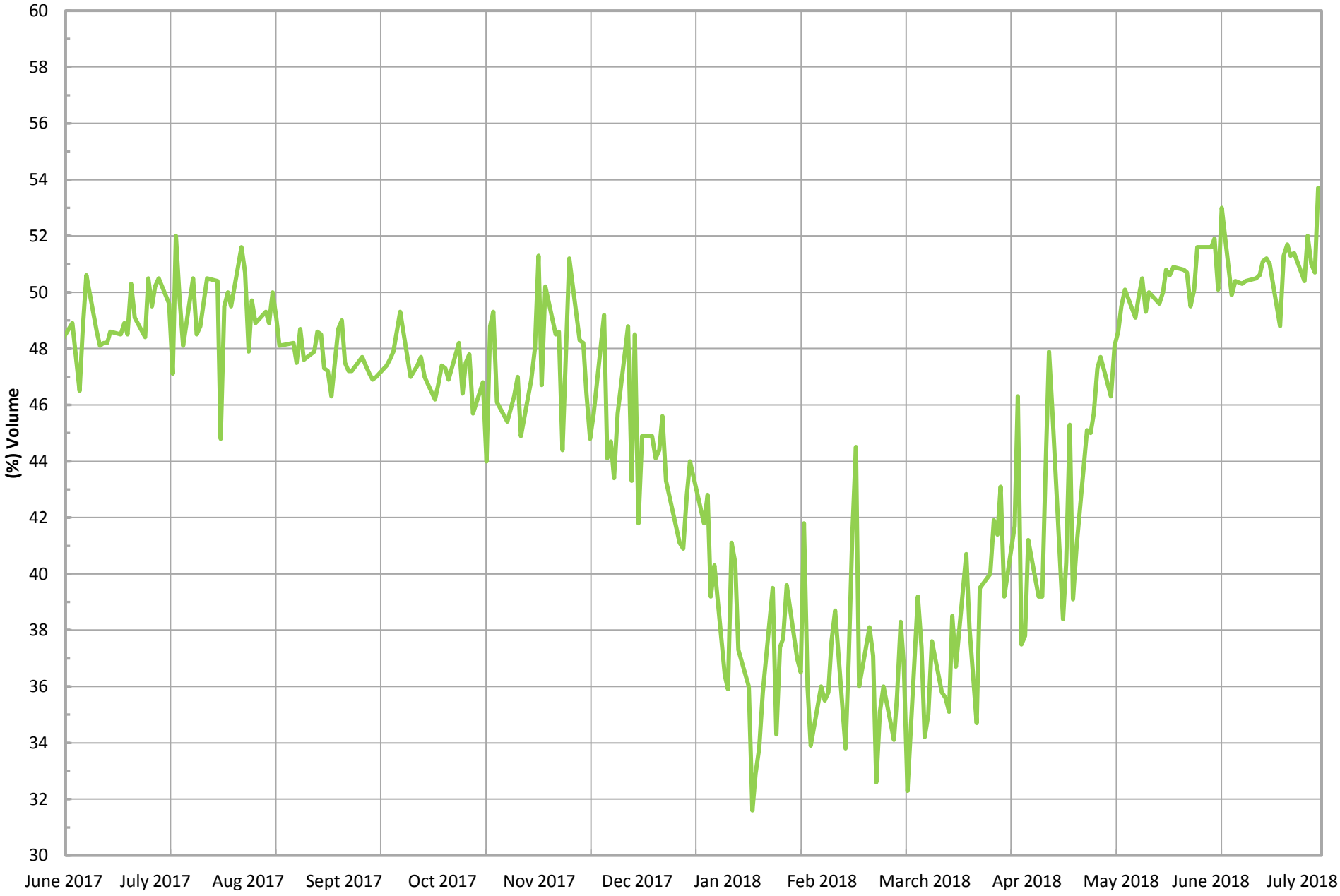
North Quarry Inlet Carbon Monoxide*



*Data collected from Laboratory Reports for the North Quarry.

BRIDGETON LANDFILL

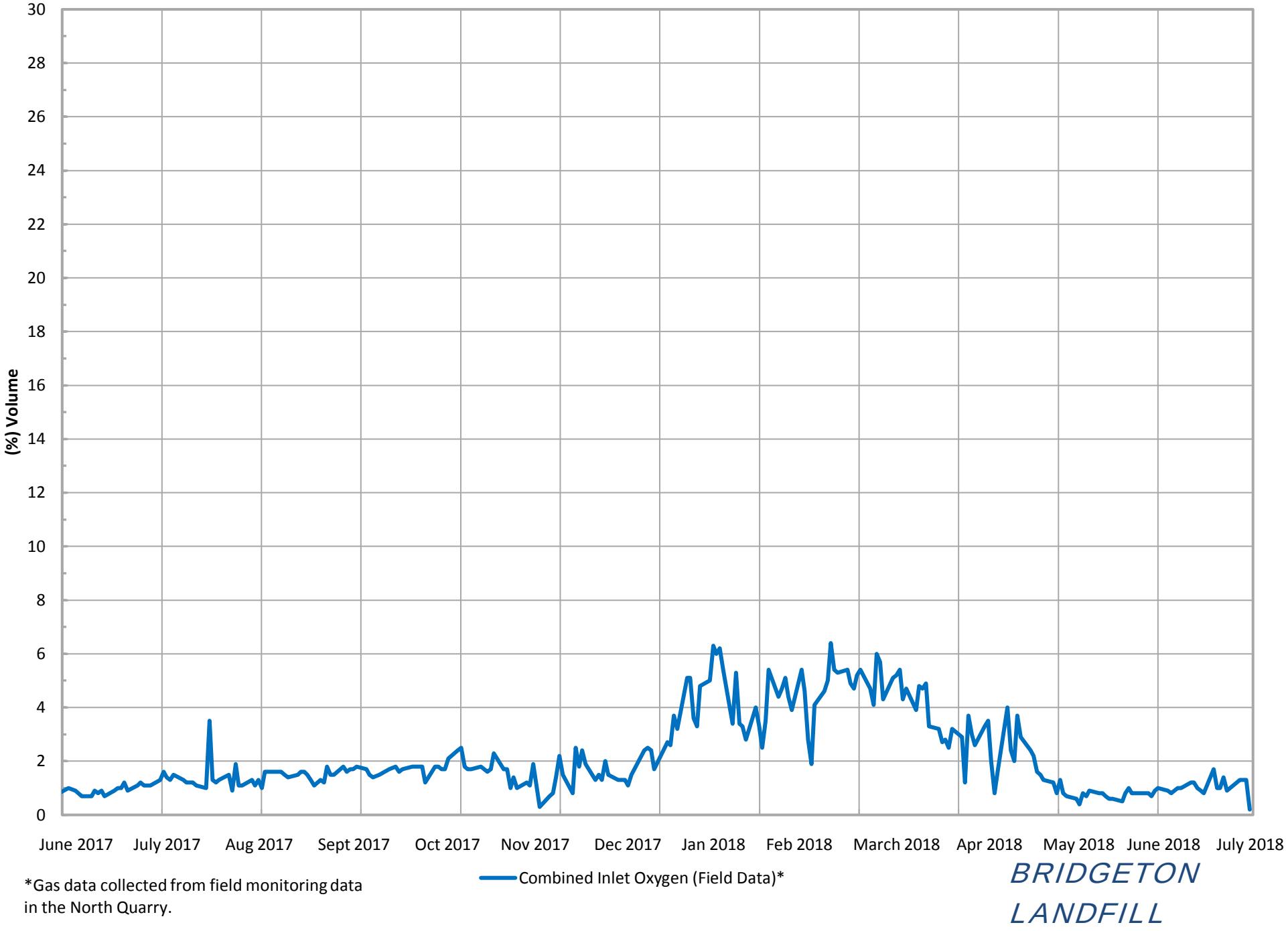
North Quarry Inlet Methane (Field Data)*



*Gas data collected from field monitoring data in the North Quarry.

BRIDGETON LANDFILL

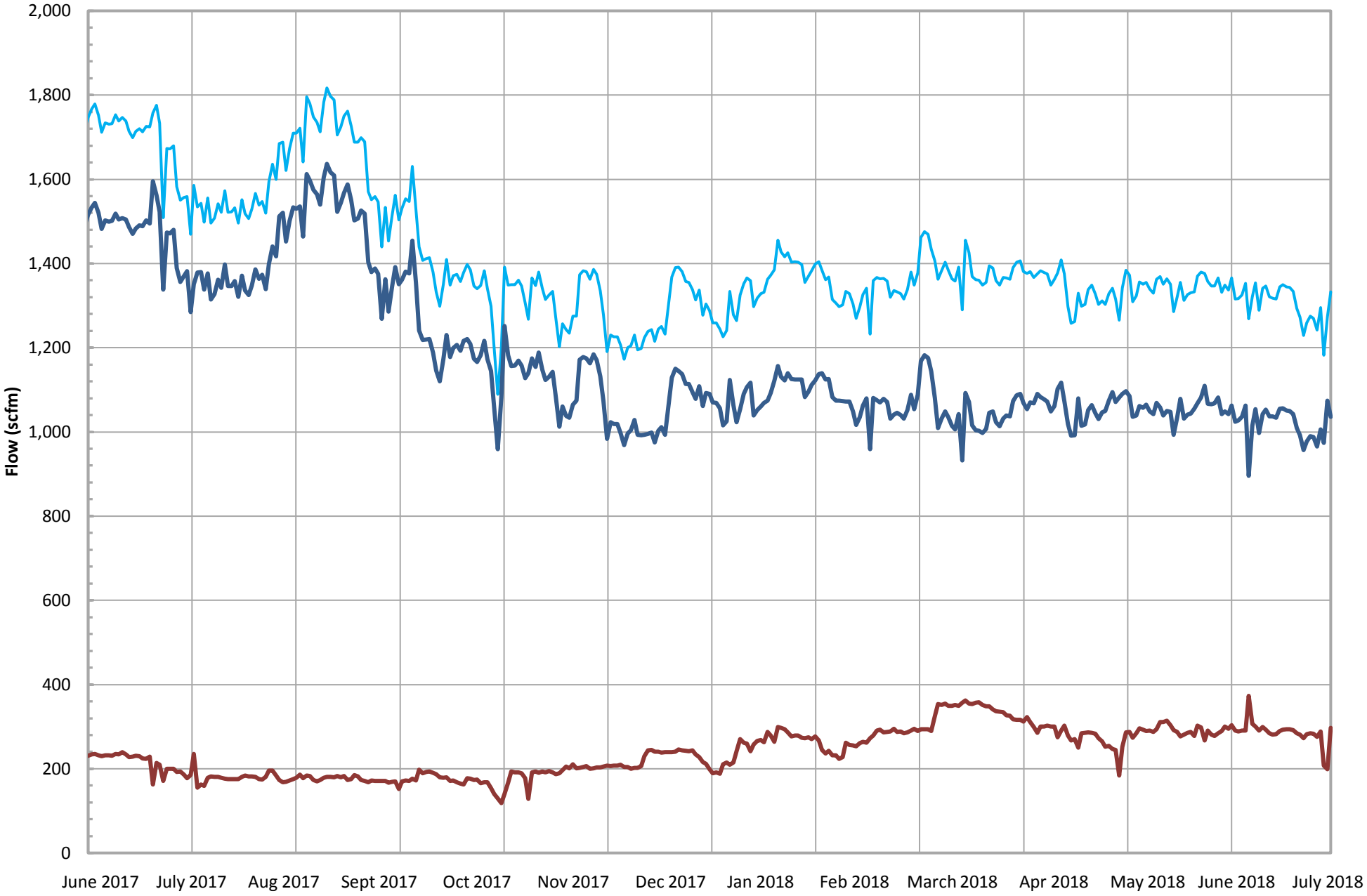
North Quarry Inlet Oxygen (Field Data)*



*Gas data collected from field monitoring data in the North Quarry.

BRIDGETON LANDFILL

Total Combined Flow (scfm)*

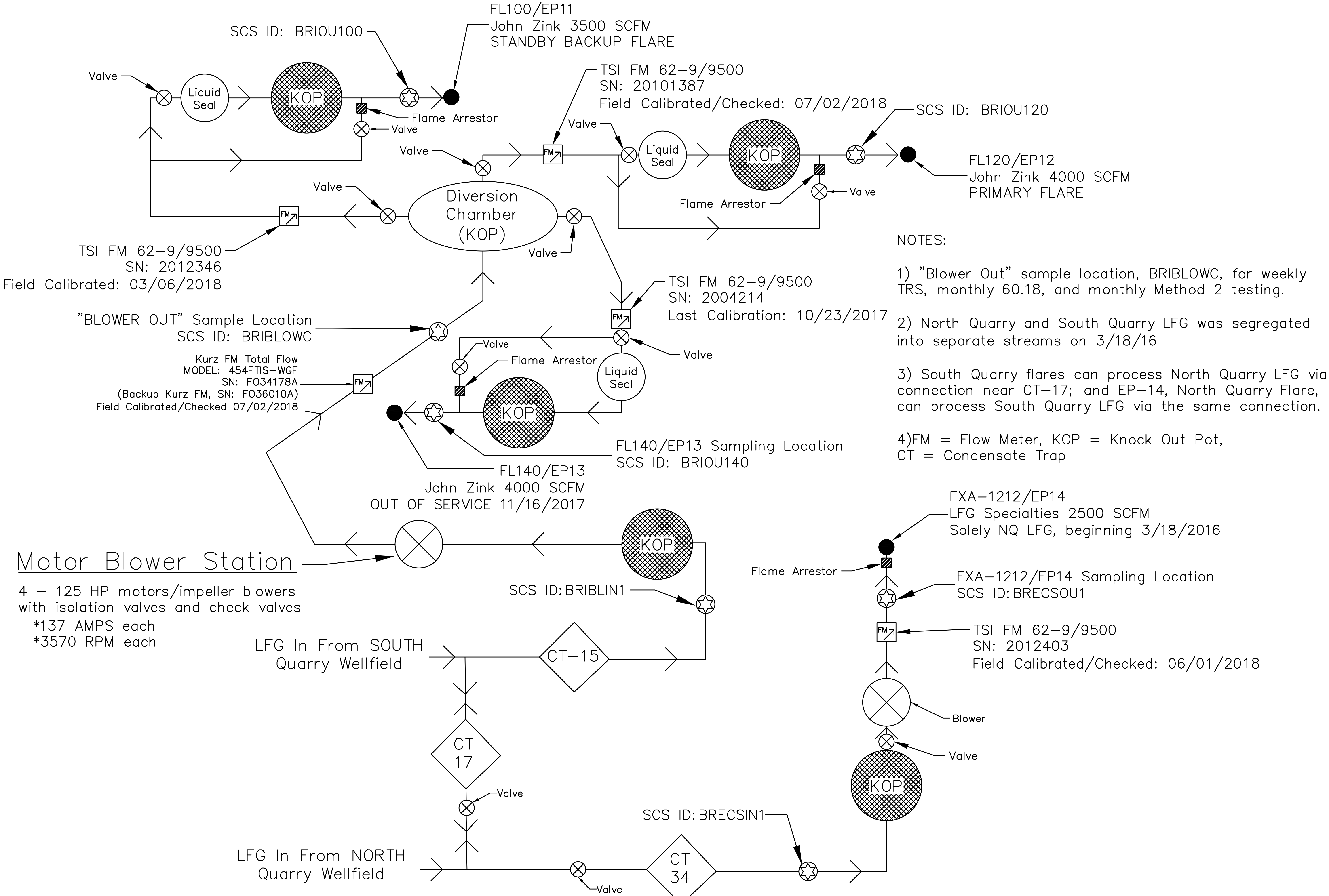


*Combined flow is based on tabulated flow data collected daily from FL-100, FL-120, FL-140, and the Auxillary Candlestick Flare.

BRIDGETON LANDFILL

ATTACHMENT B-3

FLARE TRS / FLARE STATION FLOW



I:\PROJECTS\120\131 Bridgeton\Bridgeton Air Compliance 2018\Bridgeton Monthly Attachment B3 Support\07-20-2018\2018-07-11 Figure 1 - Flow Diagram.dwg;drandall;July 11, 2018

PREPARED FOR:
BRIDGETON LANDFILL, LLC

FIGURE 1 - NORTH & SOUTH QUARRY GCCS FLARE PROCESS FLOE DIAGRAM

13570 ST. CHARLES ROCK ROAD
BRIDGETON, MISSOURI

No.	DATE	REVISION DESCRIPTION
1	9/19/2016	EP-08 Removed, shown only to represent SQ LFG flow
2	3/1/2018	Add FM data, SQ/NQ connection, and update flare status'
3	4/19/2018	Add valves, flame arrestors, CT-15 name change. Remove a KOP.

Weaver Consultants Group

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DRAWN BY: DT
REVIEWED BY: DAR
DATE: 03/02/2018
FILE: 0120-131-10
CAD: 2018-07-11 Figure 1 - Flow Diagram.dwg

SHEET 1 OF 1

BRIDGETON LANDFILL
INSTALLATION MONTHLY SO2 EMISSIONS
LIMIT < 100 Tons

MO APCP Air Construction Permit No. 042018-005
Special Condition No. 6A
FIPS ID = 189-0312

NEW Air Construction Permit (MO APCP) No.042018-005 issued 04/03/2018, tracking initiated 04/06/2018, superceeding the following

(Previous Permit , SLCHD/APCP #7839, 06/19/2014)

MONTH	EMISSION SOURCE ID	SOURCES MONTHLY SO_2 EMISSIONS (tons/MONTH)	INSTALLATION MONTHLY SO_2 EMISSIONS (tons/month)	CONSECUTIVE 12-MONTH SO_2 EMISSIONS (tons)
06/2018	SQ Blower Outlet	5.89	6.23	**74.84**
	EP-014/NQ-FXA1212	0.06		
	Natural Gas Sources	0.0008		
	Emergency Generators	0.0012		
	Leachate Mangement LMS	0.28		
05/2018	SQ Blower Outlet	6.63	6.97	**75.65**
	EP-014/NQ-FXA1212	0.06		
	Natural Gas Sources	0.0008		
	Emergency Generators	0.0006		
	Leachate Mangement LMS	0.28		
04/2018	SQ Blower Outlet	4.36	4.68	**77.59**
	EP-014/NQ-FXA1212	0.04		
	Natural Gas Sources	0.0006		
	Emergency Generators	0.0007		
	Leachate Mangement LMS	0.28		
03/2018	SQ Blower Outlet	5.94	6.28	**78.31**
	EP-014/NQ-FXA1212	0.06		
	Natural Gas Sources	0.0008		
	Emergency Generators	0.0005		
	Leachate Mangement LMS	0.28		
02/2018	SQ Blower Outlet	4.47	4.78	**72.02**
	EP-014/NQ-FXA1212	0.03		
	Natural Gas Sources	0.0009		
	Emergency Generators	0.0001		
	Leachate Mangement LMS	0.28		
01/2018	SQ Blower Outlet	5.76	6.08	**67.24**
	EP-014/NQ-FXA1212	0.04		
	Natural Gas Sources	0.0010		
	Emergency Generators	0.0007		
	Leachate Mangement LMS	0.28		
012/2017	SQ Blower Outlet	4.75	5.08	**61.16**
	EP-014/NQ-FXA1212	0.05		
	Natural Gas Sources	0.0010		
	Emergency Generators	0.0020		
	Leachate Mangement LMS	0.28		
11/2017	SQ Blower Outlet	6.07	6.39	**56.08**
	EP-014/NQ-FXA1212	0.04		
	Natural Gas Sources	0.0009		
	Emergency Generators	0.0013		
	Leachate Mangement LMS	0.28		

BRIDGETON LANDFILL
INSTALLATION MONTHLY SO2 EMISSIONS
LIMIT < 100 Tons

MO APCP Air Construction Permit No. 042018-005
Special Condition No. 6A
FIPS ID = 189-0312

NEW Air Construction Permit (MO APCP) No.042018-005 issued 04/03/2018, tracking initiated 04/06/2018, superceeding the following

(Previous Permit , SLCHD/APCP #7839, 06/19/2014)

MONTH	EMISSION SOURCE ID	SOURCES MONTHLY SO_2 EMISSIONS (tons/MONTH)	INSTALLATION MONTHLY SO_2 EMISSIONS (tons/month)	CONSECUTIVE 12-MONTH SO_2 EMISSIONS (tons)
10/2017	SQ Blower Outlet	5.30	5.61	**49.68**
	EP-014/NQ-FXA1212	0.03		
	Natural Gas Sources	0.0008		
	Emergency Generators	0.0023		
	Leachate Mangement LMS	0.28		
09/2017	SQ Blower Outlet	6.66	6.97	**44.08**
	EP-014/NQ-FXA1212	0.03		
	Natural Gas Sources	0.0008		
	Emergency Generators	0.0013		
	Leachate Mangement LMS	0.28		
08/2017	SQ Blower Outlet	8.14	8.45	**37.11**
	EP-014/NQ-FXA1212	0.04		
	Natural Gas Sources	0.0012		
	Emergency Generators	0.0009		
	Leachate Mangement LMS	0.28		
07/2017	SQ Blower Outlet	7.00	7.31	**28.66**
	EP-014/NQ-FXA1212	0.04		
	Natural Gas Sources	0.0010		
	Emergency Generators	0.0013		
	Leachate Mangement LMS	0.28		
06/2017	SQ Blower Outlet	6.69	7.04	**21.34**
	EP-014/NQ-FXA1212	0.07		
	Natural Gas Sources	0.0010		
	Emergency Generators	0.0000		
	Leachate Mangement LMS	0.28		
05/2017	SQ Blower Outlet	8.60	8.90	**14.30**
	EP-014/NQ-FXA1212	0.02		
	Natural Gas Sources	0.0011		
	Emergency Generators	0.0016		
	Leachate Mangement LMS	0.28		
04/2017	SQ Blower Outlet	5.07	5.39	**5.39**
	EP-014/NQ-FXA1212	0.04		
	Natural Gas Sources	0.0009		
	Emergency Generators	0.0010		
	Leachate Mangement LMS	0.28		

BRIDGETON LANDFILL
South Quarry Blower Outlet
MONTHLY SO2 EMISSIONS

MO APCP Air Construction Permit No. 042018-005
Special Condition No. 6A
FIPS ID = 189-0312

MONTH	SAMPLE PERIOD	SAMPLE DATE	PERIOD SULFUR CONTENT (ppmv)	PERIOD LFG FLOW (dscf)	SOURCE'S PERIOD SO_2 EMISSIONS (tons/period)	SOURCE'S MONTHLY SO_2 EMISSIONS (tons/month)
06/2018	06/16 to 07/02/2108	07/02/18	1900	23,607,242	3.6701	5.89
	06/02 to 06/15/2108	06/15/18	1350	20,081,676	2.2183	
05/2018	05/16 to 06/01/2018	06/01/18	1700	24,768,126	3.4452	6.63
	05/02 to 05/15/2018	05/15/18	1900	20,465,387	3.1816	
❶ 04/2018	04/16 to 05/01/2018	05/01/18	1400	22,067,171	2.5279	4.36
	04/06 to 04/16/2018	04/16/18	1350	16,589,181	1.8325	
03/2018	03/28 to 04/05/2018	04/05/18	1250	13,786,297	1.4101	5.94
	03/21 to 03/27/2018	03/27/18	1150	10,308,182	0.9700	
	03/14 to 03/20/2018	03/20/18	1200	10,295,709	1.0109	
	03/08 to 03/13/2018	03/13/18	1450	8,823,931	1.0469	
	02/28 to 03/07/2018	03/07/18	1450	12,699,099	1.5067	
02/2018	02/21 to 02/27/2018	02/27/18	1600	10,467,803	1.3704	4.47
	02/14 to 02/20/2018	02/20/18	1300	10,685,865	1.1367	
	02/06 to 02/13/2018	02/13/18	1100	12,073,495	1.0867	
	02/01 to 02/05/2018	02/05/18	1350	7,918,030	0.8746	
01/2018	01/26 to 01/31/2018	01/31/18	1150	9,551,624	0.8988	5.76
	01/19 to 01/25/2018	01/25/18	1250	11,345,149	1.1604	
	01/12 to 01/18/2018	01/18/18	1250	10,750,589	1.0996	
	01/04 to 01/11/2018	01/11/18	1450	12,316,022	1.4612	
	12/28/2017 to 01/03/2018	01/03/18	1300	10,692,771	1.1374	
12/2017	12/19 to 12/27/2017	12/27/17	1150	14,381,710	1.3533	4.75
	12/13 to 12/19/2017	12/19/17	1350	10,242,081	1.1314	
	12/06 to 12/12/2017	12/12/17	1200	10,007,413	0.9826	
	11/29 to 12/5/2017	12/05/17	1550	10,110,696	1.2823	
11/2017	11/22 to 11/28/2017	11/28/17	1350	11,616,347	1.2832	6.07
	11/15 to 11/21/2017	11/21/17	1350	10,512,830	1.1613	
	11/8 to 11/14/2017	11/14/17	1150	11,447,894	1.0772	
	11/03 to 11/7/2017	11/07/17	1150	8,168,968	0.7687	
	10/25 to 11/2/2017	11/02/17	1500	14,507,379	1.7806	
10/2017	10/18 to 10/24/2017	10/24/17	1250	11,767,082	1.2035	5.30
	10/11 to 10/17/2017	10/17/17	1250	11,604,622	1.1869	
	10/04 to 10/10/2017	10/10/17	1350	12,474,773	1.3780	
	09/27 to 10/03/2017	10/03/17	1400	13,345,930	1.5288	
09/2017	09/20 to 09/26/2017	09/26/17	1550	13,477,427	1.7093	6.66
	09/14 to 09/19/2017	09/19/17	1350	12,745,267	1.4079	
	09/8 to 09/13/2017	09/13/17	1300	13,185,185	1.4025	
	08/30 to 09/07/2017	09/07/17	1350	19,372,285	2.1399	
08/2017	08/23 to 08/29/2017	08/29/17	1400	14,001,454	1.6039	8.14
	08/16 to 08/22/2017	08/22/17	1450	11,100,656	1.3170	
	08/9 to 08/15/2017	08/15/17	1600	13,041,953	1.7074	
	08/03 to 08/08/2017	08/08/17	1550	11,096,599	1.4073	
	07/26 to 08/02/2017	08/02/17	1700	15,093,157	2.0995	
07/2017	07/19 to 07/25/2017	07/25/17	1450	14,442,919	1.7136	7.00
	07/12 to 07/18/2017	07/18/17	1500	14,326,080	1.7583	
	07/07 to 07/11/2017	07/11/17	1550	10,341,543	1.3116	
	06/28 to 07/06/2017	07/06/17	1450	18,655,228	2.2133	

MONTH	SAMPLE PERIOD	SAMPLE DATE	PERIOD SULFUR CONTENT (ppmv)	PERIOD LFG FLOW (dscf)	SOURCE'S PERIOD SO_2 EMISSIONS (tons/period)	SOURCE'S MONTHLY SO_2 EMISSIONS (tons/month)
06/2017	06/21 to 06/27/2017	06/27/17	1400	14,547,530	1.6665	6.69
	06/14 to 06/20/2017	06/20/17	1400	14,396,860	1.6492	
	06/07 to 06/13/2017	06/13/17	1350	14,819,875	1.6370	
	05/31 to 06/06/2017	06/06/17	1650	12,877,819	1.7386	
05/2017	05/25 to 05/30/2017	05/30/17	1650	12,410,576	1.6755	8.60
	05/17 to 05/24/2017	05/24/17	1350	16,504,198	1.8231	
	05/12 to 05/16/2017	05/16/17	1450	10,518,255	1.2479	
	05/05 to 05/11/2017	05/11/17	1350	16,295,800	1.8001	
	04/26 to 05/04/2017	05/04/17	1300	19,301,575	2.0531	
04/2017	04/19 to 04/25/2017	04/25/17	1350	14,179,884	1.5663	5.07
	04/12 to 04/18/2017	04/18/17	1350	16,183,033	1.7876	
	04/05 to 04/11/2017	04/11/17	1350	15,536,087	1.7161	
		04/04/17	NA	NA		

❶ per new MO APCP Air Construction Permit No. 201804-005, sampling frequency reduced to twice a month

Per MO APCP Air Construction Permit No. 042018-005, Page 15, Attachment A, Equation 1

$$SO_{2-EQ1} = \frac{Q_{LFG} * \left(\frac{C_{sulfur,ppmv}}{10^6}\right) * \left(\frac{0.02832\ m^3}{ft^3}\right) * (MW_{sulfur}) * \left(\frac{0.00220462\ lb}{g}\right) * (P) * \left(\frac{1\ ton}{2{,}000\ lb}\right) * (2)}{(R * (273.15 + T))}$$

Constants		
MW_{sulfur} =	32.06	g/g-mol
P =	1	atm
SO2 =	2	ratio of S to SO2
R =	8.21E-05	m3*atm/K*g-mol
T =	25	C
pppm	1,000,000	unitless
	273.15	absolute T
	0.02832	constant
lb -->	0.002204620	gram
lb -->	0.0005	ton

DEFINITIONS

$SO_{2\text{-}EQ1}$ = SO2 Emssions from the combustion of landfill gas in all flares (EP-011, EP-012, EP-013, and EP-014).

Q_{LFG} = Total Flow of all collected landfill gas, in units of dry standard cubic feet (DSCF) from the previous sampling date to the current sampling date

$C_{sulfur,ppm}$ sampling results from ASTM D5504-12 for the current sampling date, in units of parts per million by volume

MW_{sulfur} = 32.06 g/g-mol (molecular mass of sulfur)

P = pressure at standard atmospheric

SO2 = 2, is the molecular ratio of sulfur to SO2

R = ideal gas law constant, 8.205E-5 m3*atm/K*g-mol

T = Temperature, 25°C or site specific LFG temperature

BRIDGETON LANDFILL
North Quarry Flare EP-014
MONTHLY SO2 EMISSIONS

MO APCP Air Construction Permit No. 042018-005
Special Condition No. 6A
FIPS ID = 189-0312

MONTH	SAMPLE PERIOD	SAMPLE DATE	PERIOD SULFUR CONTENT (ppmv)	PERIOD LFG FLOW (dscf)	SOURCE'S PERIOD SO_2 EMISSIONS (tons/period)	SOURCE'S MONTHLY SO_2 EMISSIONS (tons/month)
06/2018	06/16 to 07/02/2018	07/02/18	33.5	6,476,033	0.0178	0.06
	06/02 to 06/15/2018	06/15/18	27	5,785,892	0.0128	
05/2018	05/16 to 06/01/2018	06/01/18	52	6,833,045	0.0291	0.06
	05/02 to 05/15/2018	05/15/18	65	5,816,099	0.0309	
❶ 04/2018	04/17 to 05/01/2018	05/01/18	48	5,482,873	0.0215	0.04
	04/06 to 04/16/2018	04/16/18	37.5	4,543,986	0.0139	
03/2018	03/28 to 04/05/2018	04/05/18	44.5	3,995,209	0.0145	0.06
	03/21 to 03/27/2018	03/27/18	38.5	3,382,302	0.0107	
	03/14 to 03/20/2018	03/20/18	37.5	3,552,554	0.0109	
	03/08 to 03/13/2018	03/13/18	40	3,003,094	0.0098	
	02/28 to 03/07/2018	03/07/18	49	2,526,255	0.0101	
02/2018	02/21 to 02/27/2018	02/27/18	54	2,888,912	0.0128	0.03
	02/14 to 02/20/2018	02/20/18	43	2,812,318	0.0099	
	02/06 to 02/13/2018	02/13/18	20.5	2,859,593	0.0048	
	02/01 to 02/05/2018	02/05/18	51	1,692,341	0.0071	
01/2018	01/26 to 01/31/2018	01/31/18	41.5	2,338,808	0.0079	0.04
	01/19 to 01/25/2018	01/25/18	43.5	2,879,263	0.0102	
	01/12 to 01/18/2018	01/18/18	44.5	2,695,298	0.0098	
	01/04 to 01/11/2018	01/11/18	31	2,733,239	0.0069	
	12/28/2017 to 01/03/2018	01/03/18	51	2,007,812	0.0084	
12/2017	12/19 to 12/27/2017	12/27/17	62.5	3,051,910	0.0156	0.05
	12/13 to 12/19/2017	12/19/17	53.5	2,377,673	0.0104	
	12/06 to 12/12/2017	12/12/17	61.5	2,104,494	0.0106	
	11/29 to 12/5/2017	12/05/17	67.5	2,043,517	0.0113	
11/2017	11/22 to 11/28/2017	11/28/17	62	1,986,526	0.0101	0.04
	11/15 to 11/21/2017	11/21/17	55	1,879,308	0.0085	
	11/8 to 11/14/2017	11/14/17	51	1,869,713	0.0078	
	11/03 to 11/7/2017	11/07/17	58.5	1,227,126	0.0059	
	10/25 to 11/2/2017	11/02/17	53.5	1,892,870	0.0083	
10/2017	10/18 to 10/24/2017	10/24/17	61	1,658,933	0.0083	0.03
	10/11 to 10/17/2017	10/17/17	56.5	1,720,815	0.0080	
	10/04 to 10/10/2017	10/10/17	22	1,828,995	0.0033	
	09/27 to 10/03/2017	10/03/17	43.5	1,635,854	0.0058	
09/2017	09/20 to 09/26/2017	09/26/17	24	1,665,567	0.0033	0.03
	09/14 to 09/19/2017	09/19/17	33.5	1,480,864	0.0041	
	09/8 to 09/13/2017	09/13/17	53	1,506,296	0.0065	
	08/30 to 09/07/2017	09/07/17	73	2,248,456	0.0134	
08/2017	08/23 to 08/29/2017	08/29/17	39.5	1,728,799	0.0056	0.04
	08/16 to 08/22/2017	08/22/17	49.5	1,491,290	0.0060	
	08/9 to 08/15/2017	08/15/17	58	1,716,959	0.0081	
	08/03 to 08/08/2017	08/08/17	36.5	1,454,639	0.0043	
	07/26 to 08/02/2017	08/02/17	73.5	2,105,325	0.0127	
07/2017	07/19 to 07/25/2017	07/25/17	54	1,919,910	0.0085	0.04
	07/12 to 07/18/2017	07/18/17	37	2,206,737	0.0067	
	07/07 to 07/11/2017	07/11/17	38.5	1,615,877	0.0051	
	06/28 to 07/06/2017	07/06/17	66	2,849,119	0.0154	

BRIDGETON LANDFILL
North Quarry Flare EP-014
MONTHLY SO2 EMISSIONS

MO APCP Air Construction Permit No. 042018-005
Special Condition No. 6A
FIPS ID = 189-0312

MONTH	SAMPLE PERIOD	SAMPLE DATE	PERIOD SULFUR CONTENT (ppmv)	PERIOD LFG FLOW (dscf)	SOURCE'S PERIOD SO_2 EMISSIONS (tons/period)	SOURCE'S MONTHLY SO_2 EMISSIONS (tons/month)
06/2017	06/21 to 06/27/2017	06/27/17	41	2,225,859	0.0075	0.07
	06/14 to 06/20/2017	06/20/17	136.5	2,122,281	0.0237	
	06/07 to 06/13/2017	06/13/17	50	2,013,871	0.0082	
	05/31 to 06/06/2017	06/06/17	97.5	4,011,269	0.0320	
05/2017	05/25 to 05/30/2017	05/30/17	57	1,966,043	0.0092	0.02
	05/17 to 05/24/2017	05/24/17	51.5	2,640,710	0.0111	
	05/12 to 05/16/2017	05/16/17	50	375,629	0.0015	
	05/05 to 05/11/2017	05/11/17	0	143,740	0.0000	
	04/26 to 05/04/2017	05/04/17	0	1,230,871	0.0000	
04/2017	04/19 to 04/25/2017	04/25/17	72.5	2,286,284	0.0136	0.04
	04/12 to 04/18/2017	04/18/17	78.5	2,239,339	0.0144	
	04/05 to 04/11/2017	04/11/17	66	2,418,792	0.0131	
		04/04/17	NA	NA		

❶ per new MO APCP Air Construction Permit No. 201804-005, sampling frequency reduced to twice a month

Per MO APCP Air Construction Permit No. 042018-005, Page 15, Attachment A, Equation 1

$$SO_{2-EQ1} = \frac{Q_{LFG} * \left(\frac{C_{sulfur,ppmv}}{10^6}\right) * \left(\frac{0.02832\ m^3}{ft^3}\right) * (MW_{sulfur}) * \left(\frac{0.00220462\ lb}{g}\right) * (P) * \left(\frac{1\ ton}{2{,}000\ lb}\right) * (2)}{(R * (273.15 + T))}$$

Constants		
MW_{sulfur} =	32.06	g/g-mol
P =	1	atm
SO2 =	2	ratio of S to SO2
R =	8.21E-05	m3*atm/K*g-mol
T =	25	C
pppm	1,000,000	unitless
	273.15	absolute T
	0.02832	constant
lb -->	0.002204620	gram
lb -->	0.0005	ton

DEFINITIONS

SO_{2-EQ1} = SO2 Emssions from the combustion of landfill gas in all flares (EP-011, EP-012, EP-013, and EP-014).

Q_{LFG} = Total Flow of all collected landfill gas, in units of dry standard cubic feet (DSCF) from the previous sampling date to the current sampling date

$C_{sulfur,ppm}$ sampling results from ASTM D5504-12 for the current sampling date, in units of parts per million by volume

MW_{sulfur} = 32.06 g/g-mol (molecular mass of sulfur)

P = pressure at standard atmospheric

SO2 = 2, is the molecular ratio of sulfur to SO2

R = ideal gas law constant, 8.205E-5 m3*atm/K*g-mol

T = Temperature, 25°C or site specific LFG temperature

BRIDGETON LANDFILL
Installation Natural Gas Sources
MONTHLY SO2 EMISSIONS

MO APCP AIR Construction Permit No. 042018-005
Special Condition No. 6A
FIPS ID = 189-0312

SO2 Emission Factor = ***0.6*** lbs/MMSCF
Reference Air CP No. 042018-005, Attachment A, Equation 2

MONTH	METER READING BEGIN DATE	METER READING END DATE	NATURAL GAS SOURCE/LOCATION	BEGINNING METER READING (CCF)	ENDING METER READING (CCF)	USAGE (MMSCF)	SOURCE'S MONTHLY SO_2 EMISSIONS (tons/month)	TOTAL NG MONTHLY SO_2 EMISSIONS (tons/month)
06/2018	06/01/18	07/02/18	RTO Station	333897.00	359331.00	2.5	0.00076	0.00076
	06/01/18	07/02/18	WWTP Bldg	157637.00	157640.00	0.0	0.00000	
	06/01/18	07/02/18	SQ Flare Station	1.00	1.00	0.0	0.00000	
05/2018	05/01/18	06/01/18	RTO Station	308536.00	333897.00	2.5	0.00076	0.00076
	05/01/18	06/01/18	WWTP Bldg	157617.00	157637.00	0.0	0.00000	
	05/01/18	06/01/18	SQ Flare Station	1.00	1.00	0.0	0.00000	
04/2018	04/05/18	05/01/18	RTO Station	287473.00	308536.00	2.1	0.00063	0.00064
	04/05/18	05/01/18	WWTP Bldg	157269.00	157617.00	0.0	0.00001	
	04/05/18	05/01/18	SQ Flare Station	1.00	1.00	0.0	0.00000	
03/2018	03/07/18	04/05/18	RTO Station	263631.00	287473.00	2.4	0.00072	0.00082
	03/07/18	04/05/18	WWTP Bldg	153849.00	157269.00	0.3	0.00010	
	03/07/18	04/05/18	SQ Flare Station	1.00	1.00	0.0	0.00000	
02/2018	02/05/18	03/07/18	RTO Station	239002.00	263631.00	2.5	0.00074	0.00094
	02/05/18	03/07/18	WWTP Bldg	147217.00	153849.00	0.7	0.00020	
	02/05/18	03/07/18	SQ Flare Station	1.00	1.00	0.0	0.00000	
01/2018	01/03/18	02/05/18	RTO Station	215516.00	239002.00	2.3	0.00070	0.00104
	01/03/18	02/05/18	WWTP Bldg	135941.00	147217.00	1.1	0.00034	
	01/03/18	02/05/18	SQ Flare Station	1.00	1.00	0.0	0.00000	
12/2017	12/05/17	01/03/18	RTO Station	191290.00	215516.00	2.4	0.00073	0.00101
	12/05/17	01/03/18	WWTP Bldg	126358.00	135941.00	1.0	0.00029	
	12/05/17	01/03/18	SQ Flare Station	1.00	1.00	0.0	0.00000	
11/2017	11/02/17	12/05/17	RTO Station	164825.00	191290.00	2.6	0.00079	0.00093
	11/02/17	12/05/17	WWTP Bldg	121815.00	126358.00	0.5	0.00014	
	11/02/17	12/05/17	SQ Flare Station	1.00	1.00	0.0	0.00000	
10/2017	10/04/17	11/02/17	RTO Station	139298.00	164825.00	2.6	0.00077	0.00080
	10/04/17	11/02/17	WWTP Bldg	120560.00	121815.00	0.1	0.00004	
	10/04/17	11/02/17	SQ Flare Station	1.00	1.00	0.0	0.00000	
09/2017	09/05/17	10/04/17	RTO Station	112072.00	139298.00	2.7	0.00082	0.00082
	09/05/17	10/04/17	WWTP Bldg	120545.00	120560.00	0.0	0.00000	
	09/05/17	10/04/17	SQ Flare Station	1.00	1.00	0.0	0.00000	
08/2017	08/03/17	09/05/17	RTO Station	73449.00	112072.00	3.9	0.00116	0.00116
	08/03/17	09/05/17	WWTP Bldg	120533.00	120545.00	0.0	0.00000	
	08/03/17	09/05/17	SQ Flare Station	1.00	1.00	0.0	0.00000	
07/2017	07/05/17	08/03/17	RTO Station	38888.00	73449.00	3.5	0.00104	0.00104
	07/05/17	08/03/17	WWTP Bldg	120526.00	120533.00	0.0	0.00000	
	07/05/17	08/03/17	SQ Flare Station	1.00	1.00	0.0	0.00000	
06/2017	06/04/17	07/05/17	RTO Station	4208.00	38888.00	3.5	0.00104	0.00104
	06/04/17	07/05/17	WWTP Bldg	120506.00	120526.00	0.0	0.00000	
	06/04/17	07/05/17	SQ Flare Station	1.00	1.00	0.0	0.00000	
05/2017	05/02/17	06/04/17	RTO Station	967592.00	4208.00	3.7	0.00110	0.00111
	05/02/17	06/04/17	WWTP Bldg	119978.00	120506.00	0.1	0.00002	
	05/02/17	06/04/17	SQ Flare Station	1.00	1.00	0.0	0.00000	
04/2017	04/04/17	05/02/17	RTO Station	938009.00	967592.00	3.0	0.00089	0.00091
	04/04/17	05/02/17	WWTP	119239.00	119978.00	0.1	0.00002	
	04/04/17	05/02/17	Flare Station	1.00		0.0	0.00000	

Per MO APCP Air Construction Permit No. 042018-005, Page 15, Attachment A, Equation $SO_{2\text{-}NG}$

$$SO_{2-NG} = (MR_E - MR_B) * \left(\frac{100}{10^6}\right) * \left(\frac{0.6\ lbs}{MMscf}\right) * \left(\frac{1\ ton}{2000\ lbs}\right)$$

$SO_{2\text{-}NG}$ = natural gas source's SO2 emissions, tons/period
MR = natural gas meter display, therms (ccf), 100 cf NG = 1 therm
0.6 lbs SO2/MM EPA AP42, Table 1.4.2

BRIDGETON LANDFILL
Installation Diesel Generator Sources
MONTHLY SO2 EMISSIONS

MO APCP Air Construction Permit No. 042018-005
Special Condition No. 6A
FIPS ID = 189-0312

MONTH	METER READING BEGIN DATE	METER READING END DATE	DIESEL GENERATOR SOURCE	BEGINNING METER READING (hours)	ENDING METER READING (hours)	MONTHLY OPERATIONAL TIME (hours)	SOURCE'S MONTHLY SO_2 EMISSIONS (tons/month)	TOTAL EmGen MONTHLY SO_2 EMISSIONS (tons/month)
06/2018	06/01/18	07/02/18	SQ Flare Compound (EP-19)	188.30	192.20	3.9	0.00003	0.00116
	06/01/18	07/02/18	Site Wide(Cat XQ175) (EP-20)	14904.08	14904.08	0.0	0.00000	
	06/01/18	07/02/18	WWTP Perkins (EP-21)	86.12	90.54	4.4	0.00113	
	06/01/18	07/02/18	NQ Flare Cat EG (EP-24)	2.12	4.00	1.9	0.00000	
05/2018	05/01/18	06/01/18	SQ Flare Compound (EP-19)	186.80	188.30	1.5	0.00001	0.00055
	05/01/18	06/01/18	Site Wide(Cat XQ175) (EP-20)	14904.08	14904.08	0.0	0.00000	
	05/01/18	06/01/18	WWTP Perkins (EP-21)	84.00	86.12	2.1	0.00054	
	05/01/18	06/01/18	NQ Flare Cat EG (EP-24)	0.00	2.12	2.1	0.00000	
04/2018	04/05/18	05/01/18	SQ Flare Compound (EP-19)	185.20	186.80	1.6	0.00001	0.00071
	04/05/18	05/01/18	Site Wide(Cat XQ175) (EP-20)	14888.70	14904.08	15.4	0.00007	
	04/05/18	05/01/18	WWTP Perkins (EP-21)	81.54	84.00	2.5	0.00063	
	04/05/18	05/01/18	❶ NQ Flare Cat EG (EP-24)	0.00	0.00	0.0	0.00000	
03/2018	03/07/18	04/05/18	SQ Flare Compound (EP-19)	183.30	185.20	1.9	0.00002	0.00053
	03/07/18	04/05/18	Site Wide(Cat XQ175) (EP-20)	14888.70	14888.70	0	0.00000	
	03/07/18	04/05/18	WWTP Perkins (EP-21)	79.54	81.54	2	0.00051	
02/2018	02/05/18	03/07/18	SQ Flare Compound (EP-19)	181.40	183.30	1.9	0.00002	0.00012
	02/05/18	03/07/18	Site Wide(Cat XQ175) (EP-20)	14888.70	14888.70	0	0.00000	
	02/05/18	03/07/18	WWTP Perkins (EP-21)	79.12	79.54	0.42	0.00011	
01/2018	01/03/18	02/05/18	SQ Flare Compound (EP-19)	179.40	181.40	2	0.00002	0.00072
	01/03/18	02/05/18	Site Wide(Cat XQ175) (EP-20)	14888.70	14888.70	0	0.00000	
	01/03/18	02/05/18	WWTP Perkins (EP-21)	76.36	79.12	2.76	0.00070	
12/2017	12/05/17	01/03/18	SQ Flare Compound (EP-19)	177.90	179.40	1.5	0.00001	0.00195
	12/05/17	01/03/18	Site Wide(Cat XQ175) (EP-20)	14633.40	14888.70	255.3	0.00113	
	12/05/17	01/03/18	WWTP Perkins (EP-21)	73.18	76.36	3.18	0.00081	
11/2017	11/02/17	12/05/17	SQ Flare Compound (EP-19)	176.00	177.90	1.9	0.00002	0.00127
	11/02/17	12/05/17	Site Wide(Cat XQ175) (EP-20)	14448.60	14633.40	184.8	0.00082	
	11/02/17	12/05/17	WWTP Perkins (EP-21)	71.48	73.18	1.7	0.00043	
10/2017	10/10/17	11/02/17	SQ Flare Compound (EP-19)	174.30	176.00	1.7	0.00001	0.00235
	10/10/17	11/02/17	Site Wide(Cat XQ175) (EP-20)	14151.35	14448.60	297.25	0.00131	
	10/10/17	11/02/17	WWTP Perkins (EP-21)	67.48	71.48	4	0.00102	
09/2017	09/07/17	10/10/17	SQ Flare Compound (EP-19)	172.70	174.30	1.6	0.00001	0.00129
	09/07/17	10/10/17	Site Wide(Cat XQ175) (EP-20)	14151.35	14151.35	0	0.00000	
	09/07/17	10/10/17	WWTP Perkins (EP-21)	62.48	67.48	5	0.00128	
08/2017	08/02/17	09/07/17	SQ Flare Compound (EP-19)	167.70	172.70	5	0.00004	0.00085
	08/02/17	09/07/17	Site Wide(Cat XQ175) (EP-20)	14151.35	14151.35	0	0.00000	
	08/02/17	09/07/17	WWTP Perkins (EP-21)	59.30	62.48	3.18	0.00081	
07/2017	07/06/17	08/02/17	SQ Flare Compound (EP-19)	165.50	167.70	2.2	0.00002	0.00131
	07/06/17	08/02/17	Site Wide(Cat XQ175) (EP-20)	14113.56	14151.35	37.79	0.00017	
	07/06/17	08/02/17	WWTP Perkins (EP-21)	54.90	59.30	4.4	0.00112	
06/2017	06/06/17	07/06/17	SQ Flare Compound (EP-19)	164.00	165.50	1.5	0.00001	0.00005
	06/06/17	07/06/17	Site Wide(Cat XQ175) (EP-20)	14105.87	14113.56	7.69	0.00003	
	06/06/17	07/06/17	WWTP Perkins (EP-21)	54.90	54.90	0	0.00000	
05/2017	05/11/17	06/06/17	SQ Flare Compound (EP-19)	161.80	164.00	2.2	0.00002	0.00161
	05/11/17	06/06/17	Site Wide(Cat XQ175) (EP-20)	14058.20	14105.87	47.67	0.00021	
	05/11/17	06/06/17	WWTP Perkins (EP-21)	49.50	54.90	5.4	0.00138	
04/2017	04/04/17	05/11/17	SQ Flare Compound (EP-19)	160.50	161.80	1.3	0.00001	0.00096
	04/04/17	05/11/17	Site Wide(Cat XQ175) (EP-20)	14015.75	14058.20	42.45	0.00019	
	04/04/17	05/11/17	WWTP Perkins (EP-21)	46.50	49.50	3	0.00077	

❶ This source newly constructed 04/17/2018

Per MO APCP Air Construction Permit No. 042018-005, Page 16, Attachment A, Equation $SO_{2\text{-EmGen}}$

$$SO_{2-EmGen} = (MR_E - MR_B) * SO_2\ EF$$

$SO_{2\text{-EmGen}}$ = Generator diesel engine SO2 emissions, tons/period
MR = hour meter display, (hours)
SO_2 EF Per permit table, page 16

Emergency Generator		Emission Factor (ton SO2/hour)	EF Source	Source Rating (bHp/hr
EP-019		7.97E-06	Permit 042018-005	1250
EP-020		4.42E-06	Permit 042018-005	249
EP-021		2.55E-04	Permit 042018-005	728
EP-024		4.57202E-09	AP42, Table 3.4-1	237

	PARAMETER	Blower Out
	SOUTH QUARRY LFG - BLOWER OUTLET **The below based on final QA/QC lab fixed gas results**	
Date	Test Date	7/2/18
Start	Run Start Time	8:24
	Run Finish Time	9:23
	Net Traversing Points	8 (2 x 4)
Θ	Net Run Time, minutes	0:59:55
C_p	Pitot Tube Coeficient	0.99
P_{Br}	Barometric Pressure, inches of Mercury	29.54
% H_2O	Moisture Content of LFG, %	4.79
% RH	Relative Humidity, %	75.50
M_{fd}	Dry Mole Fraction	0.952
%CH_4	Methane, %	13.5
%CO_2	Carbon Dioxide, %	36.8
%O_2	Oxygen, %	6.4
%Balance	Assumed as Nitrogen, %	32.0
%H_2	Hydrogen, %	10.1
%CO	Carbon Monoxide, %	0.045
M_d	Dry Molecular Weight, lb/lb-Mole	29.57
M_s	Wet Molecular weight, lb/lb-Mole	29.02
P_g	Flue Gas Static Pressure, inches of H_2O	13.60
P_s	Absolute Flue Gas Pressure, inches of Mercury	30.40
t_s	Average Stack Gas Temperature, °F	100
ΔP_{avg}	Average Velocity Head, inches of H_2O	0.038
v_s	Average LFG Velocity, feet/second	13.15
A_s	Stack Crossectional Area, square feet	1.35
Q_{sd}	Dry Volumetric Flow Rate, dry scfm	973
Q_s	Standard Volumetric Flow Rate, scfm	1,020
Q_{aw}	Actual Wet Volumetric Flue Gas Flow Rate, acfm	1,067
$Q_{lb/hr}$	Dry Air Flow Rate at Standard Conditions, lb/hr	4,482
NHV	Net Heating Value, Btu/scf (not determined in the field)	180.1
LFG_{CH4}	Methane, lb/hr	328.3
	Methane, grains/dscf	39.36
LFG_{CO2}	Carbon Dioxide, lb/hr	2,455.2
	Carbon Dioxide, grains/dscf	294.33
LFG_{O2}	Oxygen, lb/hr	308.0
	Oxygen, grains/dscf	36.93
LFG_{N2}	Balance gas as Nitrogen, lb/hr	1,359.0
	Balance gas as Nitrogen, grains/dscf	162.91
LFG_{H2}	Hydrogen, lb/hr	30.9
	Hydrogen, grains/dscf	3.70
LFG_{CO}	Carbon Monoxide, lb/hr	1.9
	Carbon Monoxide, grains/dscf	0.23

		Outlet A	Outlet B
❶$E_{TRS-SO2}$	TRS-->SO2 Emission Concentration, ppmd	1,900	1,900
	TRS-->SO2 Emission Rate, lb/hr	18.45	18.45
	TRS-->SO2 Emission Rate, grains/dscf	2.212	2.212

This lb/hr result based on Method 2 velocity/flow determined results - not the respective flow meters.

❶ TRS assumed moelcular mass = SO2, 64.06 gram/mole, I.e. 1 TRS in LFG assumed to = 1 SO2 emitted from the stack

Constants, conversions, and calculations

From Ideal Gas Law: PV = NRT

CONSTANTS		
R =	0.08206	L atm/K-mole
P =	1	atmosphere
T =	293.15	K (Kelvin)
Fwt - Standard Molecular Mass (MM)		
SO_2 =	64.0638	grams/mole
NOx =	46.0055	grams/mole
CO =	28.0101	grams/mole
CO_2 =	44.0095	grams/mole
CH_4 =	16.04246	grams/mole
N_2 =	28.0134	grams/mole
H_2 =	2.01588	grams/mole
O_2 =	31.9988	grams/mole
HCl =	36.46094	grams/mole
Standard Conversions		
1lb =	453.5924	grams
1 Liter =	0.0353	ft3
1minute =	60	seconds
1 ppmvd =	1,000,000	[unitless]

P = Pressure
V = Volume
N = Number of moles
R = Universal Gas Constant
T = Temperature
MM = Molecular Mass

Standard Atmoic Mass ($g.mol^{-1}$)	
Carbon, C =	12.0107
Oxygen, O =	15.9994
Hydrogen, H =	1.00794
Nitrogen, N =	14.0067
Sulfur, S =	32.065
Chlorine, Cl =	35.453

C_{ppmvd} = Gas concentration, dry standard
Q_{sd} = Dry volumetric flue gas flow rate, dry standard cubic feet per minute

* NOTE: NOx Fwt computed as NO2 (one Nitrogen, two oxygen)

*Note **T**, as standard temperature for purposes relevant to emissions and per EPA methodology (Method 19), 20 degrees celsius or 293.15 Kelvin*

TRS'			
Hydrogen Sulfide	H_2S	34.08088	grams/mole
Carboynl Sulfide	COS	60.0751	grams/mole
Methyl Mercaptan	CH_4S	48.10746	grams/mole
Ethyl Mercaptan	C_2H_6S	62.13404	grams/mole
Dimethyl Sulfide	$(CH_3)_2S$	62.13404	grams/mole
Carbon Disulfide	CS_2	76.1407	grams/mole
Dimethyl Disulfide	$C_2H_6S_2$	94.19904	grams/mole

Gas Density [lb/dry standard cubic foot} = (P/RT)(Fwt)

X gas compound density = $\frac{1\ atmosphere}{0.0826\ Liters-atmosphere} \times \frac{K-mole}{293.15^{o}\ Kelvin} \times X\ gas\ compound\ MM\ \left[\frac{gram}{gram-mole}\right] \times \frac{1\ pound}{453.5924\ grams} \times \frac{1\ Liter}{0.0353\ ft^3}$

If pollutant/gas measured as a:

	%	ppm_{vd}	
SO_2 =	0.1663	1.663E-07	lb/ft^3_{sd}
NOx =	0.1194	1.194E-07	lb/ft^3_{sd}
CO =	0.0727	7.272E-08	lb/ft^3_{sd}
CO_2 =	0.1143	1.143E-07	lb/ft^3_{sd}
CH_4 =	0.0416	4.165E-08	lb/ft^3_{sd}
N_2 =	0.0727	7.273E-08	lb/ft^3_{sd}
H_2 =	0.0052	5.234E-09	lb/ft^3_{sd}
O_2 =	0.0831	8.308E-08	lb/ft^3_{sd}
HCl =	0.0947	9.466E-08	lb/ft^3sd

		ppmvd
Hydrogen Sulfide	H_2S	8.84808E-08
Carboynl Sulfide	COS	1.55967E-07
Methyl Mercaptan	CH_4S	1.24897E-07
Ethyl Mercaptan	C_2H_6S	1.61312E-07
Dimethyl Sulfide	$(CH_3)_2S$	1.61312E-07
Carbon Disulfide	CS_2	1.97676E-07
Dimethyl Disulfide	$C_2H_6S_2$	2.4456E-07

Gas Emission Rate [lb/hr] = (C%)(Qsd)(Gas Density)

$$Gas\ E\ x = \frac{X\ compound\ (\%)}{100} \times Q_{SD}\left[\frac{ft^3, dry\ \&\ standard}{min}\right] \times \frac{60\ minutes}{hour} \times X gas\ density\ \left[\frac{lbs}{ft^3}\right]$$

$$Gas\ E\ x = \frac{X\ compound\ (ppmvd)}{\square} \times Q_{SD}\left[\frac{ft^3, dry\ \&\ standard}{min}\right] \times \frac{60\ minutes}{hour} \times X gas\ density\ \left[\frac{lbs}{ft^3}\right]$$

Example Calculations

1) Dry Volumetric Flue Gas Flow Rate at Standard Conditions, dscfm
(dry, standard, cubic feet per minute)

$$Q_{SD} = \frac{60 \times M_{fd} \times (t_{std} + 460) \times P_s \times V_s \times A_s}{(t_s + 460) \times P_{std}}$$

2) Actual Wet Volumetric Flue Gas Flow Rate at Actual Conditions, acfm
(actual [standard] cubic feet per minute)

$$Q_{AW} = 60 \times V_S \times A_S$$

3) Average Source Flue Gas Velocity, ft/sec

$$V_S = 85.49 \times C_p \times \sqrt{\left[\frac{(460 + t_S) \times \Delta P_{AVG}}{(P_S \times M_S)}\right]}$$

4) Wet Molecular Weight of the Flue Gas, lb/lb-mole

$$M_S = M_d \times M_{fd} + 18 \times \frac{\%H_2O}{100}$$

t_{std} = standard temperature; 68 ^oF	
t_s = stack temperature; in units of ^oF	
P_{std} = standard pressure; 29.92 inches Hg	
A_S = stack cross sectional area; in units ft^2	(at point of sample collection)
C_p = pitot tube constant; unitless, defaults:	0.99 for standard pitot tube 0.84 for "S" Type
$\triangle P_{avg}$ = stack average differential pressure;	in inches of H_2O from pitot tube & manometer
P_{Br} = barometeric pressure, inches of Hg	
P_g = stack, static pressure, inches of H_2O	
t_d = temperature, dry bulb; ^oF	
t_{wet} = temperature, wet-bulb; ^oF	
$\%H_2O$ = moisture content, % by volume	

5) Dry Molecular Weight of Flue Gas, lb/lb-mole

$$M_d = \left(\frac{16.0425}{100\%} x\ CH_4\%\right) + \left(\frac{44.0095}{100\%} x\ CO_2\right) + \left(\frac{31.9988}{100\%} x\ O_2\%\right) + \left(\frac{28.0134}{100\%} x\ N_2\%\right) + \left(\frac{28.0101}{100\%} x\ CO\%\right) + \left(\frac{2.0159}{100\%} x\ H_2\%\right)$$

6) Percent Moisture at Flue Gas Conditions, % [via, dry bulb-wet bulb analysis]

$$\%H_2O = \left(\frac{100}{P_s}\right) \times 10$$

7) Absolute Flue Gas Pressure, Inches of Mercury

$$P_s = P_{Br} + \left(\frac{P_g}{13.6}\right)$$

8) Dry Mole Fraction of Flue Gas

$$M_{fd} = 1 - \left(\frac{\%H_2O}{100}\right)$$

9) EXAMPLE: CO_2 lb/hr determination from CO_2% measurement (for "dry" sample collection)

$$E_{CO_2} = (CO_2\% \times 10{,}000) x \frac{Q_{SCF}}{\text{min } ute} x \frac{60 \text{ min } ute}{hour} x \frac{44.0095\, gram}{gram - mole} x \frac{1}{385{,}300{,}000}$$

10) $\%H_2O$ - Mositure Content via wet-bulb-dry-bulb determination

$$\%H_2O = \left(\frac{100}{P_S}\right) \text{ x } 10^{\left\{6.6912 - \left[\frac{3144}{(T_{wet} + 390.86)}\right]\right\} - \left\{0.011 \times P_{Br} \times (T_{wet} - T_{dry}) \times \left[1 + \frac{(T_{wet} - 32)}{1571}\right]\right\}}$$

Monday, July 02, 2018

The below based on FIELD fixed gas results, for FM Monthly Check & Calibration

LOCATION	TIME		FLOW -SCFM			Method 2 vs. Fleetzoom	Method 2 vs Kurz	Kurz vs Fleetzoom
	Begin	End	Method 2	FleetZoom	Kurz FM			
SQ BLOWER OUT	8:24	9:23	1,013	1,044	1,009	-3.1%	0.4%	-3.5%

**Note: Fleetzoom data derived from EP-12/FL120 TSI Flow Meter*

** Note: per new air construction permit, MO APCP No. 042018-005, monthly Method 2 check and calibration: based on field data and field computations, no adjustment needed to Blower Outlet Kurz FM or EP-012/FL120 TSI FM*

	PARAMETER	Blower Out
SOUTH QUARRY GCCS LFG - BLOWER OUTLET		
The below based on FIELD fixed gas results, for FM Monthly Check & Calibration		
Date	Test Date	7/2/18
Start	Run Start Time	8:24
	Run Finish Time	9:23
	Net Traversing Points	8 (2 x 4)
Θ	Net Run Time, minutes	0:59:55
C_p	Pitot Tube Coeficient	0.99
P_{Br}	Barometric Pressure, inches of Mercury	29.54
% H_2O	Moisture Content of LFG, %	4.79
% RH	Relative Humidity, %	75.50
M_{fd}	Dry Mole Fraction	0.952
%CH_4	Methane, %	13.8
%CO_2	Carbon Dioxide, %	39.0
%O_2	Oxygen, %	5.9
%Balance	Assumed as Nitrogen, %	31.0
%H_2	Hydrogen, %	10.5
%CO	Carbon Monoxide, %	0.003
M_d	Dry Molecular Weight, lb/lb-Mole	30.13
M_s	Wet Molecular weight, lb/lb-Mole	29.55
P_g	Flue Gas Static Pressure, inches of H_2O	13.58
P_s	Absolute Flue Gas Pressure, inches of Mercury	30.54
t_s	Average Stack Gas Temperature, °F	100
ΔP_{avg}	Average Velocity Head, inches of H_2O	0.038
v_s	Average LFG Velocity, feet/second	13.00
A_s	Stack Crossectional Area, square feet	1.35
Q_{sd}	Dry Volumetric Flow Rate, dry scfm	967
Q_s	Standard Volumetric Flow Rate, scfm	1,013
Q_{aw}	Actual Wet Volumetric Flue Gas Flow Rate, acfm	1,055
$Q_{lb/hr}$	Dry Air Flow Rate at Standard Conditions, lb/hr	4,536
LFG_{CH4}	Methane, lb/hr	333.4
	Methane, grains/dscf	40.23
LFG_{CO2}	Carbon Dioxide, lb/hr	2,584.5
	Carbon Dioxide, grains/dscf	311.92
LFG_{O2}	Oxygen, lb/hr	281.9
	Oxygen, grains/dscf	34.02
LFG_{N2}	Balance gas as Nitrogen, lb/hr	1,305.5
	Balance gas as Nitrogen, grains/dscf	157.57
LFG_{H2}	Hydrogen, lb/hr	31.9
	Hydrogen, grains/dscf	3.85
LFG_{CO}	Carbon Monoxide, lb/hr	0.1
	Carbon Monoxide, grains/dscf	0.02

SQ GCCS Blower Outlet (pre diversion chamber) 7/2/2018

Flare FM Flow Average =	**1,044**	**scfm**
Blower Outlet KURZ FM Average =	**1,009**	**scfm**

The below based on FIELD fixed gas results, for FM Monthly Check & Calibration

CALCULATED RESULTS

V_s =	**13.00**	ft/sec
Q_{dscfm}=	**967**	ft^3/min
Q_{scfm} =	**1,013**	ft^3/min
Q_{acfm} =	**1,055**	ft^3/min
Q_{lb} =	**4,536**	dry air flow rate lb/hr

CALCULATED VALUES

A_s =	1.35	ft^2
P_s =	30.54	in. Hg
$\%H_2O$ =	4.79	%
M_d =	30.13	lb/lb-mole
M_s =	29.55	lb/lb-mole

TEST VARIABLES

C_p =	**0.99**	[unitless]
P_{br} =	**29.54**	in Hg
T_A =	**89.6**	^oF
Point ID =	**15.75**	inches
RH% ambient =	**75.50**	%

SOURCE LFG PARAMETERS

Bws	**4.79**	%
P_g =	**13.6**	in H_2O
T_d =	**100.1**	^oF
T_w =	**92.6**	^oF
T_g =	**100.1**	^oF
RH%=	**75.5**	%

FIXED GAS RESULTS*

CH_4 =	**13.8**	%
CO_2 =	**39.00**	%
O_2 =	**5.85**	%
N_2=	**30.95**	% field balance subtracting H2%
H_2 =	**10.5**	% assumed based on historical
CO=	**0.0030**	% assumed based on historical

**** based on field data***

FIELD DATA

Duration = 8:24 ***to*** 9:23

Average DP= 0.038 in H_2O

Device: Bridgeton Main Flares
ESN: FXA-1186
Report Type: Report of Analog Input Values
Report Start Date: 7/2/2018
Report End Date: 7/2/2018
Records Reported: Up to 500

Date	Ambient Temperature Degrees F	Backup Battery Volts	Blower Out - KURZ FM SCFM	FL-100 Flare Temperature Degrees F	FL-100 Flow (2278) SCFM	FL-120 Flare Temperature Dgrees F	FL-120 Flow (3163) SCFM	FL-140 Flare Temperature Degrees F	FL-140 Flow (Out of Service) SCFM	Main Power Volts	PIT-100 Inlet Pressure Inches WC	Signal Strength %
7/2/2018 0:01	91	7.82	1,012.80	78.43	0	1,196.69	1,063.60	80.45	0	24.02	-20.24	100
7/2/2018 0:11	91	7.82	1,021.28	78.43	0	1,191.09	1,070.88	79.92	0	24.02	-20.23	100
7/2/2018 0:21	90	7.82	1,003.96	78.51	0	1,190.57	1,054.51	80.37	0	24.02	-20.39	100
7/2/2018 0:31	90	7.82	1,015.80	78.43	0	1,187.74	1,057.13	80.07	0	24.02	-20.34	100
7/2/2018 0:41	90	7.82	1,010.86	78.43	0	1,173.12	1,054.61	79.7	0	24.02	-20.35	100
7/2/2018 0:51	90	7.82	1,013.51	78.66	0	1,197.14	1,062.99	80.3	0	24.02	-20.4	100
7/2/2018 1:01	90	7.82	1,011.74	78.51	0	1,211.38	1,058.14	78.95	0	24.02	-20.33	100
7/2/2018 1:11	90	7.82	1,003.79	77.54	0	1,206.98	1,039.55	79.77	0	24.02	-20.18	100
7/2/2018 1:21	91	7.82	1,001.31	78.51	0	1,186.99	1,050.26	79.77	0	24.02	-20.16	100
7/2/2018 1:31	91	7.82	1,008.91	78.51	0	1,189.08	1,048.65	80.3	0	24.02	-20.15	100
7/2/2018 1:41	90	7.82	1,001.49	78.51	0	1,172.60	1,045.61	80.07	0	24.02	-20.08	100
7/2/2018 1:51	91	7.82	1,004.32	77.54	0	1,170.21	1,041.07	78.58	0	24.02	-20.33	100
7/2/2018 2:01	90	7.82	992.47	77.39	0	1,174.61	1,038.24	78.58	0	24.02	-20.45	100
7/2/2018 2:11	90	7.82	1,003.61	77.54	0	1,169.46	1,044.81	78.95	0	24.02	-20.31	100
7/2/2018 2:21	90	7.82	1,004.67	77.54	0	1,174.01	1,041.37	78.8	0	24.02	-20.29	100
7/2/2018 2:31	90	7.82	999.37	77.61	0	1,184.98	1,040.97	78.95	0	24.02	-20.24	100
7/2/2018 2:42	90	7.82	978.86	77.32	0	1,191.99	1,003.06	78.88	0	24.02	-20.26	100
7/2/2018 2:52	90	7.82	987.7	77.47	0	1,190.42	1,015.39	78.95	0	24.02	-20.11	100
7/2/2018 3:02	90	7.82	1,004.85	77.47	0	1,206.38	1,038.14	79.03	0.3	24.02	-19.86	100
7/2/2018 3:12	90	7.82	996.72	76.57	0	1,218.84	1,023.69	79.18	0	24.02	-19.96	100
7/2/2018 3:22	90	7.82	992.3	76.72	0	1,184.31	1,022.57	79.18	0	24.02	-20.02	100
7/2/2018 3:32	90	7.82	997.95	76.5	0	1,178.56	1,037.13	78.88	0.21	24.02	-20.05	100
7/2/2018 3:42	90	7.82	999.54	76.87	0	1,195.20	1,035.61	79.33	0	24.02	-20.07	100
7/2/2018 3:52	90	7.82	988.59	77.02	0	1,181.99	1,025.20	79.55	0	24.02	-20.24	100
7/2/2018 4:02	89	7.82	1,001.66	76.72	0	1,188.19	1,033.99	77.54	0	24.02	-20.11	100
7/2/2018 4:12	89	7.82	1,008.03	76.35	0	1,227.87	1,045.41	77.91	0	24.02	-20.08	100
7/2/2018 4:22	89	7.82	985.05	75.61	0	1,187.14	1,010.54	77.61	0	24.02	-20.01	100
7/2/2018 4:32	89	7.82	988.23	76.65	0	1,208.03	1,024.09	78.28	0	24.02	-19.97	100
7/2/2018 4:42	89	7.82	991.24	76.13	0	1,204.89	1,026.11	78.43	0	24.02	-19.93	100
7/2/2018 4:52	89	7.82	994.42	76.28	0	1,205.19	1,020.55	77.46	0	24.02	-20	100
7/2/2018 5:02	90	7.82	998.13	76.65	0	1,212.87	1,027.63	78.21	0	24.02	-19.99	100
7/2/2018 5:12	89	7.82	1,001.31	76.57	0	1,210.64	1,025.20	78.13	0	24.02	-20.07	100
7/2/2018 5:22	89	7.82	999.01	75.76	0	1,211.98	1,033.99	78.51	0	24.02	-20.07	100
7/2/2018 5:32	89	7.82	996.36	76.35	0	1,191.09	1,019.84	78.95	0	24.02	-20.25	100
7/2/2018 5:42	89	7.82	992.3	76.72	0	1,174.31	1,015.19	77.91	0.47	24.02	-20.25	100
7/2/2018 5:52	89	7.82	986.99	75.76	0	1,212.13	1,009.83	77.98	0	24.02	-20.45	100
7/2/2018 6:02	90	7.82	996.36	76.57	0	1,151.19	1,020.55	78.21	0	24.02	-20.4	100
7/2/2018 6:12	90	7.82	1,003.96	76.57	0	1,176.10	1,027.02	78.21	0	24.02	-20.4	100
7/2/2018 6:22	91	7.82	1,001.13	76.8	0	1,145.00	1,026.01	78.66	0	24.02	-19.8	100
7/2/2018 6:32	92	7.82	992.12	77.24	0	1,153.73	1,025.61	80.07	0	24.02	-19.99	100
7/2/2018 6:42	93	7.82	995.3	78.51	0	1,132.47	1,019.74	80.07	0	23.99	-20.07	100
7/2/2018 6:52	95	7.82	996.19	79.55	0	1,121.35	1,017.32	83.21	0.04	23.99	-20.07	100
7/2/2018 7:02	96	7.82	997.25	80.45	0	1,131.80	1,013.47	84.47	0	23.99	-20.13	100
7/2/2018 7:12	98	7.82	999.01	80.82	0	1,162.30	1,021.87	85.44	0	23.99	-20.06	100
7/2/2018 7:22	100	7.82	994.77	81.71	0	1,192.74	1,014.59	85.82	0	23.99	-20.1	100
7/2/2018 7:32	102	7.82	1,002.72	81.42	0	1,195.12	1,033.39	87.01	0	23.99	-19.93	100
7/2/2018 7:42	103	7.82	996.54	82.53	0	1,181.85	1,035.21	88.8	0	23.99	-19.9	100
7/2/2018 7:52	104	7.82	1,001.84	82.61	0	1,210.86	1,034.40	88.35	0	23.99	-19.93	100
7/2/2018 8:02	105	7.82	1,006.97	82.76	0	1,179.83	1,039.05	88.28	0	23.99	-19.73	100
7/2/2018 8:12	109	7.82	992.83	82.83	0	1,180.58	1,027.73	89.47	0	23.99	-19.95	100
7/2/2018 8:22	111	7.82	1,000.25	83.43	0	1,190.05	1,038.14	90.89	0	23.99	-19.72	100
7/2/2018 8:32	113	7.82	1,009.79	84.18	0	1,171.55	1,033.49	90.59	0	23.99	-19.74	100
7/2/2018 8:35	114	7.82	1,015.45	84.47	0	1,175.58	1,043.79	90.89	0	23.99	-19.67	100
7/2/2018 8:42	112	7.82	1,003.96	84.47	0	1,196.69	1,036.42	91.41	0	23.99	-19.61	100
7/2/2018 8:52	109	7.82	1,009.62	86.19	0	1,234.95	1,045.01	91.78	0	23.99	-19.53	100
7/2/2018 9:02	108	7.82	1,011.56	86.41	0	1,204.82	1,051.98	94.4	0	23.99	-19.42	100
7/2/2018 9:12	108	7.82	1,011.03	87.53	0	1,201.91	1,048.14	94.69	0	23.99	-19.43	100
7/2/2018 9:23	108	7.82	1,013.33	88.5	0	1,204.22	1,058.04	94.77	0	23.99	-19.24	100
			1,009.37				1,044.38					
7/2/2018 9:33	108	7.82	1,001.84	88.88	0	1,171.63	1,044.91	96.26	0	23.99	-19.27	100
7/2/2018 9:43	109	7.82	1,011.92	88.73	0	1,184.16	1,052.59	95.81	0	23.99	-19.07	100
7/2/2018 9:53	110	7.82	1,009.97	88.65	0	1,195.64	1,052.18	94.25	0	23.96	-19.17	100
7/2/2018 10:03	110	7.82	1,014.92	88.65	0	1,193.03	1,060.27	94.99	0	23.96	-18.97	100
7/2/2018 10:13	111	7.82	1,014.21	90.22	0	1,203.55	1,070.37	96.11	0	23.96	-18.92	100
7/2/2018 10:23	111	7.82	1,019.69	90.52	0	1,194.30	1,074.51	95.59	0	23.96	-18.86	100
7/2/2018 10:33	111	7.82	1,005.38	91.64	0	1,211.68	1,064.41	97.6	0	23.96	-18.84	100
7/2/2018 10:43	111	7.82	1,021.64	92.83	0	1,189.90	1,081.38	99.47	0	23.96	-18.56	100
7/2/2018 10:53	110	7.82	1,018.46	93.65	0	1,198.78	1,082.29	100.21	0	23.96	-18.55	100
7/2/2018 11:03	110	7.82	1,030.65	93.65	0	1,234.95	1,101.19	107.67	0	23.99	-18.78	100
7/2/2018 11:13	110	7.82	1,034.19	96.63	0	1,204.37	1,118.47	114.16	0	23.99	-18.55	100
7/2/2018 11:23	109	7.82	1,041.43	95.51	0	1,190.42	1,119.48	113.87	0	23.99	-18.99	100
7/2/2018 11:33	109	7.82	1,052.39	99.47	0	1,234.58	1,140.30	118.19	0	23.99	-18.77	100
7/2/2018 11:43	109	7.82	1,040.55	104.69	0	1,188.19	1,170.31	114.69	0	23.99	-18.85	100
7/2/2018 11:53	109	7.82	1,047.26	105.44	0	1,194.90	1,167.28	117	0	23.99	-18.76	100
7/2/2018 12:03	108	7.82	1,058.05	108.64	0	1,241.89	1,155.15	118.27	0	23.99	-18.97	100
7/2/2018 12:13	108	7.82	1,049.56	111.25	0	1,224.21	1,156.36	117.89	0	23.99	-18.96	100
7/2/2018 12:23	108	7.82	1,056.81	110.36	0	1,220.33	1,169.09	114.76	0	23.99	-18.77	100
7/2/2018 12:33	108	7.82	1,058.58	105.96	0	1,199.52	1,165.86	110.66	0	23.99	-18.7	100
7/2/2018 12:43	108	7.82	1,065.29	107.75	0	1,227.12	1,182.74	111.18	0	23.99	-18.96	100
7/2/2018 12:53	108	7.82	1,061.93	106.63	0	1,206.46	1,265.19	110.36	0	23.99	-18.86	100
7/2/2018 13:03	108	7.82	1,161.09	106.7	0	1,222.12	1,379.63	108.64	0	23.99	-19.32	100
7/2/2018 13:13	108	7.82	1,078.73	104.54	0	1,208.55	1,267.01	105.51	0	23.99	-18.99	100
7/2/2018 13:23	108	7.82	1,082.26	106.56	0	1,237.94	1,244.17	108.79	0	23.99	-18.83	100
7/2/2018 13:33	109	7.82	1,085.09	113.57	0	1,228.61	1,212.75	110.51	0	23.99	-18.81	100
7/2/2018 13:43	109	7.82	1,088.62	109.39	0	1,261.21	1,217.90	110.66	0	23.99	-18.75	100
7/2/2018 13:53	109	7.82	1,061.05	102.3	0	1,238.68	1,248.11	105.29	0	23.99	-18.98	100

	PARAMETER	Blower Out
	EP-014 NORTH QUARRY GCCS FLARE LFG	
	The below based on final QA/QC lab fixed gas results	
Date	Test Date	7/2/18
Start	Run Start Time	8:19
	Run Finish Time	9:19
	Net Traversing Points	8 (2 x 4)
Θ	Net Run Time, minutes	0:59:55
C_p	Pitot Tube Coeficient	0.99
P_{Br}	Barometric Pressure, inches of Mercury	29.60
% H_2O	Moisture Content of LFG, %	3.31
% RH	Relative Humidity, %	48.90
M_{fd}	Dry Mole Fraction	0.967
%CH_4	Methane, %	47.8
%CO_2	Carbon Dioxide, %	35.4
%O_2	Oxygen, %	3.2
%Balance	Assumed as Nitrogen, %	13.0
%H_2	Hydrogen, %	0.61
%CO	Carbon Monoxide, %	0.0030
M_d	Dry Molecular Weight, lb/lb-Mole	27.91
M_s	Wet Molecular weight, lb/lb-Mole	27.58
P_g	Flue Gas Static Pressure, inches of H_2O	1.00
P_s	Absolute Flue Gas Pressure, inches of Mercury	29.67
t_s	Average Stack Gas Temperature, °F	101
ΔP_{avg}	Average Velocity Head, inches of H_2O	0.021
v_s	Average LFG Velocity, feet/second	10.16
A_s	Stack Crossectional Area, square feet	0.51
Q_{sd}	Dry Volumetric Flow Rate, dry scfm	282
Q_s	Standard Volumetric Flow Rate, scfm	291
Q_{aw}	Actual Wet Volumetric Flue Gas Flow Rate, acfm	313
$Q_{lb/hr}$	Dry Air Flow Rate at Standard Conditions, lb/hr	1,226
NHV	Net Heating Value, Btu/scf	434.6
LFG_{CH4}	Methane, lb/hr	337.0
	Methane, grains/dscf	139.36
LFG_{CO2}	Carbon Dioxide, lb/hr	684.6
	Carbon Dioxide, grains/dscf	283.13
LFG_{O2}	Oxygen, lb/hr	44.3
	Oxygen, grains/dscf	18.32
LFG_{N2}	Balance gas as Nitrogen, lb/hr	160.0
	Balance gas as Nitrogen, grains/dscf	66.18
LFG_{H2}	Hydrogen, lb/hr	0.5
	Hydrogen, grains/dscf	0.22
LFG_{CO}	Carbon Monoxide, lb/hr	0.0
	Carbon Monoxide, grains/dscf	0.02

		EP-14 NQ A	EP-14 NQ B
❶$E_{TRS-SO2}$	TRS-->SO2 Emission Concentration, ppmd	50	17
	TRS-->SO2 Emission Rate, lb/hr	0.14	0.05
	TRS-->SO2 Emission Rate, grains/dscf	0.058	0.020

This lb/hr result based on Method 2 velocity/flow determined results - not the respective flow meters.

❶ TRS assumed moelcular mass = SO2, 64.06 gram/mole, I.e. 1 TRS in LFG assumed to = 1 SO2 emitted from the stack

Monday, July 02, 2018

EP-014 NORTH QUARRY GCCS FLARE LFG

The below based on FIELD collected fixed gas data, for Method 2 Monthly FM Calibration

LOCATION	TIME		FLOW -SCFM		Method 2 vs. Fleetzoom
	Begin	End	Method 2	FleetZoom	
NQ BLOWER OUT	8:19	9:19	290	283	2.3%

**Note: Fleetzoom data derived from EP-014/FXA1212 TSI Flow Meter*

** Note: per new air construction permit, MO APCP No. 042018-005, monthly Method 2 check and calibration: based on field data and field computations, no adjustment needed to TSI flow meter, FM was monitoring <5% from the reference.*

	PARAMETER	Blower Out
EP-014 NORTH QUARRY GCCS FLARE LFG		
The below based on FIELD collected fixed gas data, for Method 2 Monthly FM Calibration		
Date	Test Date	7/2/18
Start	Run Start Time	8:19
	Run Finish Time	9:19
	Net Traversing Points	8 (2 x 4)
Θ	Net Run Time, minutes	0:59:55
C_p	Pitot Tube Coeficient	0.99
P_{Br}	Barometric Pressure, inches of Mercury	29.60
% H_2O	Moisture Content of LFG, %	3.31
% RH	Relative Humidity, %	48.90
M_{fd}	Dry Mole Fraction	0.967
%CH_4	Methane, %	49.3
%CO_2	Carbon Dioxide, %	37.6
%O_2	Oxygen, %	2.0
%Balance	Assumed as Nitrogen, %	11.3
%H_2	Hydrogen, %	0.0
%CO	Carbon Monoxide, %	0.000
M_d	Dry Molecular Weight, lb/lb-Mole	28.21
M_s	Wet Molecular weight, lb/lb-Mole	27.87
P_g	Flue Gas Static Pressure, inches of H_2O	1.01
P_s	Absolute Flue Gas Pressure, inches of Mercury	29.67
t_s	Average Stack Gas Temperature, °F	101
ΔP_{avg}	Average Velocity Head, inches of H_2O	0.021
v_s	Average LFG Velocity, feet/second	10.10
A_s	Stack Crossectional Area, square feet	0.51
Q_{sd}	Dry Volumetric Flow Rate, dry scfm	281
Q_s	Standard Volumetric Flow Rate, scfm	290
Q_{aw}	Actual Wet Volumetric Flue Gas Flow Rate, acfm	311
$Q_{lb/hr}$	Dry Air Flow Rate at Standard Conditions, lb/hr	1,233
LFG_{CH4}	Methane, lb/hr	345.7
	Methane, grains/dscf	143.73
LFG_{CO2}	Carbon Dioxide, lb/hr	722.4
	Carbon Dioxide, grains/dscf	300.33
LFG_{O2}	Oxygen, lb/hr	27.3
	Oxygen, grains/dscf	11.34
LFG_{N2}	Balance gas as Nitrogen, lb/hr	137.8
	Balance gas as Nitrogen, grains/dscf	57.27
LFG_{H2}	Hydrogen, lb/hr	0.0
	Hydrogen, grains/dscf	0.00
LFG_{CO}	Carbon Monoxide, lb/hr	0.0
	Carbon Monoxide, grains/dscf	0.00

EP14 NQ Blower Outlet (pre flame arrestor - header)

FleetZoom Data Flow Average = 283 **scfm** **7/2/2018**

The below based on FIELD collected fixed gas data, for Method 2 Monthly FM Calibration

CALCULATED RESULTS		
V_s =	**10.10**	ft/sec
Q_{dscfm}=	**281**	ft^3/min
Q_{scfm} =	**290**	ft^3/min
Q_{acfm} =	**311**	ft^3/min
Q_{lb} =	**1,233**	dry air flow rate lb/hr

CALCULATED VALUES

A_s =	0.51	ft^2
P_s =	29.67	in. Hg
$\%H_2O$ =	3.31	%
M_d =	28.21	lb/lb-mole
M_s =	27.87	lb/lb-mole

TEST VARIABLES

C_p =	**0.99**	[unitless]
P_{br} =	**29.60**	in Hg
T_A =	**85.4**	^oF
Point ID =	**9.70**	inches
RH% ambient =	**65.0**	%

SOURCE LFG PARAMETERS

Bws	**3.31**	%
P_g =	**1.0**	in H_2O
T_d =	**101.3**	^oF
T_w =	**83.6**	^oF
T_g =	**101.3**	^oF
RH%=	**48.9**	%

FIXED GAS RESULTS*

CH_4 =	**49.3**	%
CO_2 =	**37.55**	%
O_2 =	**1.95**	%
N_2=	**11.25**	% field balance subtracting H2%
H_2 =	**0.0**	% assumed based on historical
CO=	**0.000**	% assumed based on historical

**** based on field data***

FIELD DATA

Duration = 8:19 ***to*** 9:19

Average DP= 0.021 in H_2O

Device: Bridgeton Auxiliary Flare
ESN: FXA-1212
Report Type: Report of Analog Input Values
Report Start Date: 7/2/2018
Report End Date: 7/2/2018
Records Reported: Up to 500

Date	Ambient Temperature Degrees F	Backup Battery Volts	Flare Flow (2500) scfm	Flare Temperature F	Main Power Volts	Signal Strength %
7/2/2018 0:03	84	8.16	264.58	929.19	24.15	65
7/2/2018 0:13	84	8.16	266.16	920.6	24.15	65
7/2/2018 0:23	84	8.16	264.83	919.59	24.15	65
7/2/2018 0:33	84	8.16	267.36	901.33	24.15	65
7/2/2018 0:43	84	8.16	264.52	846.7	24.15	65
7/2/2018 0:53	84	8.16	266.73	936.42	24.15	65
7/2/2018 1:03	84	8.16	266.22	807.53	24.15	65
7/2/2018 1:13	84	8.16	268.56	905.27	24.15	65
7/2/2018 1:23	84	8.16	267.42	871.9	24.15	65
7/2/2018 1:33	84	8.16	265.28	841.54	24.15	65
7/2/2018 1:43	84	8.16	265.84	800.59	24.15	65
7/2/2018 1:53	84	8.16	264.45	789.77	24.15	65
7/2/2018 2:03	83	8.16	266.67	823.86	24.15	65
7/2/2018 2:13	83	8.16	264.9	830.16	24.15	65
7/2/2018 2:23	83	8.13	264.52	791.92	24.15	65
7/2/2018 2:33	83	8.13	266.92	983.89	24.15	65
7/2/2018 2:43	83	8.13	264.96	896.75	24.15	65
7/2/2018 2:53	83	8.13	263.13	898.25	24.15	65
7/2/2018 3:03	83	8.13	264.83	972.01	24.15	65
7/2/2018 3:13	83	8.13	265.28	986.97	24.15	65
7/2/2018 3:23	82	8.13	264.58	825.79	24.15	65
7/2/2018 3:34	82	8.13	266.67	918.02	24.15	65
7/2/2018 3:44	82	8.13	264.77	873.12	24.15	65
7/2/2018 3:54	82	8.13	265.09	799.66	24.15	65
7/2/2018 4:04	82	8.13	265.97	856.01	24.15	65
7/2/2018 4:14	82	8.13	263.95	898.18	24.15	65
7/2/2018 4:24	82	8.13	266.6	899.97	24.15	65
7/2/2018 4:34	82	8.13	264.2	865.1	24.15	65
7/2/2018 4:44	81	8.13	263.76	806.89	24.15	65
7/2/2018 4:54	81	8.13	266.6	871.69	24.15	65
7/2/2018 5:04	81	8.13	261.42	1,020.84	24.15	65
7/2/2018 5:14	81	8.13	262.56	812.76	24.15	65
7/2/2018 5:24	81	8.13	262.69	794	24.15	65
7/2/2018 5:34	81	8.13	262.31	807.32	24.15	65
7/2/2018 5:44	81	8.13	263.25	841.54	24.15	65
7/2/2018 5:54	81	8.13	263.44	930.91	24.15	65
7/2/2018 6:04	82	8.13	262.69	941.93	24.15	65
7/2/2018 6:14	82	8.13	266.73	980.82	24.15	65
7/2/2018 6:24	82	8.13	267.17	950.38	24.15	65
7/2/2018 6:34	83	8.13	265.59	942.51	24.15	65
7/2/2018 6:44	85	8.13	263.89	938.28	24.15	65
7/2/2018 6:54	87	8.13	268.81	936.99	24.15	65
7/2/2018 7:04	90	8.13	267.74	939.07	24.15	65
7/2/2018 7:14	93	8.13	271.28	980.46	24.18	65
7/2/2018 7:24	95	8.13	269.38	1,015.11	24.18	65
7/2/2018 7:34	97	8.13	272.67	970.5	24.18	65
7/2/2018 7:44	99	8.13	275.13	1,007.67	24.18	65
7/2/2018 7:54	100	8.13	272.35	1,067.31	24.18	65
7/2/2018 8:04	102	8.13	274.44	1,130.13	24.18	65
7/2/2018 8:14	104	8.1	277.91	1,146.29	24.18	65
7/2/2018 8:24	106	8.1	278.98	1,057.93	24.18	65
7/2/2018 8:34	108	8.1	289.28	991.84	24.18	65

7/2/2018 8:44	110	8.1	283.15	1,042.04	24.18	65
7/2/2018 8:54	111	8.1	283.41	1,046.41	24.21	65
7/2/2018 9:04	114	8.1	283.15	1,054.28	24.18	65
7/2/2018 9:14	116	8.1	286.82	1,014.11	24.21	65
			283.242857			
7/2/2018 9:24	118	8.1	287.2	1,053.71	24.21	65
7/2/2018 9:34	119	8.1	283.22	1,062.23	24.21	65
7/2/2018 9:44	120	8.1	283.15	1,102.90	24.21	65
7/2/2018 9:54	121	8.1	286.57	1,039.03	24.21	65
7/2/2018 10:04	122	8.1	287.2	1,114.55	24.21	65
7/2/2018 10:15	122	8.07	287.83	1,096.46	24.21	65
7/2/2018 10:25	122	8.07	288.78	1,111.92	24.21	65
7/2/2018 10:35	123	8.07	290.61	1,118.54	24.21	65
7/2/2018 10:45	124	8.07	289.66	1,182.78	24.21	65
7/2/2018 10:55	124	8.07	292.88	1,124.02	24.21	65
7/2/2018 11:05	124	8.07	293.64	1,185.20	24.21	65
7/2/2018 11:15	123	8.07	292.57	1,160.09	24.21	65
7/2/2018 11:25	123	8.07	291.87	1,052.92	24.21	65
7/2/2018 11:35	124	8.04	294.02	1,113.84	24.21	65
7/2/2018 11:45	124	8.04	299.07	1,141.02	24.21	65
7/2/2018 11:55	124	8.04	295.54	1,073.90	24.21	65
7/2/2018 12:05	125	8.04	297.12	1,156.60	24.21	65
7/2/2018 12:15	125	8.04	297.62	1,162.01	24.21	65
7/2/2018 12:25	125	8.04	297.12	1,148.63	24.21	65
7/2/2018 12:35	124	8.04	299.26	1,212.53	24.21	65
7/2/2018 12:45	124	8.04	297.24	1,145.86	24.21	65
7/2/2018 12:55	124	8.04	298.82	1,216.01	24.21	65
7/2/2018 13:05	123	8.04	304.19	1,227.54	24.21	61
7/2/2018 13:15	123	8.04	300.4	1,158.45	24.21	61
7/2/2018 13:25	121	8.04	298.57	1,241.48	24.21	61
7/2/2018 13:35	122	8.01	303.24	1,136.61	24.21	61
7/2/2018 13:45	122	8.01	303.62	1,220.21	24.21	61
7/2/2018 13:55	119	8.01	300.15	1,217.01	24.21	61
7/2/2018 14:05	115	8.01	297.5	1,089.08	24.21	61
7/2/2018 14:15	112	8.01	303.56	1,149.99	24.21	61
7/2/2018 14:25	114	8.01	299.52	1,208.68	24.21	61
7/2/2018 14:35	112	8.01	297.81	1,122.52	24.21	61
7/2/2018 14:45	114	8.01	300.97	1,184.21	24.21	68
7/2/2018 14:55	112	8.01	298.13	1,106.27	24.21	68
7/2/2018 15:05	111	8.01	295.35	1,189.90	24.21	68
7/2/2018 15:15	110	8.01	296.8	1,208.33	24.21	61
7/2/2018 15:25	109	8.01	301.03	1,235.15	24.21	61
7/2/2018 15:35	111	8.01	300.21	1,167.99	24.21	61
7/2/2018 15:45	113	8.01	300.59	1,221.92	24.21	61
7/2/2018 15:55	112	8.01	295.35	1,158.17	24.21	61
7/2/2018 16:05	109	8.01	292.31	1,156.39	24.21	61
7/2/2018 16:15	107	8.01	293.77	1,261.62	24.18	61
7/2/2018 16:25	106	8.01	300.46	1,234.79	24.18	61
7/2/2018 16:36	108	8.01	288.78	1,278.98	24.18	61
7/2/2018 16:46	107	7.98	289.72	1,258.06	24.18	61
7/2/2018 16:56	106	7.98	293.07	1,187.20	24.18	61
7/2/2018 17:06	104	7.98	294.15	1,095.17	24.18	65
7/2/2018 17:16	103	7.98	259.08	1,231.02	24.18	65
7/2/2018 17:26	102	7.98	292.13	1,242.55	24.18	65
7/2/2018 17:36	102	7.98	290.61	1,272.22	24.18	65
7/2/2018 17:46	102	7.98	286.5	1,176.67	24.18	65
7/2/2018 17:56	102	7.98	290.99	1,129.57	24.18	65
7/2/2018 18:06	103	7.98	292.31	1,192.39	24.18	65
7/2/2018 18:16	103	7.98	285.81	1,209.47	24.18	65
7/2/2018 18:26	103	7.98	289.16	1,215.80	24.18	65
7/2/2018 18:36	103	7.98	287.58	1,179.73	24.18	65
7/2/2018 18:46	103	7.98	283.09	1,209.39	24.18	65
7/2/2018 18:56	101	7.98	283.22	1,171.40	24.18	65
7/2/2018 19:06	100	7.98	286.06	1,159.23	24.18	65

Air TECHNOLOGY
Laboratories, Inc.

July 20, 2018

LA Cert #04140
EPA Methods TO3, TO14A, TO15, 25C/3C, RSK-175
TX Cert T104704450-14-6
EPA Methods TO14A, TO15
UT Cert CA0133332015-3
EPA Methods TO3, TO14A, TO15, RSK-175

Republic Services
ATTN: Mike Lambrich
13570 St. Charles Rock Rd.
Bridgeton, MO 63044

LABORATORY TEST RESULTS

Project Reference: Bridgeton Landfill
Lab Number: J070304-01/04

Enclosed are **revised** results for sample(s) received 7/03/18 by Air Technology Laboratories. This revision replaces the report dated 7/09/18 in its entirety. Samples were received intact. Analyses were performed according to specifications on the chain of custody provided with the sample(s).

Report Narrative:

- This revision reflects reporting of results to at least one decimal place as previously agreed upon.
- Unless otherwise noted in the report, sample analyses were performed within method performance criteria and meet all requirements of the TNI Standards.
- The enclosed results relate only to the sample(s).

Preliminary results were e-mailed to Mike Lambrich and Erin Fanning; David Randall, Dustin Thoenen and Don Murphy, Weaver Consultants Group; and Jan Feezor, Feezor Engineering on 7/06/18.

ATL appreciates the opportunity to provide testing services to your company. If you have any questions regarding these results, please call me at (626) 964-4032.

Sincerely,

Mark Johnson
Operations Manager
MJohnson@AirTechLabs.com

Enclosures

Note: The cover letter is an integral part of this analytical report.

AirTECHNOLOGY Laboratories, Inc.

18501 E. Gale Ave., Suite 130
City of Industry, CA 91748
Ph: 626-964-4032
Fx: 626-964-5832

CHAIN OF CUSTODY RECORD

TURNAROUND TIME

Standard	☐	48 hours	■
Same Day	☐	72 hours	☐
24 hours	☐	96 hours	☐
Other:		5 day	☐

DELIVERABLES

EDD	■
EDF	☐
Level 3	☐
Level 4	☐

PAGE: 1 OF 1

Condition upon receipt:
Sealed Yes ☐ No ☐
Intact Yes ☐ No ☐
Chilled _____ deg C

Project No.:	
Project Name:	Bridgeton Landfill
Report To:	Mike Lambrich
Company:	Republic Services
Street:	13570 St. Charles Rock Rd
City/State/Zip:	Bridgeton, MO 63044
Phone& Fax:	314-683-3921
e-mail:	Mlambrich@republicservices.com

BILLING

P.O. No.:	6605567
Bill to:	Republic Services
	Attn: Mike Lambrich
	13570 St. Charles Rock Rd.
	Bridgeton, MO 63044

LAB USE ONLY	Canister Pressures ("hg)				SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	CONTAINER QTY/TYPE	MATRIX	PRESERVATION	ANALYSIS REQUEST					
	Canister ID	Sample Start	Sample End	Lab Receive							ASTM D5504-12	ASTM 1946 + H2 + CO & Btu/SC	ASTM 1946 + H2 + CO & Btu/SCF (by CH4 only)			
J070304-01	4432	-19.97	-3.97	-4	NQ EP14 A	7/2/2018	8:18	C-6L	LFG	He	X		X			
-02	1290	-19.88	-3.99	-4	NQ EP14 B	7/2/2018	8:48	C-6L	LFG	He	X		X			
-03	5192	-20.19	-3.98	-5	Blower Outlet A	7/2/2018	8:28	C-6L	LFG	He	X	X				
-04	1305	-20.63	-3.99	-5	Blower Outlet B	7/2/2018	8:53	C-6L	LFG	He	X	X				

AUTHORIZATION TO PERFORM WORK: Dave Penoyer — COMPANY: Republic Services — DATE/TIME:

SAMPLED BY: AK/DAR — COMPANY: Republic Services/WCG — DATE/TIME 7/2/18

RELINQUISHED BY _____ DATE 7/2/18 — RECEIVED BY _____ DATE/TIME

RELINQUISHED BY FEDEX DATE 7/3/18 0915 — RECEIVED BY ATLI DATE/TIME 7/3/18 0915

RELINQUISHED BY _____ DATE — RECEIVED BY _____ DATE/TIME

METHOD OF TRANSPORT (circle one): Walk-In FedEx UPS Courier ATLI Other

COMMENTS

DISTRIBUTION: White & Yellow - Lab Copies / Pink - Customer Copy

Preservation: H=HCl N=None / Container: B=Bag C=Can V=VOA O=Other *Rev. 03 - 5/7/08*

Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 07/03/18
Matrix: Air
Reporting Units: ppmv

ASTM D5504

Lab No.:	J070304-01		J070304-02		J070304-03		J070304-04	
Client Sample I.D.:	EP-14 NQ A		EP-14 NQ B		Blower Outlet A		Blower Outlet B	
Date/Time Sampled:	7/2/18 8:18		7/2/18 8:48		7/2/18 8:28		7/2/18 8:53	
Date/Time Analyzed:	7/3/18 14:19		7/3/18 14:33		7/3/18 14:46		7/3/18 15:00	
QC Batch No.:	180703GC3A1		180703GC3A1		180703GC3A1		180703GC3A1	
Analyst Initials:	AS		AS		AS		AS	
Dilution Factor:	3.2		3.2		3.2		3.2	
ANALYTE	Result ppmv	RL ppmv	Result ppmv	RL ppmv	Result ppmv	RL ppmv	Result ppmv	RL ppmv
Hydrogen Sulfide	30	0.59	ND	0.59	7.4	0.63	22	0.63
Carbonyl Sulfide	ND	0.59	ND	0.59	ND	0.63	ND	0.63
Methyl Mercaptan	4.9	0.59	ND	0.59	210 d	63	220 d	63
Ethyl Mercaptan	ND	0.59	ND	0.59	2.3	0.63	2.5	0.63
Dimethyl Sulfide	15	0.59	15	0.59	1,200 d	63	1,100 d	63
Carbon Disulfide	ND	0.59	ND	0.59	1.3	0.63	1.3	0.63
Isopropyl Mercaptan	ND	0.59	ND	0.59	1.3	0.63	1.3	0.63
t-Butylmercaptan	ND	0.59	ND	0.59	ND	0.63	ND	0.63
n-Propyl Mercaptan	ND	0.59	ND	0.59	ND	0.63	ND	0.63
Ethyl Methyl Sulfide	ND	0.59	ND	0.59	6.8	0.63	7.0	0.63
Thiophene	ND	0.59	ND	0.59	15	0.63	15	0.63
Isobutyl Mercaptan	ND	0.59	ND	0.59	ND	0.63	ND	0.63
Diethyl Sulfide	ND	0.59	ND	0.59	0.89	0.63	1.2	0.63
n-Butyl Mercaptan	ND	0.59	ND	0.59	2.4	0.63	2.5	0.63
Dimethyl Disulfide	ND	0.59	ND	0.59	120 d	63	110 d	63
3-Methylthiophene	0.94	0.59	0.83	0.59	1.2	0.63	1.2	0.63
Tetrahydrothiophene	ND	0.59	ND	0.59	9.7	0.63	10	0.63
2-Ethylthiophene	ND	0.59	ND	0.59	2.3	0.63	2.5	0.63
2,5-Dimethylthiophene	ND	0.59	ND	0.59	2.2	0.63	2.3	0.63
Diethyl Disulfide	ND	0.59	ND	0.59	ND	0.63	2.0	0.63
Dimethyl Trisulfide	ND	0.59	2.0	0.59	190 d	63	230 d	63
Total Reduced Sulfur	50	0.59	17	0.59	1,900	0.63	1,900	0.63

ND = Not Detected (below RL)
RL = Reporting Limit
d = Result obtained from a secondary dilution

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 07/03/18
Matrix: Air
Reporting Units: ppmv

ASTM D5504

Lab No.:	J070304-01		J070304-02		J070304-03		J070304-04	
Client Sample I.D.:	EP-14 NQ A		EP-14 NQ B		Blower Outlet A		Blower Outlet B	
Date/Time Sampled:	7/2/18 8:18		7/2/18 8:48		7/2/18 8:28		7/2/18 8:53	
Date/Time Analyzed:	7/3/18 14:19		7/3/18 14:33		7/3/18 14:46		7/3/18 15:00	
QC Batch No.:	180703GC3A1		180703GC3A1		180703GC3A1		180703GC3A1	
Analyst Initials:	AS		AS		AS		AS	
Dilution Factor:	3.2		3.2		3.2		3.2	
ANALYTE	Result ppmv	RL ppmv	Result ppmv	RL ppmv	Result ppmv	RL ppmv	Result ppmv	RL ppmv

Reviewed/Approved By: _____ Date 7-9-18

Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

QC Batch No.: 180703GC3A1
Matrix: Air
Units: ppmv

QC for Sulfur Compounds by ASTM D5504

Lab No.:	Method Blank		LCS		LCSD			
Date/Time Analyzed:	7/3/18 11:00		7/3/18 10:33		7/3/18 10:46			
Analyst Initials:	AS		AS		AS			
Datafile:	03jul005		03jul003		03jul004			
Dilution Factor:	1.0		1.0		1.0			
ANALYTE	Results	RL	% Rec.	Criteria	% Rec.	Criteria	%RPD	Criteria
Hydrogen Sulfide	ND	0.20	96	70-130%	96	70-130%	0.4	<30
Carbonyl Sulfide	ND	0.20	110	70-130%	109	70-130%	1.0	<30
Methyl Mercaptan	ND	0.20	115	70-130%	116	70-130%	0.9	<30
Ethyl Mercaptan	ND	0.20	113	70-130%	114	70-130%	0.8	<30
Dimethyl Sulfide	ND	0.20	95	70-130%	93	70-130%	2.1	<30
Carbon Disulfide	ND	0.20	95	70-130%	95	70-130%	0.1	<30
Dimethyl Disulfide	ND	0.20	97	70-130%	95	70-130%	1.2	<30

ND = Not Detected (Below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date: 7-6-18
Mark J. Johnson
Operations Manager

The cover letter is an integral part of this analytical report.

Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 07/03/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J070304-01		J070304-02					
Client Sample I.D.:	EP-14 NQ A		EP-14 NQ B					
Date/Time Sampled:	7/2/18 8:18		7/2/18 8:48					
Date/Time Analyzed:	7/3/18 14:05		7/3/18 14:19					
QC Batch No.:	180703GC8A1		180703GC8A1					
Analyst Initials:	AS		AS					
Dilution Factor:	3.0		3.0					
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v				
Hydrogen	0.57 d	0.030	0.64 d	0.030				
Carbon Dioxide	35.9	0.030	34.8	0.030				
Oxygen/Argon	3.1	1.5	3.2	1.5				
Nitrogen	12.8	3.0	13.2	3.0				
Methane	47.5	0.0030	48.1	0.0030				
Carbon Monoxide	ND	0.0030	ND	0.0030				
Net Heating Value (BTU/ft3)	432.1	3.0	437.0	3.0				
Gross Heating Value (BTU/ft3)	479.9	3.0	485.3	3.0				

Results normalized including non-methane hydrocarbons
BTU values based on D1946 analysis methane only
ND = Not Detected (below RL)
RL = Reporting Limit
d = Reported from a secondary analysis. QC Batch: 180706GC8A2

Reviewed/Approved By: _____ Date 7/20/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 07/03/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J070304-03		J070304-04					
Client Sample I.D.:	Blower Outlet A		Blower Outlet B					
Date/Time Sampled:	7/2/18 8:28		7/2/18 8:53					
Date/Time Analyzed:	7/3/18 14:34		7/3/18 14:48					
QC Batch No.:	180703GC8A1		180703GC8A1					
Analyst Initials:	AS		AS					
Dilution Factor:	3.2		3.2					
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v				
Hydrogen	10.1	3.2	10.1	3.2				
Carbon Dioxide	36.7	0.032	36.8	0.032				
Oxygen/Argon	6.4	1.6	6.3	1.6				
Nitrogen	32.1	3.2	31.9	3.2				
Methane	13.4	0.0032	13.6	0.0032				
Carbon Monoxide	0.044	0.0032	0.045	0.0032				
Net Heating Value (BTU/ft3)	177.9	3.2	182.2	3.2				
Gross Heating Value (BTU/ft3)	200.7	3.2	205.4	3.2				

Results normalized including non-methane hydrocarbons
BTU values based on D1946 analysis and non-methane analysis assumed as propane
ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 7/20/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

QC Batch No: 180703GC8A1
Matrix: Air
Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	7/3/18 9:29			7/3/18 8:59		7/3/18 9:14					
Analyst Initials:	AS			AS		AS					
Dilution Factor:	1.0			1.0		1.0			Limits		
ANALYTE	Result % v/v	RL % v/v	SPIKE AMT. % v/v	Result % v/v	% Rec.	Result % v/v	% Rec.	RPD %	Low %Rec	High %Rec	Max. RPD
Hydrogen	ND	1.0	5.0	4.51	90	4.45	89	1.3	70	130	30
Carbon Dioxide	ND	0.010	10	9.16	91	8.68	87	5.5	70	130	30
Oxygen/Argon	ND	0.50	15	16.4	110	16.4	111	0.6	70	130	30
Nitrogen	ND	1.0	70	73.4	105	73.3	105	0.2	70	130	30
Methane	ND	0.0010	0.10	0.115	115	0.112	112	2.4	70	130	30
Carbon Monoxide	ND	0.0010	0.10	0.109	109	0.107	107	2.0	70	130	30

ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 7-6-18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

QC Batch # 180706GC8A2
Matrix: Air
Units: % v/v

QC for Low Level Hydrogen Analysis

Lab No.:	Blank		LCS		LCSD			
Date Analyzed:	7/6/2018 10:32		7/6/2018 10:00		7/6/2018 10:05			
Analyst Initials:	AS		AS		AS			
Dilution Factor:	1.0		1.0		1.0			
ANALYTE	Results	RL	%Rec	Criteria	%Rec	Criteria	RPD	Criteria
Hydrogen	ND	0.010	101	70-130	102	70-130	1.0	<20

ND = Not Detected (Below RL)
RL = PQL X Dilution Factor

Reviewed/Approved By: _____ Date: 7-6-18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report.

SQ GCCS Blower Outlet (pre diversion chamber)

Flare FM Flow Average = **1,012** **scfm**

Blower Outlet KURZ FM Average = **1,004** **scfm** $\Delta =$ **-0.8%**

	PARAMETER		Blower Outlet A	Blower Outlet B
SOUTH QUARRY GCCS LFG - BLOWER OUTLET (EP-012/FL120 Operating Solo)				
Date	Test Date		6/15/18	6/15/18
Time	Start		7:55	8:19
***%CH_4**	Methane, %		12.8	13.1
***%CO_2**	Carbon Dioxide, %		37.8	38.9
***'%O_2**	Oxygen, %		5.6	5.3
***%Balance**	Assumed as Nitrogen, %		43.8	42.7
P_{br}	Ambient, Atmospheric Pressure, inches of Hg		29.54	29.54
P_g	Flue Gas Static Pressure, inches of H_2O		14.75	14.39
P_s	Flue Gas Static Absolute Pressure, inches of Hg		30.62	30.60
t_d	Blower Outlet LFG Temperature, °F		91.3	95.4
t_w	Blower Outlet LFG Wet Bulb Temperature, °F		81.7	87.6
$\%H_2O$	LFG Moisture Content (calculated wet bulb-dry bulb), %		3.62	
Q_s	Kurz Blower Outlet, Standard Volumetric Flow Rate, scfm		1,004	
Q_{sd}	Dry Volumetric Flow Rate, dscfm		968	
LFG_{CH4}	Methane, lb/hr		321.1	328.6
	Methane, grains/dscf		37.32	38.19
LFG_{CO2}	Carbon Dioxide, lb/hr		2,601.4	2,677.1
	Carbon Dioxide, grains/dscf		302.33	311.12
LFG_{O2}	Oxygen, lb/hr		280.2	265.2
	Oxygen, grains/dscf		32.57	30.82
LFG_{N2}	Balance gas as Nitrogen, lb/hr		1,918.7	1,870.5
	Balance gas as Nitrogen, grains/dscf		222.99	217.39

** Fixed gas results based on field parameter data collection at the time of sampling, via Envision Landfill Gas Analyzer*

		Blower Outlet A	Blower Outlet B
❶$E_{TRS-SO2}$	TRS-->SO2 Emission Concentration, ppmd	1,300	1,400
	TRS-->SO2 Emission Rate, lb/hr	13.02	14.02
	TRS-->SO2 Emission Rate, grains/dscf	1.514	1.630
	TPY =	57.04	61.43

❶ TRS assumed moelcular mass = SO2, 64.06 gram/mole, I.e. 1 TRS in LFG assumed to = 1 SO2 emitted from the stack

EP14 NQ GCCS Blower Outlet (pre flame arrestor - header)

Flare FM Flow Average = **284** **scfm**

	PARAMETER	NQ EP14A	NQ EP14B
EP14 NORTH QUARRY FLARE (OPERATING SOLO, NQ LFG Only)			
Date	Test Date	6/15/18	6/15/18
Time	Start	7:35	8:05
***%CH_4**	Methane, %	51.3	50.6
***%CO_2**	Carbon Dioxide, %	38.3	38.7
***'%O_2**	Oxygen, %	1.0	1.1
***%Balance**	Assumed as Nitrogen, %	9.5	9.7
P_{br}	Ambient, Atmospheric Pressure, inches of Hg	29.55	29.57
P_g	Flue Gas Static Pressure, inches of H_2O	1.03	1.04
P_s	Flue Gas Static Absolute Pressure, inches of Hg	29.63	29.65
t_d	Blower Outlet LFG Temperature, °F	89.4	96.0
t_w	Blower Outlet LFG Wet Bulb Temperature, °F	80.8	81.8
%H_2O	LFG Moisture Content (calculated wet bulb-dry bulb), %	3.25	
Q_s	Flare Flow Meter, Standard Volumetric Flow Rate, scfm	284	
Q_{sd}	Dry Volumetric Flow Rate, dscfm	275	
LFG_{CH4}	Methane, lb/hr	364.3	359.3
	Methane, grains/dscf	149.56	147.52
LFG_{CO2}	Carbon Dioxide, lb/hr	746.1	753.9
	Carbon Dioxide, grains/dscf	306.32	309.52
LFG_{O2}	Oxygen, lb/hr	14.2	15.6
	Oxygen, grains/dscf	5.82	6.40
LFG_{N2}	Balance gas as Nitrogen, lb/hr	117.8	120.3
	Balance gas as Nitrogen, grains/dscf	48.36	49.38

** Fixed gas results based on field parameter data collection at the time of sampling, via Envision Landfill Gas Analyzer*

		NQ EP14A	NQ EP14B
❶**$E_{TRS-SO2}$**	TRS-->SO2 Emission Concentration, ppmd	39	15
	TRS-->SO2 Emission Rate, lb/hr	0.11	0.04
	TRS-->SO2 Emission Rate, grains/dscf	0.045	0.017
	TPY =	0.48	0.19

❶ TRS assumed moelcular mass = SO2, 64.06 gram/mole, I.e. 1 TRS in LFG assumed to = 1 SO2 emitted from the stack

Air TECHNOLOGY Laboratories, Inc.

June 22, 2018

LA Cert #04140
EPA Methods TO3, TO14A, TO15, 25C/3C, RSK-175
TX Cert T104704450-14-6
EPA Methods TO14A, TO15
UT Cert CA0133332015-3
EPA Methods TO3, TO14A, TO15, RSK-175

Republic Services
ATTN: Mike Lambrich
13570 St. Charles Rock Rd.
Bridgeton, MO 63044

LABORATORY TEST RESULTS

Project Reference: Bridgeton Landfill
Lab Number: J061802-01/04

Enclosed are results for sample(s) received 6/18/18 by Air Technology Laboratories. Samples were received intact. Analyses were performed according to specifications on the chain of custody provided with the sample(s).

Report Narrative:

- Unless otherwise noted in the report, sample analyses were performed within method performance criteria and meet all requirements of the TNI Standards.
- The enclosed results relate only to the sample(s).

Preliminary results were e-mailed to Mike Lambrich and Erin Fanning; David Randall, Dustin Thoenen and Don Murphy, Weaver Consultants Group; and Jan Feezor, Feezor Engineering on 6/21/18.

ATL appreciates the opportunity to provide testing services to your company. If you have any questions regarding these results, please call me at (626) 964-4032.

Sincerely,

Mark Johnson
Operations Manager
MJohnson@AirTechLabs.com

Enclosures

Note: The cover letter is an integral part of this analytical report.

AirTECHNOLOGY Laboratories, Inc.

18501 E. Gale Ave., Suite 130
City of Industry, CA 91748
Ph: 626-964-4032
Fx: 626-964-5832

CHAIN OF CUSTODY RECORD

TURNAROUND TIME				DELIVERABLES		PAGE: 1 OF 1
Standard	☐	48 hours	☐	EDD	■	Condition upon receipt:
Same Day	☐	72 hours	■	EDF	☐	Sealed Yes ☐ No ☐
24 hours	☐	96 hours	☐	Level 3	☐	Intact Yes ☐ No ☐
Other:		5 day	☐	Level 4	☐	Chilled _____ deg C

Project No.:	
Project Name:	Bridgeton Landfill
Report To:	Mike Lambrich
Company:	Republic Services
Street:	13570 St. Charles Rock Rd
City/State/Zip:	Bridgeton, MO 63044
Phone& Fax:	314-683-3921
e-mail:	Mlambrich@republicservices.com

BILLING

P.O. No.:	6605567
Bill to:	Republic Services
	Attn: Mike Lambrich
	13570 St. Charles Rock Rd.
	Bridgeton, MO 63044

LAB USE ONLY	Canister Pressures ("hg)				SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	CONTAINER QTY/TYPE	MATRIX	PRESERVATION	ANALYSIS REQUEST					
	Canister ID	Sample Start	Sample End	Lab Receive							ASTM D5504-12	ASTM D1946 - O2, N2				
J061802-01	1300	-19.94	-3.98	-4	NQ EP14 A	6/15/2018	7:35	C-6L	LFG	He	X	X				
-02	1295	-20.06	-3.99	-4.5	NQ EP14 B	6/15/2018	8:05	C-6L	LFG	He	X	X				
-03	1296	-20.11	-3.98	-4	Blower Outlet A	6/15/2018	7:55	C-6L	LFG	He	X	X				
-04	6061	-20.22	-4	-5	Blower Outlet B	6/15/2018	8:19	C-6L	LFG	He	X	X				

AUTHORIZATION TO PERFORM WORK: **Dave Penoyer** COMPANY: **Republic Services** DATE/TIME:

SAMPLED BY: **AK/DAR** COMPANY: **Republic Services/WCG** DATE/TIME 6/15/18

RELINQUISHED BY	DATE	RECEIVED BY	DATE/TIME
	6/15/18		
FedEx		J. Kang	6/18/18 9:52

METHOD OF TRANSPORT(circle one): Walk-In (FedEx) UPS Courier ATLI Other_____

COMMENTS

DISTRIBUTION: White & Yellow - Lab Copies / Pink - Customer Copy

Preservation: **H**=HCl **N**=None / Container: **B**=Bag **C**=Can **V**=VOA **O**=Other *Rev. 03 - 5/7/0*

Client: Republic Services Inc.
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 06/18/18
Matrix: Air
Reporting Units: ppmv

ASTM D5504

Lab No.:	J061802-01		J061802-02		J061802-03		J061802-04	
Client Sample I.D.:	EP-14 NQ A		EP-14 NQ B		Blower Outlet A		Blower Outlet B	
Date/Time Sampled:	6/15/18 7:35		6/15/18 8:05		6/15/18 7:55		6/15/18 8:19	
Date/Time Analyzed:	6/20/18 10:51		6/20/18 11:05		6/20/18 11:19		6/20/18 11:32	
QC Batch No.:	180620GC3A1		180620GC3A1		180620GC3A1		180620GC3A1	
Analyst Initials:	AS		AS		AS		AS	
Dilution Factor:	3.2		3.2		3.2		3.2	
ANALYTE	Result ppmv	RL ppmv	Result ppmv	RL ppmv	Result ppmv	RL ppmv	Result ppmv	RL ppmv
Hydrogen Sulfide	23	0.59	ND	0.61	16	0.59	ND	0.63
Carbonyl Sulfide	ND	0.59	ND	0.61	ND	0.59	ND	0.63
Methyl Mercaptan	3.9	0.59	2.5	0.61	160 d	59	1.7	0.63
Ethyl Mercaptan	ND	0.59	ND	0.61	1.8	0.59	ND	0.63
Dimethyl Sulfide	12	0.59	12	0.61	860 d	59	950 d	63
Carbon Disulfide	ND	0.59	ND	0.61	0.94	0.59	1.1	0.63
Isopropyl Mercaptan	ND	0.59	ND	0.61	0.93	0.59	ND	0.63
t-Butylmercaptan	ND	0.59	ND	0.61	ND	0.59	ND	0.63
n-Propyl Mercaptan	ND	0.59	ND	0.61	ND	0.59	ND	0.63
Ethyl Methyl Sulfide	ND	0.59	ND	0.61	5.1	0.59	5.4	0.63
Thiophene	ND	0.59	ND	0.61	11	0.59	12	0.63
Isobutyl Mercaptan	ND	0.59	ND	0.61	ND	0.59	ND	0.63
Diethyl Sulfide	ND	0.59	ND	0.61	0.68	0.59	0.81	0.63
n-Butyl Mercaptan	ND	0.59	ND	0.61	1.8	0.59	1.7	0.63
Dimethyl Disulfide	ND	0.59	ND	0.61	87 d	59	140 d	63
3-Methylthiophene	ND	0.59	ND	0.61	ND	0.59	ND	0.63
Tetrahydrothiophene	ND	0.59	ND	0.61	7.1	0.59	7.7	0.63
2-Ethylthiophene	ND	0.59	ND	0.61	1.8	0.59	2.0	0.63
2,5-Dimethylthiophene	ND	0.59	ND	0.61	1.3	0.59	1.5	0.63
Diethyl Disulfide	ND	0.59	ND	0.61	ND	0.59	ND	0.63
Dimethyl Trisulfide	ND	0.59	ND	0.61	97 d	59	120 d	63
Total Reduced Sulfur	39	0.59	15	0.61	1,300	0.59	1,400	0.63

ND = Not Detected (below RL)
RL = Reporting Limit
d = Result obtained from a secondary dilution

Reviewed/Approved By: _____ Date 6/21/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

QC Batch No.: 180620GC3A1
Matrix: Air
Units: ppmv

QC for Sulfur Compounds by ASTM D5504

Lab No.:	Method Blank		LCS		LCSD			
Date/Time Analyzed:	6/20/18 10:24		6/20/18 9:56		6/20/18 10:10			
Analyst Initials:	AS		AS		AS			
Datafile:	20jun003		20jun001		20jun002			
Dilution Factor:	1.0		1.0		1.0			
ANALYTE	Results	RL	% Rec.	Criteria	% Rec.	Criteria	%RPD	Criteria
Hydrogen Sulfide	ND	0.20	94	70-130%	93	70-130%	0.2	<30
Carbonyl Sulfide	ND	0.20	108	70-130%	108	70-130%	0.1	<30
Methyl Mercaptan	ND	0.20	112	70-130%	112	70-130%	0.0	<30
Ethyl Mercaptan	ND	0.20	113	70-130%	112	70-130%	0.4	<30
Dimethyl Sulfide	ND	0.20	93	70-130%	93	70-130%	0.8	<30
Carbon Disulfide	ND	0.20	93	70-130%	93	70-130%	0.3	<30
Dimethyl Disulfide	ND	0.20	96	70-130%	96	70-130%	0.6	<30

ND = Not Detected (Below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date: 6/21/18
Mark J. Johnson
Operations Manager

The cover letter is an integral part of this analytical report.

Client: Republic Services Inc.
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 06/18/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J061802-01		J061802-02		J061802-03		J061802-04	
Client Sample I.D.:	EP-14 NQ A		EP-14 NQ B		Blower Outlet A		Blower Outlet B	
Date/Time Sampled:	6/15/18 7:35		6/15/18 8:05		6/15/18 7:55		6/15/18 8:19	
Date/Time Analyzed:	6/20/18 18:31		6/20/18 18:45		6/20/18 19:00		6/20/18 19:14	
QC Batch No.:	180620GC8A1		180620GC8A1		180620GC8A1		180620GC8A1	
Analyst Initials:	AS		AS		AS		AS	
Dilution Factor:	3.0		3.1		3.0		3.2	
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v	Result % v/v	RL % v/v	Result % v/v	RL % v/v
Oxygen/Argon	1.5	1.5	2.4	1.5	6.1	1.5	6.0	1.6
Nitrogen	9.0	3.0	12	3.1	32	3.0	32	3.2

Results normalized including non-methane hydrocarbons
ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 6/21/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

QC Batch No: 180620GC8A1
Matrix: Air
Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	6/20/18 10:55			6/20/18 13:29		6/20/18 13:44					
Analyst Initials:	AS			AS		AS					
Dilution Factor:	1.0			1.0		1.0			Limits		
ANALYTE	Result % v/v	RL % v/v	SPIKE AMT. % v/v	Result % v/v	% Rec.	Result % v/v	% Rec.	RPD %	Low %Rec	High %Rec	Max. RPD
Oxygen/Argon	ND	0.50	15	15.6	105	15.7	106	0.3	70	130	30
Nitrogen	ND	1.0	70	70.6	101	70.8	101	0.3	70	130	30

ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 6/21/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

Bridgeton Lanfill, LLC
Permit Monthly Sampling Method 2

MO APCP Permit No. 042018-005
Event = 04 (2018-06-01)

	PARAMETER	Blower Out
	SOUTH QUARRY LFG - BLOWER OUTLET The below based on final QA/QC lab fixed gas results	
Date	Test Date	6/1/18
Start	Run Start Time	8:28
	Run Finish Time	9:28
	Net Traversing Points	8 (2 x 4)
Θ	Net Run Time, minutes	0:59:55
C_p	Pitot Tube Coeficient	0.99
P_{Br}	Barometric Pressure, inches of Mercury	29.40
% H_2O	Moisture Content of LFG, %	4.50
% RH	Relative Humidity, %	75.95
M_{fd}	Dry Mole Fraction	0.955
%CH_4	Methane, %	12.7
%CO_2	Carbon Dioxide, %	37.1
%O_2	Oxygen, %	6.2
%Balance	Assumed as Nitrogen, %	32.2
%H_2	Hydrogen, %	10.4
%CO	Carbon Monoxide, %	0.051
M_d	Dry Molecular Weight, lb/lb-Mole	29.57
M_s	Wet Molecular weight, lb/lb-Mole	29.05
P_g	Flue Gas Static Pressure, inches of H_2O	13.60
P_s	Absolute Flue Gas Pressure, inches of Mercury	30.40
t_s	Average Stack Gas Temperature, °F	98
ΔP_{avg}	Average Velocity Head, inches of H_2O	0.039
v_s	Average LFG Velocity, feet/second	13.28
A_s	Stack Crossectional Area, square feet	1.35
Q_{sd}	Dry Volumetric Flow Rate, dry scfm	991
Q_s	Standard Volumetric Flow Rate, scfm	1,035
Q_{aw}	Actual Wet Volumetric Flue Gas Flow Rate, acfm	1,078
$Q_{lb/hr}$	Dry Air Flow Rate at Standard Conditions, lb/hr	4,561
NHV	Net Heating Value, Btu/scf (not determined in the field)	175.8
LFG_{CH4}	Methane, lb/hr	313.1
	Methane, grains/dscf	36.88
LFG_{CO2}	Carbon Dioxide, lb/hr	2,519.4
	Carbon Dioxide, grains/dscf	296.73
LFG_{O2}	Oxygen, lb/hr	303.7
	Oxygen, grains/dscf	35.76
LFG_{N2}	Balance gas as Nitrogen, lb/hr	1,391.9
	Balance gas as Nitrogen, grains/dscf	163.93
LFG_{H2}	Hydrogen, lb/hr	32.4
	Hydrogen, grains/dscf	3.81
LFG_{CO}	Carbon Monoxide, lb/hr	2.2
	Carbon Monoxide, grains/dscf	0.26

		Outlet A	Outlet B
❶$E_{TRS-SO2}$	TRS-->SO2 Emission Concentration, ppmd	1,600	1,800
	TRS-->SO2 Emission Rate, lb/hr	15.82	17.79
	TRS-->SO2 Emission Rate, grains/dscf	1.863	2.096

This lb/hr result based on Method 2 velocity/flow determined results - not the respective flow meters.

❶ TRS assumed moelcular mass = SO2, 64.06 gram/mole, I.e. 1 TRS in LFG assumed to = 1 SO2 emitted from the stack

Friday, June 01, 2018

The below based on FIELD fixed gas results, for FM Monthly Check & Calibration

LOCATION	TIME		FLOW -SCFM			Method 2 vs. Fleetzoom	Method 2 vs Kurz	Kurz vs Fleetzoom
	Begin	End	Method 2	FleetZoom	Kurz FM			
SQ BLOWER OUT	8:28	9:28	1,027	1,040	1,022	-1.3%	0.5%	-1.7%

**Note: Fleetzoom data derived from EP-12/FL120 TSI Flow Meter*

** Note: per new air construction permit, MO APCP No. 042018-005, monthly Method 2 check and calibration: based on field data and field computations, no adjustment needed to Blower Outlet Kurz FM or EP-012/FL120 TSI FM*

	PARAMETER	Blower Out
SOUTH QUARRY GCCS LFG - BLOWER OUTLET		
The below based on FIELD fixed gas results, for FM Monthly Check & Calibration		
Date	Test Date	6/1/18
Start	Run Start Time	8:28
	Run Finish Time	9:28
	Net Traversing Points	8 (2 x 4)
Θ	Net Run Time, minutes	0:59:55
C_p	Pitot Tube Coeficient	0.99
P_{Br}	Barometric Pressure, inches of Mercury	29.40
% H_2O	Moisture Content of LFG, %	4.50
% RH	Relative Humidity, %	75.95
M_{fd}	Dry Mole Fraction	0.955
%CH_4	Methane, %	14.2
%CO_2	Carbon Dioxide, %	39.1
%O_2	Oxygen, %	5.6
%Balance	Assumed as Nitrogen, %	30.8
%H_2	Hydrogen, %	10.5
%CO	Carbon Monoxide, %	0.003
M_d	Dry Molecular Weight, lb/lb-Mole	30.06
M_s	Wet Molecular weight, lb/lb-Mole	29.52
P_g	Flue Gas Static Pressure, inches of H_2O	13.60
P_s	Absolute Flue Gas Pressure, inches of Mercury	30.40
t_s	Average Stack Gas Temperature, °F	98
ΔP_{avg}	Average Velocity Head, inches of H_2O	0.039
v_s	Average LFG Velocity, feet/second	13.18
A_s	Stack Crossectional Area, square feet	1.35
Q_{sd}	Dry Volumetric Flow Rate, dry scfm	983
Q_s	Standard Volumetric Flow Rate, scfm	1,027
Q_{aw}	Actual Wet Volumetric Flue Gas Flow Rate, acfm	1,070
$Q_{lb/hr}$	Dry Air Flow Rate at Standard Conditions, lb/hr	4,600
LFG_{CH4}	Methane, lb/hr	347.5
	Methane, grains/dscf	41.25
LFG_{CO2}	Carbon Dioxide, lb/hr	2,630.8
	Carbon Dioxide, grains/dscf	312.32
LFG_{O2}	Oxygen, lb/hr	271.9
	Oxygen, grains/dscf	32.27
LFG_{N2}	Balance gas as Nitrogen, lb/hr	1,318.7
	Balance gas as Nitrogen, grains/dscf	156.55
LFG_{H2}	Hydrogen, lb/hr	32.4
	Hydrogen, grains/dscf	3.85
LFG_{CO}	Carbon Monoxide, lb/hr	0.1
	Carbon Monoxide, grains/dscf	0.02

SQ GCCS Blower Outlet (pre diversion chamber) 6/1/2018

Flare FM Flow Average =	**1,040**	**scfm**
Blower Outlet KURZ FM Average =	**1,022**	**scfm**

The below based on FIELD fixed gas results, for FM Monthly Check & Calibration

CALCULATED RESULTS

V_s =	**13.18**	ft/sec
Q_{dscfm}=	**983**	ft^3/min
Q_{scfm} =	**1,027**	ft^3/min
Q_{acfm} =	**1,070**	ft^3/min
Q_{lb} =	**4,600**	dry air flow rate lb/hr

CALCULATED VALUES

A_s =	1.35	ft^2
P_s =	30.40	in. Hg
$\%H_2O$ =	4.50	%
M_d =	30.06	lb/lb-mole
M_s =	29.52	lb/lb-mole

TEST VARIABLES

C_p =	**0.99**	[unitless]
P_{br} =	**29.40**	in Hg
T_A =	**82.9**	^oF
Point ID =	**15.75**	inches
RH% ambient =	**74.80**	%

SOURCE LFG PARAMETERS

Bws	**4.50**	%
P_g =	**13.6**	in H_2O
T_d =	**97.6**	^oF
T_w =	**90.5**	^oF
T_g =	**97.6**	^oF
RH%=	**76.0**	%

FIXED GAS RESULTS*

CH_4 =	**14.2**	%
CO_2 =	**39.05**	%
O_2 =	**5.55**	%
N_2=	**30.75**	% field balance subtracting H2%
H_2 =	**10.5**	% assumed based on historical
CO=	**0.0030**	% assumed based on historical

**** based on field data***

FIELD DATA

Duration = 8:28 ***to*** 9:28

Average DP= 0.039 in H_2O

Device: Bridgeton Main Flares
ESN: FXA-1186
Report Type: Report of Analog Input Values
Report Start Date: 6/1/2018
Report End Date: 6/1/2018
Records Reported: Up to 1,000,000

Date	Ambient Temperature Degrees F	Backup Battery Volts	Blower Out - KURZ FM SCFM	FL-100 Flare Temperature Degrees F	FL-100 Flow (2071) SCFM	FL-120 Flare Temperature Dgrees F	FL-120 Flow (2875) SCFM	FL-140 Flare Temperature Degrees F	FL-140 Flow (Out of Service) SCFM	Main Power Volts	PIT-100 Inlet Pressure Inches WC	Signal Strength %
6/1/2018 0:07	90	8.04	1,033.48	77.39	0	1,224.73	1,075.63	80.52	0	24.02	-20.34	100
6/1/2018 0:17	90	8.04	1,035.25	77.39	0	1,212.50	1,078.86	79.1	0	24.02	-20.39	100
6/1/2018 0:27	89	8.04	1,028.88	76.43	0	1,207.13	1,064.51	79.1	0.12	24.02	-20.48	100
6/1/2018 0:37	89	8.04	1,033.30	76.43	0	1,224.29	1,074.82	79.7	0	24.02	-20.38	100
6/1/2018 0:47	89	8.04	1,023.05	76.5	0	1,216.98	1,057.03	77.17	0	24.02	-20.08	100
6/1/2018 0:57	89	8.04	1,021.64	76.65	0	1,224.58	1,058.95	78.21	0	24.02	-20.09	100
6/1/2018 1:07	88	8.04	1,020.22	75.54	0	1,216.53	1,057.13	77.46	0	24.02	-20.26	100
6/1/2018 1:17	88	8.04	1,019.69	75.61	0	1,212.87	1,054.81	77.98	0	24.02	-20.4	100
6/1/2018 1:27	88	8.04	1,026.06	75.46	0	1,220.56	1,059.66	78.13	0	24.02	-20.43	100
6/1/2018 1:37	88	8.04	1,035.60	75.31	0	1,213.17	1,063.70	77.39	0	24.02	-20.46	100
6/1/2018 1:47	87	8.04	1,024.29	75.54	0	1,213.77	1,056.12	77.39	0	24.02	-20.4	100
6/1/2018 1:57	87	8.04	1,023.05	75.31	0	1,206.76	1,056.53	77.02	0	24.02	-20.35	100
6/1/2018 2:07	87	8.04	990.53	74.57	0	1,214.89	1,020.35	77.46	0	24.02	-20.11	100
6/1/2018 2:17	87	8.04	1,018.46	74.57	0	1,204.00	1,041.57	77.02	0	24.02	-19.97	100
6/1/2018 2:27	87	8.04	1,015.45	74.42	0	1,217.57	1,038.54	75.45	0	24.02	-20.05	100
6/1/2018 2:37	86	8.04	1,013.15	74.2	0	1,204.15	1,040.46	76.2	0	24.02	-20.09	100
6/1/2018 2:47	86	8.04	1,014.04	73.53	0	1,206.16	1,041.27	76.42	0	24.02	-20.23	100
6/1/2018 2:57	86	8.04	1,015.63	73.75	0	1,222.35	1,037.33	76.12	0	24.02	-20.2	100
6/1/2018 3:07	85	8.04	1,018.28	73.68	0	1,224.81	1,042.08	74.93	0	24.02	-20.27	100
6/1/2018 3:17	85	8.04	1,015.63	73.68	0	1,205.19	1,037.02	76.42	0	24.02	-20.35	100
6/1/2018 3:27	85	8.04	1,013.51	73.68	0	1,213.40	1,036.92	75.08	0	24.02	-20.35	100
6/1/2018 3:37	85	8.04	1,022.17	73.9	0	1,206.38	1,040.76	75.75	0	24.02	-20.41	100
6/1/2018 3:47	85	8.04	1,016.16	73.61	0	1,216.38	1,038.34	74.63	0	24.02	-20.44	100
6/1/2018 3:57	85	8.04	1,008.03	73.75	0	1,219.44	1,029.75	74.86	0	24.02	-20.11	100
6/1/2018 4:07	85	8.04	1,009.26	73.68	0	1,221.75	1,026.21	75.3	0	24.02	-20.17	100
6/1/2018 4:17	85	8.04	1,015.80	72.49	0	1,212.43	1,026.31	75	0	24.02	-20.19	100
6/1/2018 4:27	85	8.04	1,014.92	72.42	0	1,226.08	1,031.37	74.86	0	24.02	-20.23	100
6/1/2018 4:37	85	8.04	1,017.39	72.34	0	1,220.41	1,034.50	74.78	0	24.02	-20.27	100
6/1/2018 4:47	84	8.04	1,007.67	72.42	0	1,220.41	1,013.78	74.11	0	24.02	-20.47	100
6/1/2018 4:57	84	8.04	1,014.39	72.42	0	1,222.12	1,029.85	74.04	0	24.02	-20.42	100
6/1/2018 5:08	84	8.04	995.83	72.34	0	1,219.81	995.68	73.66	0	24.02	-20.36	100
6/1/2018 5:18	84	8.04	1,010.68	72.34	0	1,226.67	1,020.65	74.33	0	24.02	-20.32	100
6/1/2018 5:28	84	8.04	1,014.21	71.3	0	1,221.00	1,027.63	74.26	0	24.02	-20.43	100
6/1/2018 5:38	83	8.04	997.95	71.53	0	1,222.42	1,011.25	73.22	0	24.02	-19.71	100
6/1/2018 5:48	84	8.04	998.13	71.3	0	1,222.12	1,001.44	72.47	0	24.02	-19.78	100
6/1/2018 5:58	83	8.04	997.95	71.53	0	1,218.17	1,006.70	73.51	0	24.02	-19.85	100
6/1/2018 6:08	83	8.04	999.19	71.45	0	1,223.61	998.2	73.22	0	24.02	-19.95	100
6/1/2018 6:18	84	8.04	1,004.32	72.27	0	1,222.12	1,016.41	74.86	0	24.02	-19.96	100
6/1/2018 6:28	85	8.04	1,005.91	73.61	0	1,211.31	1,013.88	75.38	0.04	24.02	-19.95	100
6/1/2018 6:38	86	8.04	1,000.96	74.57	0	1,230.25	1,006.60	77.39	0	24.02	-20	100
6/1/2018 6:48	88	8.04	1,004.14	74.42	0	1,223.84	1,007.81	78.73	0	24.02	-19.97	100
6/1/2018 6:58	90	8.04	1,013.51	75.61	0	1,223.47	1,014.28	79.77	0	23.99	-19.95	100
6/1/2018 7:08	92	8.04	1,005.02	76.5	0	1,216.08	1,017.82	80.67	0	23.99	-20.03	100
6/1/2018 7:18	93	8.04	1,013.51	76.43	0	1,222.57	1,021.06	82.39	0	23.99	-19.91	100
6/1/2018 7:28	96	8.04	1,011.74	78.51	0	1,219.59	1,013.98	83.06	0	23.99	-19.91	100
6/1/2018 7:38	98	8.04	1,012.27	79.33	0	1,197.36	1,019.54	83.88	0	23.99	-19.86	100
6/1/2018 7:48	100	8.04	1,022.52	80.67	0	1,217.57	1,027.93	84.92	0	23.99	-19.81	100
6/1/2018 7:58	102	8.04	1,013.33	81.27	0	1,200.42	1,017.82	86.34	0	23.99	-19.76	100
6/1/2018 8:08	103	8.04	1,018.28	82.68	0	1,207.50	1,024.49	86.94	0	23.99	-19.74	100
6/1/2018 8:18	105	8.04	1,019.34	83.36	0	1,210.79	1,025.30	89.99	0	23.99	-19.68	100
6/1/2018 8:28	106	8.04	1,020.58	84.77	0	1,188.93	1,042.28	91.56	0	23.99	-19.62	100
6/1/2018 8:38	108	8.04	1,024.99	85.37	0	1,187.22	1,033.99	92.9	0	23.99	-19.57	100
6/1/2018 8:48	109	8.04	1,025.35	86.34	0	1,214.44	1,041.88	92.83	0	23.96	-19.49	100
6/1/2018 8:58	110	8.04	1,015.45	86.64	0	1,217.35	1,028.54	92.75	0	23.99	-19.5	100
6/1/2018 9:08	111	8.04	1,023.40	87.31	0	1,189.98	1,041.77	94.4	0	23.96	-19.34	100
6/1/2018 9:18	112	8.01	1,020.58	88.5	0	1,206.98	1,038.94	95.74	0	23.96	-19.28	100
6/1/2018 9:28	112	8.01	1,024.29	90.44	0	1,210.26	1,052.28	97.75	0	23.96	-19.07	100
			1,022.09				1,039.95					
6/1/2018 9:38	113	8.01	1,021.28	90.44	0	1,217.80	1,038.24	96.78	0	23.96	-19.06	100
6/1/2018 9:48	114	8.01	1,022.17	90.59	0	1,220.18	1,057.13	97.01	0	23.96	-18.91	100
6/1/2018 9:58	114	8.01	1,033.48	91.41	0	1,233.39	1,064.31	97.31	0	23.96	-18.75	100
6/1/2018 10:08	114	8.01	1,031.00	92.75	0	1,202.66	1,062.08	99.47	0	23.96	-18.64	100
6/1/2018 10:18	114	8.01	1,031.89	94.17	0	1,212.95	1,067.14	99.99	0	23.96	-18.59	100
6/1/2018 10:28	113	8.01	1,041.26	95.44	0	1,214.89	1,082.19	102.15	0	23.96	-18.66	100
6/1/2018 10:38	114	8.01	1,028.71	96.48	0	1,211.38	1,069.97	104.17	0	23.96	-18.69	100
6/1/2018 10:48	113	8.01	1,046.73	97.68	0	1,191.84	1,100.18	103.72	0	23.96	-18.71	100
6/1/2018 10:58	113	8.01	1,054.33	99.69	0	1,191.39	1,113.01	113.64	0	23.96	-18.53	100
6/1/2018 11:08	112	8.01	1,052.74	100.51	0	1,207.80	1,117.96	118.27	0	23.96	-18.85	100
6/1/2018 11:18	112	8.01	1,061.76	100.29	0	1,185.72	1,135.34	120.28	0	23.96	-18.59	100
6/1/2018 11:28	111	8.01	1,061.93	106.33	0.01	1,203.63	1,134.43	123.19	0	23.99	-18.5	100
6/1/2018 11:39	111	8.01	1,061.40	115.58	0	1,209.82	1,137.97	122.52	0	23.96	-18.62	100
6/1/2018 11:49	111	8.01	1,077.31	115.36	0	1,249.50	1,166.16	121.03	0	23.99	-18.66	100
6/1/2018 11:59	110	8.01	1,072.89	108.42	0	1,178.27	1,157.78	113.27	0	23.96	-18.62	100
6/1/2018 12:09	110	8.01	1,069.00	101.78	0	1,216.83	1,158.89	108.49	0	23.99	-18.57	100
6/1/2018 12:19	109	8.01	1,085.09	107.45	0	1,261.88	1,182.63	115.43	0	23.99	-18.69	100
6/1/2018 12:29	109	8.01	1,074.84	100.44	0	1,185.72	1,172.23	106.03	0	23.99	-18.7	100
6/1/2018 12:39	108	8.01	1,069.00	95.74	0	1,184.01	1,181.93	100.96	0	23.99	-18.7	100
6/1/2018 12:49	108	8.01	1,080.67	104.69	0	1,171.03	1,179.40	106.03	0	23.99	-18.62	100
6/1/2018 12:59	106	8.01	1,078.02	98.42	0	1,273.22	1,234.37	102.45	0	23.99	-18.68	100
6/1/2018 13:09	106	8.01	1,098.70	115.66	0	1,243.23	1,206.18	117.45	0	23.99	-18.77	100
6/1/2018 13:19	105	7.98	1,101.88	122.37	0	1,265.38	1,211.74	121.1	0	23.99	-18.82	100
6/1/2018 13:29	102	7.98	1,097.99	111.63	0.1	1,300.52	1,211.03	115.51	0	23.99	-18.65	100
6/1/2018 13:39	100	7.98	1,071.83	100.29	0	1,269.04	1,181.52	103.87	0	23.99	-18.86	100
6/1/2018 13:49	104	7.98	1,090.57	111.4	0	1,271.95	1,207.09	112.82	0	23.99	-18.59	100
6/1/2018 13:59	105	7.98	1,112.66	120.58	0	1,195.64	1,229.52	117.45	0	23.99	-18.72	100
6/1/2018 14:09	106	7.98	1,121.32	117.45	0	1,212.43	1,242.15	121.03	0	23.99	-18.6	100

Air TECHNOLOGY
Laboratories, Inc.

June 7, 2018

LA Cert #04140
EPA Methods TO3, TO14A, TO15, 25C/3C, RSK-175
TX Cert T104704450-14-6
EPA Methods TO14A, TO15
UT Cert CA0133332015-3
EPA Methods TO3, TO14A, TO15, RSK-175

Republic Services
ATTN: Mike Lambrich
13570 St. Charles Rock Rd.
Bridgeton, MO 63044

LABORATORY TEST RESULTS

Project Reference: Bridgeton Landfill
Lab Number: J060402-01/04

Enclosed are results for sample(s) received 6/04/18 by Air Technology Laboratories. Samples were received intact. Analyses were performed according to specifications on the chain of custody provided with the sample(s).

Report Narrative:

- Unless otherwise noted in the report, sample analyses were performed within method performance criteria and meet all requirements of the TNI Standards.
- The enclosed results relate only to the sample(s).

Preliminary results were e-mailed to Mike Lambrich and Erin Fanning; David Randall, Dustin Thoenen and Don Murphy, Weaver Consultants Group; and Jan Feezor, Feezor Engineering on 6/06/18.

ATL appreciates the opportunity to provide testing services to your company. If you have any questions regarding these results, please call me at (626) 964-4032.

Sincerely,

Mark Johnson
Operations Manager
MJohnson@AirTechLabs.com

Enclosures

Note: The cover letter is an integral part of this analytical report.

AirTECHNOLOGY Laboratories, Inc.

18501 E. Gale Ave., Suite 130
City of Industry, CA 91748
Ph: 626-964-4032
Fx: 626-964-5832

CHAIN OF CUSTODY RECORD

TURNAROUND TIME

Standard	☐	48 hours	■
Same Day	☐	72 hours	☐
24 hours	☐	96 hours	☐
Other:		5 day	☐

DELIVERABLES

EDD	■
EDF	☐
Level 3	☐
Level 4	☐

PAGE: 1 **OF** 1

Condition upon receipt:
Sealed Yes ☐ No ☐
Intact Yes ☐ No ☐
Chilled _____ deg C

Project No.:	
Project Name:	Bridgeton Landfill
Report To:	Mike Lambrich
Company:	Republic Services
Street:	13570 St. Charles Rock Rd
City/State/Zip:	Bridgeton, MO 63044
Phone& Fax:	314-683-3921
e-mail:	Mlambrich@republicservices.com

BILLING

P.O. No.:	6605567
Bill to:	Republic Services
	Attn: Mike Lambrich
	13570 St. Charles Rock Rd.
	Bridgeton, MO 63044

LAB USE ONLY	Canister Pressures ("hg)				SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	CONTAINER QTY/TYPE	MATRIX	PRESERVATION	ANALYSIS REQUEST					
	Canister ID	Sample Start	Sample End	Lab Receive							ASTM D5504-12	ASTM 1946 + H2 + CO & Btu/SCF	ASTM 1946 + H2 + CO & Btu/SCF (by CH4 only)			
JD60402-01	7131	-19.61	-3.96	-5	NQ EP14 A	6/1/2018	8:17	C-6L	LFG	He	X		X			
-02	5947	-19.67	-3.98	-5	NQ EP14 B	6/1/2018	8:45	C-6L	LFG	He	X		X			
-03	1302	-19.68	-3.99	-5	Blower Outlet A	6/1/2018	8:31	C-6L	LFG	He	X	X				
-04	1297	-19.65	-4.01	-6	Blower Outlet B	6/1/2018	8:55	C-6L	LFG	He	X	X				

AUTHORIZATION TO PERFORM WORK: **Dave Penoyer** COMPANY: **Republic Services** DATE/TIME:

SAMPLED BY: **AK/DAR** COMPANY: **Republic Services/WCG** DATE/TIME 6/01/18

RELINQUISHED BY _____ 6/01/18 DATE/TIME RECEIVED BY _____ DATE/TIME

RELINQUISHED BY _____ DATE/TIME RECEIVED BY _____ DATE/TIME

RELINQUISHED BY _____ DATE/TIME RECEIVED BY _____ 6/4/18 1327

METHOD OF TRANSPORT (circle one): Walk-In **FedEx** **UPS** Courier ATLI Other _____

COMMENTS

DISTRIBUTION: White & Yellow - Lab Copies / Pink - Customer Copy

Preservation: **H**=HCl **N**=None / Container: **B**=Bag **C**=Can **V**=VOA **O**=Other *Rev. 03 - 5/7/08*

Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 06/04/18
Matrix: Air
Reporting Units: ppmv

ASTM D5504

Lab No.:	J060402-01		J060402-02		J060402-03		J060402-04	
Client Sample I.D.:	EP-14 NQ A		EP-14 NQ B		Blower Outlet A		Blower Outlet B	
Date/Time Sampled:	6/1/18 8:17		6/1/18 8:45		6/1/18 8:31		6/1/18 8:55	
Date/Time Analyzed:	6/5/18 15:29		6/5/18 15:42		6/5/18 15:56		6/5/18 16:09	
QC Batch No.:	180605GC3A2		180605GC3A2		180605GC3A2		180605GC3A2	
Analyst Initials:	AS		AS		AS		AS	
Dilution Factor:	3.2		3.2		3.2		3.2	
ANALYTE	Result ppmv	RL ppmv	Result ppmv	RL ppmv	Result ppmv	RL ppmv	Result ppmv	RL ppmv
Hydrogen Sulfide	38 d	6.3	26	0.63	ND	0.63	8.4	0.67
Carbonyl Sulfide	ND	0.63	ND	0.63	ND	0.63	ND	0.67
Methyl Mercaptan	5.1	0.63	4.9	0.63	0.77	0.63	180 d	67
Ethyl Mercaptan	ND	0.63	ND	0.63	ND	0.63	2.1	0.67
Dimethyl Sulfide	15	0.63	15	0.63	1,100 d	63	1,200 d	67
Carbon Disulfide	ND	0.63	ND	0.63	1.2	0.63	1.2	0.67
Isopropyl Mercaptan	ND	0.63	ND	0.63	0.89	0.63	1.3	0.67
t-Butylmercaptan	ND	0.63	ND	0.63	ND	0.63	ND	0.67
n-Propyl Mercaptan	ND	0.63	ND	0.63	ND	0.63	ND	0.67
Ethyl Methyl Sulfide	ND	0.63	ND	0.63	6.9	0.63	7.5	0.67
Thiophene	ND	0.63	ND	0.63	15	0.63	16	0.67
Isobutyl Mercaptan	ND	0.63	ND	0.63	ND	0.63	ND	0.67
Diethyl Sulfide	ND	0.63	ND	0.63	0.82	0.63	1.4	0.67
n-Butyl Mercaptan	ND	0.63	ND	0.63	2.2	0.63	2.6	0.67
Dimethyl Disulfide	ND	0.63	ND	0.63	160 d	63	120 d	67
3-Methylthiophene	ND	0.63	ND	0.63	ND	0.63	ND	0.67
Tetrahydrothiophene	ND	0.63	ND	0.63	10	0.63	12	0.67
2-Ethylthiophene	ND	0.63	ND	0.63	2.6	0.63	3.0	0.67
2,5-Dimethylthiophene	ND	0.63	ND	0.63	2.7	0.63	2.7	0.67
Diethyl Disulfide	ND	0.63	ND	0.63	ND	0.63	ND	0.67
Dimethyl Trisulfide	ND	0.63	ND	0.63	160 d	63	140 d	67
Total Reduced Sulfur	58	0.63	46	0.63	1,600	0.63	1,800	0.63

ND = Not Detected (below RL)
RL = Reporting Limit
d = Result obtained from a secondary dilution

Reviewed/Approved By: _____ Date 6/6/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

QC Batch No.: 180605GC3A2
Matrix: Air
Units: ppmv

QC for Sulfur Compounds by ASTM D5504

Lab No.:	Method Blank		LCS		LCSD			
Date/Time Analyzed:	6/5/18 14:48		6/5/18 14:21		6/5/18 14:34			
Analyst Initials:	AS		AS		AS			
Datafile:	05jun011		05jun009		05jun010			
Dilution Factor:	1.0		1.0		1.0			
ANALYTE	Results	RL	% Rec.	Criteria	% Rec.	Criteria	%RPD	Criteria
Hydrogen Sulfide	ND	0.20	94	70-130%	94	70-130%	0.7	<30
Carbonyl Sulfide	ND	0.20	107	70-130%	107	70-130%	0.1	<30
Methyl Mercaptan	ND	0.20	115	70-130%	115	70-130%	0.2	<30
Ethyl Mercaptan	ND	0.20	114	70-130%	116	70-130%	1.1	<30
Dimethyl Sulfide	ND	0.20	95	70-130%	93	70-130%	1.6	<30
Carbon Disulfide	ND	0.20	95	70-130%	95	70-130%	0.1	<30
Dimethyl Disulfide	ND	0.20	100	70-130%	100	70-130%	0.6	<30

ND = Not Detected (Below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date: 6/6/18
Mark J. Johnson
Operations Manager

The cover letter is an integral part of this analytical report.

Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 06/04/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J060402-01		J060402-02					
Client Sample I.D.:	EP-14 NQ A		EP-14 NQ B					
Date/Time Sampled:	6/1/18 8:17		6/1/18 8:45					
Date/Time Analyzed:	6/6/18 12:36		6/6/18 12:50					
QC Batch No.:	180606GC8A2		180606GC8A2					
Analyst Initials:	AS		AS					
Dilution Factor:	3.2		3.2					
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v				
Hydrogen	0.59 d	0.032	0.60 d	0.032				
Carbon Dioxide	35.4	0.032	36.2	0.032				
Oxygen/Argon	2.7	1.6	2.2	1.6				
Nitrogen	14.1	3.2	12.4	3.2				
Methane	47.1	0.0032	48.5	0.0032				
Carbon Monoxide	ND	0.0032	ND	0.0032				
Net Heating Value (BTU/ft3) methane only	428.0	3.2	440.7	3.2				
Gross Heating Value (BTU/ft3) methane only	475.3	3.2	489.4	3.2				

Results normalized including non-methane hydrocarbons
BTU values based on D1946 analysis methane only
ND = Not Detected (below RL)
RL = Reporting Limit
d = Reported from a secondary analsysis. QC Batch: 180606GC8A1

Reviewed/Approved By: _____ Date 6/6/18

Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 06/04/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J060402-03		J060402-04					
Client Sample I.D.:	Blower Outlet A		Blower Outlet B					
Date/Time Sampled:	6/1/18 8:31		6/1/18 8:55					
Date/Time Analyzed:	6/6/18 13:05		6/6/18 13:19					
QC Batch No.:	180606GC8A2		180606GC8A2					
Analyst Initials:	AS		AS					
Dilution Factor:	3.2		3.4					
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v				
Hydrogen	10.3	3.2	10.5	3.4				
Carbon Dioxide	37.0	0.032	37.2	0.034				
Oxygen/Argon	6.2	1.6	6.1	1.7				
Nitrogen	32.5	3.2	31.9	3.4				
Methane	12.5	0.0032	12.8	0.0034				
Carbon Monoxide	0.050	0.0032	0.051	0.0034				
Net Heating Value (BTU/ft3)	171.9	3.2	179.7	3.4				
Gross Heating Value (BTU/ft3)	194.1	3.2	202.7	3.4				

Results normalized including non-methane hydrocarbons
BTU values based on D1946 analysis and non-methane analysis assumed as propane
ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 6/6/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

QC Batch No: 180606GC8A2
Matrix: Air
Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	6/6/18 12:21			6/6/18 11:37		6/6/18 11:52					
Analyst Initials:	AS			AS		AS					
Dilution Factor:	1.0			1.0		1.0			Limits		
ANALYTE	Result % v/v	RL % v/v	SPIKE AMT. % v/v	Result % v/v	% Rec.	Result % v/v	% Rec.	RPD %	Low %Rec	High %Rec	Max. RPD
Hydrogen	ND	1.0	5.0	3.72	74	3.60	72	3.2	70	130	30
Carbon Dioxide	ND	0.010	10	8.55	85	8.50	85	0.7	70	130	30
Oxygen/Argon	ND	0.50	15	16.6	112	16.5	112	0.5	70	130	30
Nitrogen	ND	1.0	70	71.6	102	71.2	102	0.5	70	130	30
Methane	ND	0.0010	0.10	0.0950	95	0.0949	95	0.2	70	130	30
Carbon Monoxide	ND	0.0010	0.10	0.0933	93	0.0932	93	0.1	70	130	30

ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 6/6/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

QC Batch # 180606GC8A1
Matrix: Air
Units: % v/v

QC for Low Level Hydrogen Analysis

Lab No.:	Blank		LCS		LCSD			
Date Analyzed:	6/6/2018 10:08		6/6/2018 10:32		6/6/2018 10:37			
Analyst Initials:	AS		AS		AS			
Dilution Factor:	1.0		1.0		1.0			
ANALYTE	Results	RL	%Rec	Criteria	%Rec	Criteria	RPD	Criteria
Hydrogen	ND	0.010	100	70-130	100	70-130	0.3	<20

ND = Not Detected (Below RL)
RL = PQL X Dilution Factor

Reviewed/Approved By: _____ Date: 6/6/18

Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report.

ATTACHMENT C

GAS WELL ANALYSIS MAPS

LEGEND

WELL LOCATION

HYDROGEN

		<	10%
10%	<	<	20%
20%	<	<	30%
30%	<	<	40%
		≥	40%

NOTES:
Hydrogen represents the laboratory reported concentration for samples collected during the month.

*Only points monitored during the report period show data.

PGW-60
GEW-1A
GEW-003
GEW-002
GEW-02S
GEW-004
GEW-005
GEW-046R
LCS-6B
GEW-048
GEW-047R
GEW-045R
T-56
GEW-006
GEW-049
GEW-050
GEW-044
GEW-051
GEW-052
LCS-5A
GEW-043R
GEW-007
GEW-053
GEW-054
GEW-008
GEW-042R
LCS-5B
GEW-041R
GEW-055
GEW-009
GEW-040
GEW-110
GEW-010
GEW-039
GIW-13
GIW-12
GEW-056R
GEW-109
GIW-09
GIW-08
GEW-038
GIW-11
LCS-1D
GIW-02
GIW-01
GIW-03
GIW-10
GIW-04
GIW-07
GEW-162
GEW-161
GIW-06
GIW-05
GEW-159
GEW-091
GEW-160
GEW-108
SEE INSET
GEW-187
GEW-149
GEW-154
GEW-153
GEW-107
GEW-148
GEW-013A
SEW-003
GEW-113
GEW-067A
GEW-151
GEW-090
GEW-152
GEW-059R
GEW-087
GEW-106
GEW-016R
GEW-015
GEW-088
GEW-058A
GEW-058
GEW-158
GEW-147
GEW-156
GEW-105
GEW-104
GEW-176
GEW-135
GEW-086
GEW-150
GEW-136
GEW-175
GEW-057R
GEW-157
GEW-134
LCS-4B
GEW-146
GEW-057B
GEW-182
GEW-018B
GEW-116
GEW-137
GEW-133
GEW-082R
GEW-174
GEW-145
GEW-178
GEW-117
GEW-118
GEW-102
GEW-179
GEW-132
GEW-155
GEW-173
GEW-068A
GEW-138
GEW-188
GEW-081
GEW-122
GEW-144
GEW-180
GEW-184
GEW-121
GEW-078R
GEW-140
GEW-101
GEW-120
GEW-167
GEW-143
GEW-185
GEW-022R
GEW-077
GEW-181
GEW-163
GEW-172
GEW-123
GEW-166
GEW-139
LCS-2D
GEW-164
GEW-131
GEW-142
GEW-100
GEW-124
GEW-171
GEW-165
GEW-130
GEW-125
GEW-141
SEW -002
GEW-168
GEW-177
GEW-126
GEW-169
GEW-129
GEW-127
GEW-170
GEW-186
GEW-128

NOTE:

1.) AERIAL TOPOGRAPHY PROVIDED BY COOPER AERIAL SURVEYS, INC. AND IS DATED DECEMBER 1, 2017

0 200 400 Feet

N

BRIDGETON LANDFILL, LLC
13570 SAINT CHARLES ROCK RD
BRIDGETON, MO 63044

BRIDGETON LANDFILL
MONTHLY REPORTING

HYDROGEN DATA MAP - JUNE 2018

PROJECT NUMBER: BT-145

FILE PATH: C:\Users\plins\Dropbox (Feezor Engineering)\Bridgeton\100-149\BT-145 (Agreed Order Reporting)\Monthly Reports\06-2018 Report\Internal Draft\Site Data\gas maps\June 2018.dwg

Engineering for a Better World
FEEZOR ENGINEERING, INC.

JUNE 2018
DESIGNED BY: PML
APPROVED BY: ---

REVISION	DATE

DRAWING NO.:
001

LEGEND

WELL LOCATION

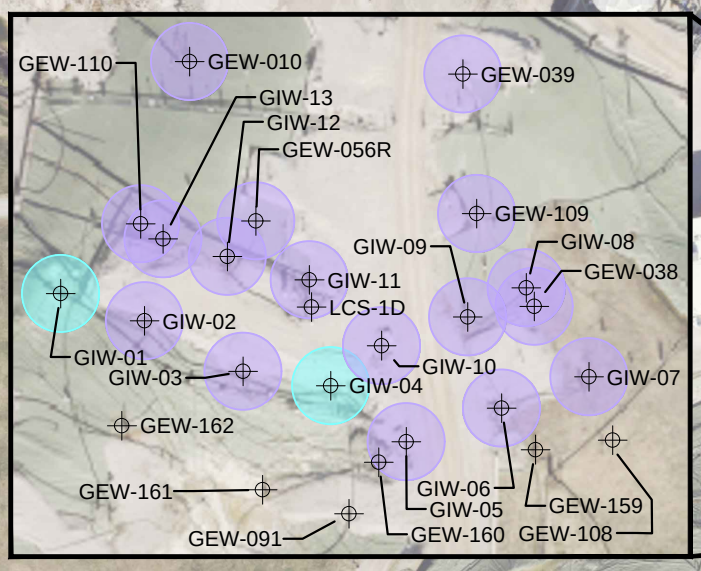
CARBON MONOXIDE (PPM)

	≤	1,000
1,001	≤	2,000
2,001	≤	3,000
3,001	≤	4,000
4,001	≤	5,000
	>	5,000

NOTES:
Carbon Monoxide represents the laboratory reported concentration for samples collected during the month.

*Only points monitored during the report period show data.

PGW-60
GEW-1A
GEW-003
GEW-002
GEW-02S
GEW-004
GEW-005
GEW-046R
LCS-6B
GEW-048
GEW-047R
GEW-045R
T-56
GEW-006
GEW-049
GEW-050
GEW-044
GEW-051
GEW-052
LCS-5A
GEW-043R
GEW-007
GEW-053
GEW-054
GEW-008
GEW-042R
LCS-5B
GEW-041R
GEW-055
GEW-009
GEW-040
SEE INSET
GEW-187
GEW-149
GEW-154
GEW-153
GEW-107
GEW-148
GEW-013A
SEW-003
GEW-113
GEW-152
GEW-059R
GEW-067A
GEW-090
GEW-151
GEW-087
GEW-106
GEW-016R
GEW-015
GEW-088
GEW-058A
GEW-158
GEW-058
GEW-105
GEW-147
GEW-156
GEW-104
GEW-176
GEW-135
GEW-150
GEW-086
GEW-136
GEW-175
GEW-057R
GEW-134
LCS-4B
GEW-146
GEW-157
GEW-057B
GEW-182
GEW-018B
GEW-116
GEW-137
GEW-133
GEW-174
GEW-145
GEW-178
GEW-082R
GEW-117
GEW-102
GEW-118
GEW-179
GEW-132
GEW-155
GEW-173
GEW-068A
GEW-138
GEW-188
GEW-081
GEW-144
GEW-180
GEW-184
GEW-122
GEW-078R
GEW-101
GEW-121
GEW-140
GEW-143
GEW-120
GEW-167
GEW-185
GEW-022R
GEW-077
GEW-181
GEW-172
GEW-163
GEW-139
LCS-2D
GEW-123
GEW-166
GEW-131
GEW-142
GEW-164
GEW-100
GEW-124
GEW-171
GEW-165
GEW-130
GEW-141
GEW-125
SEW -002
GEW-168
GEW-177
GEW-126
GEW-169
GEW-129
GEW-127
GEW-170
GEW-186
GEW-128



NOTE:

1.) AERIAL TOPOGRAPHY PROVIDED BY COOPER AERIAL SURVEYS, INC. AND IS DATED DECEMBER 1, 2017

0 200 400 Feet

N

BRIDGETON LANDFILL, LLC
13570 SAINT CHARLES ROCK RD
BRIDGETON, MO 63044

BRIDGETON LANDFILL
MONTHLY REPORTING

CARBON MONOXIDE DATA MAP - JUNE 2018

PROJECT NUMBER: BT-145

FILE PATH: C:\Users\plins\Dropbox (Feezor Engineering)\Bridgeton\100-149\BT-145 (Agreed Order Reporting)\Monthly Reports\06-2018 Report\Internal Draft\Site Data\gas maps\June 2018.dwg

Engineering for a Better World
FEEZOR ENGINEERING, INC.

JUNE 2018
DESIGNED BY: PML
APPROVED BY: ---

REVISION	DATE

DRAWING NO.:
002

LEGEND

WELL LOCATION

MAXIMUM TEMPERATURE (F°)

	<	131°
131°	<	151°
151°	<	171°
171°	<	191°
191°	<	211°
211°	<	231°
	>	231°

NOTES:
Maximum Temperature represents the maximum initial wellhead temperature reading collected during the month.

*Only points monitored during the report period show data.

SEE INSET

NOTE:

1.) AERIAL TOPOGRAPHY PROVIDED BY COOPER AERIAL SURVEYS, INC. AND IS DATED DECEMBER 1, 2017

0 200 400 Feet

N

BRIDGETON LANDFILL, LLC
13570 SAINT CHARLES ROCK RD
BRIDGETON, MO 63044

BRIDGETON LANDFILL
MONTHLY REPORTING

INITIAL TEMPERATURE MAXIMUMS - JUNE 2018

PROJECT NUMBER: BT-145 | FILE PATH: C:\Users\plins\Dropbox (Feezor Engineering)\Bridgeton\100-149\BT-145 (Agreed Order Reporting)\Monthly Reports\06-2018 Report\Internal Draft\Site Data\gas maps\June 2018.dwg

Engineering for a Better World
FEEZOR ENGINEERING, INC.

JUNE 2018
DESIGNED BY: PML
APPROVED BY: ---

REVISION | DATE

DRAWING NO.:
003

ATTACHMENT D

LABORATORY DATA

ATTACHMENT D-1

LAB ANALYSIS SUMMARY

Air TECHNOLOGY
Laboratories, Inc.

June 15, 2018

LA Cert #04140
EPA Methods TO3, TO14A, TO15, 25C/3C, RSK-175
TX Cert T104704450-14-6
EPA Methods TO14A, TO15
UT Cert CA0133332015-3
EPA Methods TO3, TO14A, TO15, RSK-175

Republic Services
ATTN: Mike Lambrich
13570 St. Charles Rock Rd.
Bridgeton, MO 63044

LABORATORY TEST RESULTS

Project Reference: Bridgeton Landfill
Lab Number: J060710-01/35

Enclosed are results for sample(s) received 6/07/18 by Air Technology Laboratories. Samples were received intact. Analyses were performed according to specifications on the chain of custody provided with the sample(s).

Report Narrative:

- Unless otherwise noted in the report, sample analyses were performed within method performance criteria and meet all requirements of the TNI Standards.
- The enclosed results relate only to the sample(s).

Preliminary results were e-mailed to Mike Lambrich and Erin Fanning; David Randall, Dustin Thoenen and Don Murphy, Weaver Consultants Group; and Jan Feezor, Feezor Engineering on 6/14/18.

ATL appreciates the opportunity to provide testing services to your company. If you have any questions regarding these results, please call me at (626) 964-4032.

Sincerely,

Mark Johnson
Operations Manager
MJohnson@AirTechLabs.com

Enclosures

Note: The cover letter is an integral part of this analytical report.

CHAIN OF CUSTODY RECORD

AirTECHNOLOGY Laboratories, Inc.

18501 E. Gale Ave., Suite 130
City of Industry, CA 91748
Ph: 626-964-4032
Fx: 626-964-5832

PAGE: 1 OF 5

TURNAROUND TIME				DELIVERABLES		Condition upon receipt:	
Standard	☐	48 hours	☐	EDD	■	Sealed Yes ☐	No ☐
Same Day	☐	72 hours	☐	EDF	☐	Intact Yes ☐	No ☐
24 hours	☐	96 hours	☐	Level 3	☐	Chilled _____	deg C
Other:	5 Day			Level 4	☐		

Project No.:	
Project Name:	Bridgeton Landfill
Report To:	Mike Lambrich
Company:	Republic Services
Street:	13570 St. Charles Rock Rd.
City/State/Zip:	Bridgeton , MO 63044
Phone& Fax:	314-683-3921
e-mail:	Mlambrich@republicservices.com

BILLING

P.O. No.:	PO7112802
Bill to:	Republic Services
	Attn: Mike Lambrich
	13570 St. Charles Rock Rd.
	Bridgeton, MO 63044

LAB USE ONLY	Cannister Pressure ("hg)			SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	CONTAINER QTY/TYPE	MATRIX	PRESERVATION	ANALYSIS REQUEST: D1946 + CO, H2					INITIAL PRESSURE "Hg
	Cannister ID	Sample Start	Sample End												
J060710 -01	A8081	-19.9	-5	GEW 8	6/4/2018	9:55	C	LFG	NA	X					5.5
-02	A7780	-20.2	-5	GEW 9	6/4/2018	10:06	C	LFG	NA	X					4.5
-03	5921	-19.9	-5	GEW 53	6/4/2018	10:59	C	LFG	NA	X					6.0
-04	A8088	-20.1	-5	GEW 54	6/4/2018	11:10	C	LFG	NA	X					6.0
-05	A8091	-20	-5	GEW 55	6/4/2018	11:24	C	LFG	NA	X					5.5
-06	3128	-19.9	-5	GEW 40	6/4/2018	11:34	C	LFG	NA	X					6.0
-07	5270	-19.9	-5	GEW 42R	6/4/2018	13:33	C	LFG	NA	X					6.0
-08	5811	-20	-5	GEW 45R	6/4/2018	13:57	C	LFG	NA	X					6.0
-09	A8071	-19.9	-5	GEW 46R	6/4/2018	14:20	C	LFG	NA	X					6.0
-10	A7765	-20.2	-5	GEW 2	6/4/2018	15:00	C	LFG	NA	X					5.5

AUTHORIZATION TO PERFORM WORK: Dave Penoyer COMPANY: Republic Services

SAMPLED BY: Anthony Kimutis COMPANY: Republic Services DATE/TIME: 6/4/18

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
	6/6/18		
FedEx	6-7-18 04:12		6-7-18 04:12

METHOD OF TRANSPORT (circle one): Walk-In FedEx UPS Courier ATLI Other_____

COMMENTS

DISTRIBUTION: White & Yellow - Lab Copies / Pink - Customer Copy

Preservation: **H**=HCl **N**=None / Container: **B**=Bag **C**=Can **V**=VOA **O**=Other *Rev. 03 - 5/7/09*

AirTECHNOLOGY Laboratories, Inc.

18501 E. Gale Ave., Suite 130
City of Industry, CA 91748
Ph: 626-964-4032
Fx: 626-964-5832

CHAIN OF CUSTODY RECORD

TURNAROUND TIME

Standard ☐ 48 hours ■
Same Day ☐ 72 hours ☐
24 hours ☐ 96 hours ☐
Other: 5 DAY

DELIVERABLES

EDD ■
EDF ☐
Level 3 ☐
Level 4 ☐

PAGE: 2 OF 5

Condition upon receipt:
Sealed Yes ☐ No ☐
Intact Yes ☐ No ☐
Chilled _____ deg C

Project No.:	
Project Name:	Bridgeton Landfill
Report To:	Mike Lambrich
Company:	Republic Services
Street:	13570 St. Charles Rock Rd.
City/State/Zip:	Bridgeton , MO 63044
Phone& Fax:	314-683-3921
e-mail:	Mlambrich@republicservices.com

BILLING

P.O. No.:	PO7112802
Bill to:	Republic Services
	Attn: Mike Lambrich
	13570 St. Charles Rock Rd.
	Bridgeton, MO 63044

ANALYSIS REQUEST

LAB USE ONLY	Cannister Pressure ("hg) Cannister ID	Sample Start	Sample End	SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	CONTAINER QTY/TYPE	MATRIX	PRESERVATION	D1946 + CO, H2					INITIAL PRESSURE "Hg
J060710 -11	A7772	-20.1	-5	GEW 3	6/4/2018	15:10	C	LFG	NA	X					6.0
-12	A7797	-19.9	-5	GEW 4	6/4/2018	15:22	C	LFG	NA	X					5.5
-13	A7748	-19.8	-5	GEW 47R	6/5/2018	8:17	C	LFG	NA	X					5.5
-14	4657	-19.7	-5	GEW 5	6/5/2018	8:31	C	LFG	NA	X					5.5
-15	A7648	-19.9	-5	GEW 48	6/5/2018	8:43	C	LFG	NA	X					5.5
-16	A7799	-19.7	-5	GEW 49	6/5/2018	8:58	C	LFG	NA	X					6.0
-17	A7805	-19.6	-5	GEW 10	6/5/2018	9:42	C	LFG	NA	X					5.5
-18	5837	-19.7	-5	GEW 110	6/5/2018	9:52	C	LFG	NA	X					5.5
-19	5900	-19.6	-5	GEW 56R	6/5/2018	10:16	C	LFG	NA	X					6.0
-20	5319	-18.7	-5	GEW 38	6/5/2018	10:26	C	LFG	NA	X					5.5

AUTHORIZATION TO PERFORM WORK: Dave Penoyer COMPANY: Republic Services

SAMPLED BY: Anthony Kimutis COMPANY: Republic Services DATE/TIME 6/4/18 - 6/5/18

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
	6/6/18		
FedEx	6-7-18 09:12		6-7-18 09:12

METHOD OF TRANSPORT (circle one): Walk-In FedEx UPS Courier ATLI Other_____

COMMENTS

DISTRIBUTION: White & Yellow - Lab Copies / Pink - Customer Copy

Preservation: H=HCl N=None / Container: B=Bag C=Can V=VOA O=Other *Rev. 03 - 5/7/09*

CHAIN OF CUSTODY RECORD

Air TECHNOLOGY Laboratories, Inc.

18501 E. Gale Ave., Suite 130
City of Industry, CA 91748
Ph: 626-964-4032
Fx: 626-964-5832

TURNAROUND TIME

Standard	☐	48 hours	☐
Same Day	☐	72 hours	☐
24 hours	☐	96 hours	☐
Other:	5 DAY		

DELIVERABLES

EDD	■
EDF	☐
Level 3	☐
Level 4	☐

PAGE: 3 OF 5

Condition upon receipt:
Sealed Yes ☐ No ☐
Intact Yes ☐ No ☐
Chilled _____ deg C

Project No.:	
Project Name:	Bridgeton Landfill
Report To:	Mike Lambrich
Company:	Republic Services
Street:	13570 St. Charles Rock Rd.
City/State/Zip:	Bridgeton , MO 63044
Phone& Fax:	314-683-3921
e-mail:	Mlambrich@republicservices.com

BILLING

P.O. No.:	PO7112802
Bill to:	Republic Services
	Attn: Mike Lambrich
	13570 St. Charles Rock Rd.
	Bridgeton, MO 63044

ANALYSIS REQUEST

LAB USE ONLY	Canister Pressure ("hg) Canister ID	Sample Start	Sample End	SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	CONTAINER QTY/TYPE	MATRIX	PRESERVATION	D1946 + CO, H2					INITIAL PRESSURE "Hg
T060710-21	4658	-19.8	-5	GEW 109	6/5/2018	10:35	C	LFG	NA	X					5.5
↓ -22	3440	-20	-5	GEW 39	6/5/2018	10:44	C	LFG	NA	X					6.0

AUTHORIZATION TO PERFORM WORK: Dave Penoyer COMPANY: Republic Services

SAMPLED BY: Anthony Kimutis COMPANY: Republic Services DATE/TIME 6/5/18

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
	6/6/18		
FedEx	6-7-18 09:12		6-7-18 0912

METHOD OF TRANSPORT (circle one): Walk-In FedEx UPS Courier ATLI Other_____

COMMENTS

DISTRIBUTION: White & Yellow - Lab Copies / Pink - Customer Copy

Preservation: **H**=HCl **N**=None / Container: **B**=Bag **C**=Can **V**=VOA **O**=Other *Rev. 03 - 5/7/09*

AirTECHNOLOGY Laboratories, Inc.

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CHAIN OF CUSTODY RECORD

TURNAROUND TIME

Standard ☐ 48 hours ☐
Same Day ☐ 72 hours ☐
24 hours ☐ 96 hours ☐
Other: 5 DAY

DELIVERABLES

EDD ■
EDF ☐
Level 3 ☐
Level 4 ☐

Condition upon receipt:
Sealed Yes ☐ No ☐
Intact Yes ☐ No ☐
Chilled _____ deg C

Project No.:	
Project Name:	Bridgeton Landfill
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e-mail:	Mlambrich@republicservices.com

BILLING

P.O. No.:	PO7112802
Bill to:	Republic Services
	Attn: Mike Lambrich
	13570 St. Charles Rock Rd.
	Bridgeton, MO 63044

ANALYSIS REQUEST

LAB USE ONLY	Canister Pressure ("hg) Canister ID	Sample Start	Sample End	SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	CONTAINER QTY/TYPE	MATRIX	PRESERVATION	D1946 + CO, H2					INITIAL PRESSURE "Hg
J060710 -23	A8094	-19.7	-5	GIW 6	6/5/2018	8:12	C	LFG	NA	X					5.5
-24	A7803	-19.8	-5	GIW 7	6/5/2018	8:25	C	LFG	NA	X					5.5
-25	6154	-20	-5	GIW 8	6/5/2018	8:36	C	LFG	NA	X					5.5
-26	3131	-19.9	-5	GIW 9	6/5/2018	8:46	C	LFG	NA	X					5.5
-27	6159	-19.9	-5	GIW 10	6/5/2018	9:39	C	LFG	NA	X					5.5
-28	A7763	-19.7	-5	GIW 11	6/5/2018	9:49	C	LFG	NA	X					6.0
-29	A7643	-19.9	-5	GIW 12	6/5/2018	9:59	C	LFG	NA	X					5.5
-30	5823	-19.8	-5	GIW 13	6/5/2018	10:10	C	LFG	NA	X					5.5
-31	6130	-20	-5	GIW 1	6/5/2018	10:31	C	LFG	NA	X					6.0
-32	A8054	-19.8	-5	GIW 2	6/5/2018	10:43	C	LFG	NA	X					6.0

AUTHORIZATION TO PERFORM WORK: Dave Penoyer COMPANY: Republic Services

SAMPLED BY: Tim Ahrens COMPANY: Cornerstone DATE/TIME: 6/5/18

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
	6/6/18		
FedEx	6-7-18 0512		6-7-18 0512

METHOD OF TRANSPORT (circle one): Walk-In FedEx UPS Courier ATLI Other_____

COMMENTS

DISTRIBUTION: White & Yellow - Lab Copies / Pink - Customer Copy

Preservation: H=HCl N=None / Container: B=Bag C=Can V=VOA O=Other *Rev. 03 - 5/7/09*

CHAIN OF CUSTODY RECORD

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Ave., Suite 130
City of Industry, CA 91748
Ph: 626-964-4032
Fx: 626-964-5832

TURNAROUND TIME

Standard	☐	48 hours	☐
Same Day	☐	72 hours	☐
24 hours	☐	96 hours	☐
Other:	5 DAY		

DELIVERABLES

EDD	■
EDF	☐
Level 3	☐
Level 4	☐

PAGE: 5 OF 5

Condition upon receipt:
Sealed Yes ☐ No ☐
Intact Yes ☐ No ☐
Chilled _____ deg C

Project No.:	
Project Name:	Bridgeton Landfill
Report To:	Mike Lambrich
Company:	Republic Services
Street:	13570 St. Charles Rock Rd.
City/State/Zip:	Bridgeton , MO 63044
Phone& Fax:	314-683-3921
e-mail:	Mlambrich@republicservices.com

BILLING

P.O. No.:	PO7112802
Bill to:	Republic Services
	Attn: Mike Lambrich
	13570 St. Charles Rock Rd.
	Bridgeton, MO 63044

ANALYSIS REQUEST

LAB USE ONLY	Cannister Pressure ("hg) Cannister ID	Sample Start	Sample End	SAMPLE IDENTIFICATION	SAMPLE DATE	SAMPLE TIME	CONTAINER QTY/TYPE	MATRIX	PRESERVATION	D1946 + CO, H2					INITIAL PRESSURE "Hg
J060710 -33	5911	-19.6	-5	GIW 3	6/5/2018	10:54	C	LFG	NA	X					6.0
-34	A8057	-19.9	-5	GIW 4	6/5/2018	11:06	C	LFG	NA	X					6.0
-35	5829	-19	-5	GIW 5	6/5/2018	11:40	C	LFG	NA	X					6.0

AUTHORIZATION TO PERFORM WORK: Dave Penoyer COMPANY: Republic Services

SAMPLED BY: Tim Ahrens COMPANY: Cornerstone DATE/TIME 6/5/18

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
	6/6/18		
FedEx	06-07-18 0912		6-7-18 0912

METHOD OF TRANSPORT (circle one): Walk-In FedEx UPS Courier ATLI Other_____

COMMENTS

DISTRIBUTION: White & Yellow - Lab Copies / Pink - Customer Copy

Preservation: **H**=HCl **N**=None / Container: **B**=Bag **C**=Can **V**=VOA **O**=Other *Rev. 03 - 5/7/09*

Client:	**Republic Services**
Attn:	**Mike Lambrich**
Project Name:	**Bridgeton Landfill**
Project No.:	**NA**
Date Received:	**06/07/18**
Matrix:	**Air**
Reporting Units:	**% v/v**

ASTM D1946

Lab No.:	J060710-01		J060710-02		J060710-03		J060710-04	
Client Sample I.D.:	GEW 8		GEW 9		GEW 53		GEW 54	
Date/Time Sampled:	6/4/18 9:55		6/4/18 10:06		6/4/18 10:59		6/4/18 11:10	
Date/Time Analyzed:	6/8/18 10:40		6/8/18 13:10		6/8/18 11:09		6/8/18 11:42	
QC Batch No.:	180608GC8A1		180608GC8A1		180608GC8A1		180608GC8A1	
Analyst Initials:	AS		AS		AS		AS	
Dilution Factor:	3.3		3.1		3.4		3.4	
ANALYTE	**Result % v/v**	**RL % v/v**	**Result % v/v**	**RL % v/v**	**Result % v/v**	**RL % v/v**	**Result % v/v**	**RL % v/v**
Hydrogen	1.3 d	0.033	0.52 d	0.031	4.6	3.4	1.9 d	0.034
Carbon Dioxide	42	0.033	35	0.031	40	0.034	41	0.034
Oxygen/Argon	ND	1.6	2.8	1.5	ND	1.7	ND	1.7
Nitrogen	3.3	3.3	15	3.1	ND	3.4	ND	3.4
Methane	53	0.0033	46	0.0031	51	0.0034	54	0.0034
Carbon Monoxide	ND	0.0033	ND	0.0031	0.0067	0.0034	ND	0.0034

Results normalized including non-methane hydrocarbons
ND = Not Detected (below RL)
RL = Reporting Limit
d = Reported from a secondary analysis. QC Batch: 180613GC8A1

Reviewed/Approved By: _____ **Date** 6/14/18

Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 06/07/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J060710-05		J060710-06		J060710-07		J060710-08	
Client Sample I.D.:	GEW 55		GEW 40		GEW 42R		GEW 45R	
Date/Time Sampled:	6/4/18 11:24		6/4/18 11:34		6/4/18 13:33		6/4/18 13:57	
Date/Time Analyzed:	6/8/18 11:57		6/8/18 12:12		6/8/18 12:26		6/8/18 12:41	
QC Batch No.:	180608GC8A1		180608GC8A1		180608GC8A1		180608GC8A1	
Analyst Initials:	AS		AS		AS		AS	
Dilution Factor:	3.3		3.4		3.4		3.4	
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v	Result % v/v	RL % v/v	Result % v/v	RL % v/v
Hydrogen	1.8 d	0.033	ND d	0.034	ND d	0.034	ND d	0.034
Carbon Dioxide	39	0.033	36	0.034	39	0.034	38	0.034
Oxygen/Argon	ND	1.6	ND	1.7	ND	1.7	1.9	1.7
Nitrogen	5.9	3.3	5.3	3.4	3.6	3.4	6.5	3.4
Methane	52	0.0033	58	0.0034	57	0.0034	54	0.0034
Carbon Monoxide	ND	0.0033	ND	0.0034	ND	0.0034	ND	0.0034

Results normalized including non-methane hydrocarbons
ND = Not Detected (below RL)
RL = Reporting Limit
d = Reported from a secondary analysis. QC Batch: 180613GC8A1

Reviewed/Approved By: _____ Date 6/14/18
Mark Johnson
Operations Manager

The cover letter is an integral part of this analytical report

AirTECHNOLOGY Laboratories, Inc.
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 06/07/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J060710-09		J060710-10		J060710-11		J060710-12	
Client Sample I.D.:	GEW 46R		GEW 2		GEW 3		GEW 4	
Date/Time Sampled:	6/4/18 14:20		6/4/18 15:00		6/4/18 15:10		6/4/18 15:22	
Date/Time Analyzed:	6/8/18 12:55		6/8/18 13:25		6/8/18 13:39		6/8/18 13:54	
QC Batch No.:	180608GC8A1		180608GC8A1		180608GC8A1		180608GC8A1	
Analyst Initials:	AS		AS		AS		AS	
Dilution Factor:	3.4		3.3		3.4		3.3	
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v	Result % v/v	RL % v/v	Result % v/v	RL % v/v
Hydrogen	0.034 d	0.034	ND d	0.033	0.075 d	0.034	0.053 d	0.033
Carbon Dioxide	35	0.034	40	0.033	37	0.034	39	0.033
Oxygen/Argon	ND	1.7	ND	1.6	ND	1.7	ND	1.6
Nitrogen	16	3.4	3.4	3.3	11	3.4	5.9	3.3
Methane	49	0.0034	56	0.0033	51	0.0034	55	0.0033
Carbon Monoxide	ND	0.0034	ND	0.0033	ND	0.0034	ND	0.0033

Results normalized including non-methane hydrocarbons
ND = Not Detected (below RL)
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Operations Manager

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Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 06/07/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J060710-13		J060710-14		J060710-15		J060710-16	
Client Sample I.D.:	GEW 47R		GEW 5		GEW 48		GEW 49	
Date/Time Sampled:	6/5/18 8:17		6/5/18 8:31		6/5/18 8:43		6/5/18 8:58	
Date/Time Analyzed:	6/8/18 14:08		6/8/18 14:23		6/8/18 14:37		6/8/18 14:52	
QC Batch No.:	180608GC8A1		180608GC8A1		180608GC8A1		180608GC8A1	
Analyst Initials:	AS		AS		AS		AS	
Dilution Factor:	3.3		3.3		3.3		3.4	
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v	Result % v/v	RL % v/v	Result % v/v	RL % v/v
Hydrogen	0.044 d	0.033	ND d	0.033	ND d	0.033	ND d	0.034
Carbon Dioxide	36	0.033	33	0.033	37	0.033	35	0.034
Oxygen/Argon	ND	1.6	ND	1.6	ND	1.6	ND	1.7
Nitrogen	15	3.3	14	3.3	5.7	3.3	11	3.4
Methane	48	0.0033	51	0.0033	56	0.0033	52	0.0034
Carbon Monoxide	ND	0.0033	ND	0.0033	ND	0.0033	ND	0.0034

Results normalized including non-methane hydrocarbons
ND = Not Detected (below RL)
RL = Reporting Limit
d = Reported from a secondary analysis. QC Batch: 180613GC8A1

Reviewed/Approved By: _____ Date 6/14/18
Mark Johnson
Operations Manager

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Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 06/07/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J060710-17		J060710-18		J060710-19		J060710-20	
Client Sample I.D.:	GEW 10		GEW 110		GEW 56R		GEW 38	
Date/Time Sampled:	6/5/18 9:42		6/5/18 9:52		6/5/18 10:16		6/5/18 10:26	
Date/Time Analyzed:	6/8/18 15:07		6/8/18 15:21		6/8/18 15:36		6/11/18 10:21	
QC Batch No.:	180608GC8A1		180608GC8A1		180608GC8A1		180611GC8A1	
Analyst Initials:	AS		AS		AS		AS	
Dilution Factor:	3.3		3.3		3.4		3.3	
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v	Result % v/v	RL % v/v	Result % v/v	RL % v/v
Hydrogen	ND d	0.033	16	3.3	16	3.4	15	3.3
Carbon Dioxide	41	0.033	31	0.033	43	0.034	26	0.033
Oxygen/Argon	ND	1.6	7.7	1.6	ND	1.7	11	1.6
Nitrogen	3.3	3.3	28	3.3	7.9	3.4	39	3.3
Methane	55	0.0033	17	0.0033	32	0.0034	8.5	0.0033
Carbon Monoxide	ND	0.0033	0.049	0.0033	0.047	0.0034	0.061	0.0033

Results normalized including non-methane hydrocarbons
ND = Not Detected (below RL)
RL = Reporting Limit
d = Reported from a secondary analysis. QC Batch: 180613GC8A1

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Operations Manager

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Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 06/07/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J060710-21		J060710-22		J060710-23		J060710-24	
Client Sample I.D.:	GEW 109		GEW 39		GIW 6		GIW 7	
Date/Time Sampled:	6/5/18 10:35		6/5/18 10:44		6/5/18 8:12		6/5/18 8:25	
Date/Time Analyzed:	6/11/18 10:35		6/11/18 10:50		6/11/18 11:04		6/11/18 11:19	
QC Batch No.:	180611GC8A1		180611GC8A1		180611GC8A1		180611GC8A1	
Analyst Initials:	AS		AS		AS		AS	
Dilution Factor:	3.4		3.4		3.4		3.3	
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v	Result % v/v	RL % v/v	Result % v/v	RL % v/v
Hydrogen	10	3.4	ND d	0.034	12	3.4	6.6	3.3
Carbon Dioxide	38	0.034	36	0.034	41	0.034	54	0.033
Oxygen/Argon	ND	1.7	ND	1.7	ND	1.7	ND	1.6
Nitrogen	23	3.4	32	3.4	21	3.4	4.6	3.3
Methane	27	0.0034	30	0.0034	24	0.0034	34	0.0033
Carbon Monoxide	0.034	0.0034	ND	0.0034	0.018	0.0034	0.030	0.0033

Results normalized including non-methane hydrocarbons
ND = Not Detected (below RL)
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d = Reported from a secondary analysis. QC Batch: 180613GC8A1

Reviewed/Approved By: _____ Date 6/14/18

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Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 06/07/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J060710-25		J060710-26		J060710-27		J060710-28	
Client Sample I.D.:	GIW 8		GIW 9		GIW 10		GIW 11	
Date/Time Sampled:	6/5/18 8:36		6/5/18 8:46		6/5/18 9:39		6/5/18 9:49	
Date/Time Analyzed:	6/11/18 11:33		6/11/18 11:48		6/11/18 12:03		6/11/18 12:18	
QC Batch No.:	180611GC8A1		180611GC8A1		180611GC8A1		180611GC8A1	
Analyst Initials:	AS		AS		AS		AS	
Dilution Factor:	3.3		3.3		3.3		3.4	
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v	Result % v/v	RL % v/v	Result % v/v	RL % v/v
Hydrogen	0.15 d	0.033	2.9 d	0.033	14	3.3	13	3.4
Carbon Dioxide	50	0.033	19	0.033	31	0.033	36	0.034
Oxygen/Argon	ND	1.6	8.3	1.6	ND	1.6	ND	1.7
Nitrogen	9.1	3.3	64	3.3	44	3.3	38	3.4
Methane	40	0.0033	5.4	0.0033	9.8	0.0033	12	0.0034
Carbon Monoxide	0.0045	0.0033	0.010	0.0033	0.044	0.0033	0.060	0.0034

Results normalized including non-methane hydrocarbons
ND = Not Detected (below RL)
RL = Reporting Limit
d = Reported from a secondary analysis. QC Batch: 180613GC8A1

Reviewed/Approved By: _____ Date 6/14/18

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Operations Manager

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Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 06/07/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J060710-29		J060710-30		J060710-31		J060710-32	
Client Sample I.D.:	GIW 12		GIW 13		GIW 1		GIW 2	
Date/Time Sampled:	6/5/18 9:59		6/5/18 10:10		6/5/18 10:31		6/5/18 10:43	
Date/Time Analyzed:	6/11/18 12:32		6/11/18 13:46		6/11/18 14:00		6/11/18 14:15	
QC Batch No.:	180611GC8A1		180611GC8A1		180611GC8A1		180611GC8A1	
Analyst Initials:	AS		AS		AS		AS	
Dilution Factor:	3.3		3.3		3.4		3.4	
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v	Result % v/v	RL % v/v	Result % v/v	RL % v/v
Hydrogen	16	3.3	11	3.3	24	3.4	4.8	3.4
Carbon Dioxide	34	0.033	53	0.033	53	0.034	16	0.034
Oxygen/Argon	7.3	1.6	ND	1.6	1.7	1.7	14	1.7
Nitrogen	34	3.3	4.5	3.3	16	3.4	62	3.4
Methane	8.8	0.0033	31	0.0033	4.8	0.0034	2.3	0.0034
Carbon Monoxide	0.082	0.0033	0.033	0.0033	0.11	0.0034	0.028	0.0034

Results normalized including non-methane hydrocarbons
ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ for Date 6/14/18
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Operations Manager

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Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 06/07/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J060710-33		J060710-34		J060710-35			
Client Sample I.D.:	GIW 3		GIW 4		GIW 5			
Date/Time Sampled:	6/5/18 10:54		6/5/18 11:06		6/5/18 11:40			
Date/Time Analyzed:	6/11/18 14:30		6/11/18 14:44		6/11/18 14:59			
QC Batch No.:	180611GC8A1		180611GC8A1		180611GC8A1			
Analyst Initials:	AS		AS		AS			
Dilution Factor:	3.4		3.4		3.4			
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v	Result % v/v	RL % v/v		
Hydrogen	17	3.4	37	3.4	16	3.4		
Carbon Dioxide	45	0.034	45	0.034	15	0.034		
Oxygen/Argon	2.6	1.7	3.8	1.7	15	1.7		
Nitrogen	26	3.4	13	3.4	53	3.4		
Methane	8.6	0.0034	0.60	0.0034	0.54	0.0034		
Carbon Monoxide	0.081	0.0034	0.18	0.0034	0.016	0.0034		

Results normalized including non-methane hydrocarbons
ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 6/14/18
Mark Johnson
Operations Manager

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AirTECHNOLOGY Laboratories, Inc.
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QC Batch No: 180608GC8A1
Matrix: Air
Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	6/8/18 10:02			6/8/18 9:18		6/8/18 9:33					
Analyst Initials:	AS			AS		AS					
Dilution Factor:	1.0			1.0		1.0			Limits		
ANALYTE	Result % v/v	RL % v/v	SPIKE AMT. % v/v	Result % v/v	% Rec.	Result % v/v	% Rec.	RPD %	Low %Rec	High %Rec	Max. RPD
Hydrogen	ND	1.0	5.0	3.84	77	3.92	78	1.9	70	130	30
Carbon Dioxide	ND	0.010	10	8.75	87	8.86	88	1.3	70	130	30
Oxygen/Argon	ND	0.50	15	15.5	105	15.9	107	2.2	70	130	30
Nitrogen	ND	1.0	70	69.0	99	70.5	101	2.1	70	130	30
Methane	ND	0.0010	0.10	0.105	105	0.104	104	0.5	70	130	30
Carbon Monoxide	ND	0.0010	0.10	0.101	101	0.101	101	0.4	70	130	30

ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 6/14/18
Mark Johnson
Operations Manager

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QC Batch No: 180611GC8A1
Matrix: Air
Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	6/11/18 10:04			6/11/18 9:20		6/11/18 9:34					
Analyst Initials:	AS			AS		AS					
Dilution Factor:	1.0			1.0		1.0			Limits		
ANALYTE	Result % v/v	RL % v/v	SPIKE AMT. % v/v	Result % v/v	% Rec.	Result % v/v	% Rec.	RPD %	Low %Rec	High %Rec	Max. RPD
Hydrogen	ND	1.0	5.0	5.57	111	5.46	109	2.1	70	130	30
Carbon Dioxide	ND	0.010	10	9.49	95	9.29	93	2.1	70	130	30
Oxygen/Argon	ND	0.50	15	15.4	104	15.1	102	1.9	70	130	30
Nitrogen	ND	1.0	70	69.6	100	68.3	98	1.9	70	130	30
Methane	ND	0.0010	0.10	0.110	110	0.110	110	0.3	70	130	30
Carbon Monoxide	ND	0.0010	0.10	0.106	106	0.106	106	0.2	70	130	30

ND = Not Detected (below RL)
RL = Reporting Limit

Reviewed/Approved By: _____ Date 6/14/18
Mark Johnson
Operations Manager

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QC Batch # 180613GC8A1
Matrix: Air
Units: % v/v

QC for Low Level Hydrogen Analysis

Lab No.:	Blank		LCS		LCSD			
Date Analyzed:	6/13/2018 10:10		6/13/2018 9:35		6/13/2018 9:40			
Analyst Initials:	AS		AS		AS			
Dilution Factor:	1.0		1.0		1.0			
ANALYTE	Results	RL	%Rec	Criteria	%Rec	Criteria	RPD	Criteria
Hydrogen	ND	0.010	100	70-130	95	70-130	5.7	<20

ND = Not Detected (Below RL)
RL = PQL X Dilution Factor

Reviewed/Approved By: _____ Date: 6/14/18
Mark Johnson
Operations Manager

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ATTACHMENT D-2

LAB ANALYSIS REPORTS

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO_2	O_2/Argon	Nitrogen	Hydrogen	Carbon Monoxide	Comments
		(%)					(ppm)	
North Quarry								
GEW-002	2/5/2018	56	40	ND	ND	ND	ND	
GEW-002	3/8/2018	52	36	ND	11	ND	ND	
GEW-002	4/6/2018	57	40	ND	ND	ND	ND	
GEW-002	5/21/2018	53	37	2.3	7.9	0.058	ND	See Note 8
GEW-002	5/31/2018	55	41	ND	ND	ND	ND	
GEW-002	6/4/2018	56	40	ND	3.4	ND	ND	
GEW-02S	3/8/2018	46	26	6.0	21	ND	ND	See Note 8
GEW-02S	3/30/2018	59	32	2.0	7.3	ND	ND	
GEW-02S	5/7/2018	59	35	ND	4.5	ND	ND	
GEW-003	2/5/2018	48	37	ND	14	0.10	ND	
GEW-003	3/8/2018	47	35	ND	18	0.074	ND	
GEW-003	4/6/2018	51	37	ND	12	0.060	ND	
GEW-003	5/7/2018	53	36	ND	9.8	0.072	ND	
GEW-003	6/4/2018	51	37	ND	11	0.075	ND	
GEW-004	2/5/2018	47	36	ND	15	0.070	ND	
GEW-004	3/8/2018	51	36	ND	12	0.070	ND	
GEW-004	4/6/2018	53	37	ND	9.6	0.068	ND	
GEW-004	5/7/2018	54	37	ND	7.7	0.067	ND	
GEW-004	6/4/2018	55	39	ND	5.9	0.053	ND	
GEW-005	2/6/2018	37	30	ND	33	ND	ND	
GEW-005	3/8/2018	43	31	ND	25	ND	ND	
GEW-005	4/6/2018	49	34	ND	16	ND	ND	
GEW-005	5/7/2018	54	34	ND	11	ND	ND	
GEW-005	6/5/2018	51	33	ND	14	ND	ND	
GEW-006	3/8/2018	54	34	ND	12	ND	ND	
GEW-006	5/8/2018	56	35	ND	7.8	ND	ND	
GEW-007	3/5/2018	59	38	ND	ND	ND	ND	
GEW-007	5/7/2018	59	39	ND	ND	ND	ND	
GEW-008	2/6/2018	54	41	ND	3.9	0.55	ND	
GEW-008	3/5/2018	54	41	ND	ND	1.7	ND	
GEW-008	4/2/2018	51	39	1.8	6.2	1.6	ND	See Note 8
GEW-008	4/26/2018	55	41	ND	ND	1.6	ND	
GEW-008	5/7/2018	54	42	ND	ND	1.5	ND	
GEW-008	6/4/2018	53	42	ND	3.3	1.3	ND	
GEW-009	2/6/2018	49	37	ND	12	1.1	ND	
GEW-009	3/5/2018	55	40	ND	3.3	1.0	ND	
GEW-009	4/2/2018	54	40	ND	4.3	0.98	ND	
GEW-009	5/7/2018	48	37	ND	14	0.45	ND	
GEW-009	6/4/2018	46	35	2.8	15	0.52	ND	See Note 3
GEW-040	2/6/2018	56	35	1.4	7.7	ND	ND	
GEW-040	3/6/2018	50	32	3.4	15	ND	ND	See Note 8
GEW-040	3/30/2018	51	32	2.2	14	ND	ND	See Note 4
GEW-040	4/2/2018	55	35	ND	8.8	ND	ND	
GEW-040	5/7/2018	55	34	1.6	9.3	ND	ND	See Note 8
GEW-040	5/29/2018	58	36	ND	5.0	ND	ND	
GEW-040	6/4/2018	58	36	ND	5.3	ND	ND	
GEW-041R	3/6/2018	54	34	ND	12	ND	ND	
GEW-041R	5/7/2018	58	35	ND	6.0	ND	ND	
GEW-042R	2/6/2018	57	39	ND	3.1	ND	ND	
GEW-042R	3/8/2018	52	35	3.0	10	ND	ND	See Note 8
GEW-042R	3/30/2018	58	38	ND	3.2	ND	ND	
GEW-042R	4/6/2018	55	37	1.7	5.7	ND	ND	See Note 8
GEW-042R	4/26/2018	57	38	ND	ND	ND	ND	
GEW-042R	5/7/2018	57	39	ND	ND	ND	ND	
GEW-042R	6/4/2018	57	39	ND	3.6	ND	ND	

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO_2	O_2/Argon	Nitrogen	Hydrogen	Carbon Monoxide	Comments
		(%)					(ppm)	
GEW-043R	3/8/2018	56	39	ND	4.5	0.24	ND	
GEW-043R	5/7/2018	52	37	2.3	8.5	0.23	ND	See Note 8
GEW-043R	5/29/2018	55	41	ND	ND	0.22	ND	
GEW-044	3/8/2018	41	26	5.1	28	ND	ND	See Note 8
GEW-044	3/30/2018	54	34	ND	12	ND	ND	
GEW-044	5/7/2018	55	37	ND	7.5	ND	ND	
GEW-045R	2/6/2018	56	42	ND	ND	ND	ND	
GEW-045R	3/8/2018	58	38	ND	ND	ND	ND	
GEW-045R	4/6/2018	57	39	ND	ND	ND	ND	
GEW-045R	5/7/2018	58	40	ND	ND	ND	ND	
GEW-045R	6/4/2018	54	38	1.9	6.5	ND	ND	
GEW-046R	2/6/2018	51	36	ND	13	0.085	ND	
GEW-046R	3/8/2018	47	33	2.1	18	0.084	ND	See Note 8
GEW-046R	3/30/2018	53	35	ND	11	0.036	ND	
GEW-046R	4/6/2018	53	35	ND	11	0.051	ND	
GEW-046R	5/7/2018	53	35	ND	11	ND	ND	
GEW-046R	6/4/2018	49	35	ND	16	0.034	ND	
GEW-047R	2/6/2018	48	36	ND	15	ND	ND	
GEW-047R	3/8/2018	45	33	ND	22	0.035	ND	
GEW-047R	4/6/2018	49	35	ND	15	0.061	ND	
GEW-047R	5/7/2018	55	37	ND	7.2	0.068	ND	
GEW-047R	6/5/2018	48	36	ND	15	0.044	ND	
GEW-048	2/6/2018	51	36	ND	13	ND	ND	
GEW-048	3/8/2018	54	36	ND	9.2	ND	ND	
GEW-048	4/6/2018	53	35	2.7	9.3	ND	ND	See Note 8
GEW-048	4/25/2018	58	38	ND	ND	ND	ND	
GEW-048	5/7/2018	58	40	ND	ND	ND	ND	
GEW-048	6/5/2018	56	37	ND	5.7	ND	ND	
GEW-049	2/6/2018	47	33	ND	19	ND	ND	
GEW-049	3/8/2018	50	35	ND	14	0.055	ND	
GEW-049	4/6/2018	47	33	1.7	19	ND	ND	See Note 8
GEW-049	4/25/2018	58	38	ND	ND	ND	ND	
GEW-049	5/8/2018	53	36	ND	10	ND	ND	
GEW-049	6/5/2018	52	35	ND	11	ND	ND	
GEW-050	3/5/2018	55	35	ND	9.1	0.059	ND	
GEW-050	5/7/2018	55	35	ND	8.5	ND	ND	
GEW-051	3/5/2018	55	38	ND	4.5	1.1	ND	
GEW-051	5/7/2018	56	39	ND	ND	0.92	ND	
GEW-052	3/5/2018	55	37	1.6	6.4	0.032	ND	
GEW-052	5/7/2018	42	30	2.3	26	ND	ND	See Note 8
GEW-052	5/29/2018	49	33	2.4	16	ND	ND	
GEW-053	2/6/2018	49	39	ND	6.1	4.7	60	
GEW-053	3/5/2018	49	38	ND	6.1	5.4	55	
GEW-053	4/5/2018	51	39	ND	4.7	4.9	60	
GEW-053	5/7/2018	52	41	ND	ND	3.0	65	
GEW-053	6/4/2018	51	40	ND	ND	4.6	67	
GEW-054	2/6/2018	52	39	1.4	6.1	2.1	28	
GEW-054	3/5/2018	52	38	ND	5.8	2.4	ND	
GEW-054	4/5/2018	49	37	2.7	9.6	2.2	ND	See Note 8
GEW-054	4/25/2018	54	40	ND	ND	2.3	ND	
GEW-054	5/7/2018	54	41	ND	ND	2.3	ND	
GEW-054	6/4/2018	54	41	ND	ND	1.9	ND	
GEW-055	2/6/2018	50	38	ND	8.7	2.0	30	
GEW-055	3/6/2018	48	37	ND	12	2.0	ND	
GEW-055	4/2/2018	51	39	ND	7.4	2.2	ND	

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO_2	O_2/Argon	Nitrogen	Hydrogen	Carbon Monoxide	Comments
		(%)					(ppm)	
GEW-055	5/7/2018	52	39	ND	5.8	1.9	ND	
GEW-055	6/4/2018	52	39	ND	5.9	1.8	ND	
Flare Station[2]	2/5/2018	36.1	28.7	4.5	29.6	ND	ND	See Note 5
Flare Station[2]	3/7/2018	35.3	26.5	6.1	31.1	ND	ND	See Note 5
Flare Station[2]	4/5/2018	45.2	35.1	2.1	17.2	0.6	ND	See Note 5
Flare Station[2]	5/1/2018	51.4	34.5	ND	12.0	0.5	ND	See Note 5
Flare Station[2]	6/1/2018	47.8	35.8	2.5	13.3	0.6	ND	See Note 5

Notes: (1) Based on the comparison of field to laboratory readings, oxygen to balance gas ratios, and historical concentrations, the sample was determined to be suspect due to oxygen introduction which likely occurred during sample collection or laboratory analytical methods. (2) MDNR also collected duplicate LFG samples at these locations during this sampling period. (3) Based on the oxygen verification readings taken with an Envision meter, it was determined there is a sample train leak. (4) Based on the oxygen verification readings taken with an Envision meter, it was determined that the readings are accurate. (5) Flare station gas concentration data is an average of NQ EP14 A (or 1) and NQ EP14 B (or 2), located in the North Quarry. (6) Flare station gas concentration data is an average of Outlets 1 and 2 (A & B) or SQ OU 1 and OU 2, located in the South Quarry. (7) Sample not reported by lab due to canister leak. (8) Invalid sample due to canister leak; resampled.

ND = Analyte not detected in sample.

[2] = Flare Station measured at EPA Method 2 flow port (blower outlet)

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO_2	O_2/Argon	Nitrogen	Hydrogen	Carbon Monoxide	Comments
		(%)					(ppm)	
South Quarry								
GEW-010	2/6/2018	56	41	ND	ND	0.25	ND	
GEW-010	3/6/2018	55	41	ND	ND	0.22	ND	
GEW-010	4/3/2018	56	42	ND	ND	ND	ND	
GEW-010	5/2/2018	51	40	2.3	7.2	ND	ND	
GEW-010	6/5/2018	55	41	ND	3.3	ND	ND	
GEW-013A	3/12/2018	9.5	32	9.1	41	8.5	350	See Note 4
GEW-013A	5/8/2018	7.0	35	5.0	44	8.0	330	
GEW-015	3/12/2018	14	44	ND	12	29	1,100	
GEW-015	5/10/2018	0.41	46	ND	ND	49	2,400	
GEW-016R	3/12/2018	5.5	38	2.8	26	27	1,100	
GEW-016R	5/10/2018	5.3	42	ND	25	26	1,100	
GEW-018B	3/15/2018	0.66	34	6.0	23	36	1,300	See Note 3
GEW-018B	5/11/2018	0.53	37	5.0	21	36	1,400	
GEW-022R	3/16/2018	0.42	34	10	36	19	1,400	See Note 4
GEW-022R	5/11/2018	1.1	29	12	41	16	1,100	See Note 4
GEW-038	2/6/2018	13	46	2.2	7.4	31	1,500	
GEW-038	3/6/2018	1.7	38	6.3	22	32	1,300	See Note 4
GEW-038	4/4/2018	2.1	18	14	51	15	620	See Note 4
GEW-038	5/3/2018	5.0	23	12	43	17	710	See Note 4
GEW-038	6/5/2018	8.5	26	11	39	15	610	
GEW-039	2/6/2018	26	32	4.5	37	0.042	42	
GEW-039	3/6/2018	33	35	2.3	30	0.052	ND	
GEW-039	4/4/2018	24	31	4.2	41	0.038	30	
GEW-039	5/3/2018	29	38	2.3	31	ND	ND	
GEW-039	6/5/2018	30	36	ND	32	ND	ND	
GEW-056R	2/6/2018	28	43	ND	11	18	570	
GEW-056R	3/6/2018	28	44	ND	7.9	19	530	
GEW-056R	4/3/2018	27	47	ND	ND	23	670	
GEW-056R	5/2/2018	28	40	2.4	12	17	480	
GEW-056R	6/5/2018	32	43	ND	7.9	16	470	
GEW-057R	3/14/2018	4.7	33	8.7	30	23	510	See Note 4
GEW-057R	5/10/2018	12	28	12	44	3.2	130	See Note 4
GEW-057B	3/14/2018	2.3	17	14	51	16	370	See Note 3
GEW-057B	5/10/2018	0.50	11	17	60	11	270	See Note 3
GEW-058	3/9/2018	4.7	23	6.0	53	13	500	See Note 4
GEW-058	5/10/2018	6.8	29	2.8	47	13	580	
GEW-058A	3/9/2018	1.2	34	5.0	23	36	1,300	
GEW-058A	5/10/2018	0.62	39	4.3	17	38	1,300	
GEW-059R	3/9/2018	18	37	ND	13	31	960	
GEW-059R	5/4/2018	15	36	2.6	18	28	930	
GEW-067A	3/15/2018	2.8	31	6.1	35	24	350	See Note 3
GEW-067A	5/10/2018	2.4	21	8.6	58	9.4	140	See Note 3
GEW-068A	3/14/2018	13	46	2.5	11	27	1,600	
GEW-068A	5/10/2018	12	52	ND	4.6	29	1,900	
GEW-077	3/15/2018	0.44	45	3.7	13	37	2,000	
GEW-077	5/11/2018	0.36	30	10	35	23	1,200	See Note 3
GEW-078R	3/14/2018	13	41	1.8	24	19	670	
GEW-078R	5/11/2018	3.6	30	ND	50	15	550	
GEW-081	3/15/2018	0.35	24	12	40	22	690	See Note 4
GEW-081	5/14/2018	0.45	25	11	40	22	750	See Note 3
GEW-082R	3/14/2018	8.0	32	1.7	35	23	770	
GEW-082R	5/11/2018	6.7	33	ND	37	21	740	
GEW-086	3/12/2018	13	32	6.1	38	12	250	See Note 4
GEW-086	5/10/2018	10	34	2.3	48	5.3	130	

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO_2	O_2/Argon	Nitrogen	Hydrogen	Carbon Monoxide	Comments
		(%)					(ppm)	
GEW-087	3/12/2018	5.5	13	15	64	2.0	120	See Note 3
GEW-087	5/10/2018	5.7	17	12	63	2.5	130	See Note 4
GEW-088	3/15/2018	1.4	41	ND	ND	54	980	
GEW-088	5/14/2018	4.1	42	ND	13	38	840	
GEW-090	3/8/2018	19	41	ND	8.5	30	860	
GEW-090	5/10/2018	14	33	5.7	24	22	640	See Note 3
GEW-091	3/8/2018	1.1	12	17	60	9.9	150	See Note 3
GEW-091	5/10/2018	0.97	14	14	59	10	150	See Note 4
GEW-100	3/14/2018	1.3	56	2.5	8.6	30	950	
GEW-100	5/10/2018	1.0	43	6.8	24	23	640	See Note 3
GEW-101	3/14/2018	17	61	2.7	10	8.8	410	
GEW-101	5/10/2018	22	50	4.6	20	2.8	310	
GEW-102	3/14/2018	13	45	2.2	7.5	31	420	
GEW-102	5/10/2018	9.8	35	6.7	23	24	370	See Note 3
GEW-104	3/14/2018	1.2	53	ND	ND	42	1,300	
GEW-104	5/15/2018	3.7	56	ND	ND	36	1,200	
GEW-105	3/23/2018	10	37	7.1	30	16	720	See Note 4
GEW-105	5/10/2018	16	36	6.3	28	14	600	See Note 3
GEW-106	3/13/2018	12	33	7.2	35	12	270	See Note 4
GEW-106	5/10/2018	3.6	45	2.0	13	34	1,200	
GEW-107	3/9/2018	12	52	2.5	8.6	25	1,300	
GEW-107	5/4/2018	12	56	ND	ND	28	1,600	
GEW-108	3/9/2018	36	47	ND	14	1.3	60	
GEW-108	5/4/2018	35	48	ND	14	0.94	52	
GEW-109	2/6/2018	14	31	2.0	44	9.1	370	
GEW-109	3/6/2018	16	42	ND	24	16	570	
GEW-109	4/4/2018	22	38	2.3	27	11	380	
GEW-109	5/3/2018	26	36	ND	27	9.3	340	
GEW-109	6/5/2018	27	38	ND	23	10	340	
GEW-110	2/6/2018	11	50	ND	ND	35	1,300	
GEW-110	3/6/2018	17	46	1.9	8.6	26	800	
GEW-110	4/3/2018	21	37	4.6	19	19	550	
GEW-110	5/2/2018	17	31	8.2	29	15	470	See Note 4
GEW-110	6/5/2018	17	31	7.7	28	16	490	See Note 4
GEW-113	3/12/2018	8.9	40	4.6	25	21	1,000	
GEW-113	5/10/2018	7.4	46	3.6	19	23	1,200	
GEW-116	3/14/2018	5.0	33	8.5	37	15	680	See Note 4
GEW-116	5/11/2018	10	66	ND	ND	19	730	
GEW-117	3/15/2018	41	44	2.6	12	0.38	87	
GEW-117	5/11/2018	43	51	ND	4.9	0.087	90	
GEW-118	3/15/2018	1.9	46	3.8	15	32	710	
GEW-118	5/11/2018	1.3	53	ND	3.9	39	1,300	
GEW-120	3/15/2018	15	49	ND	23	12	500	
GEW-120	5/11/2018	17	52	ND	19	10	450	
GEW-121	3/15/2018	6.1	39	3.2	34	17	830	
GEW-121	5/11/2018	9.5	44	2.1	29	15	770	
GEW-122	3/15/2018	11	37	2.4	31	18	1,100	
GEW-122	5/14/2018	10	33	3.1	39	15	1,100	
GEW-123	3/15/2018	14	48	ND	24	13	630	
GEW-123	5/11/2018	17	52	ND	18	12	610	
GEW-124	3/15/2018	45	34	4.6	16	0.038	ND	
GEW-124	5/14/2018	41	34	5.5	19	ND	ND	See Note 4
GEW-125	3/15/2018	0.78	52	ND	3.5	42	2,000	
GEW-125	5/14/2018	3.4	52	ND	11	32	1,700	
GEW-126	3/15/2018	15	46	ND	28	8.2	570	

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO_2	O_2/Argon	Nitrogen	Hydrogen	Carbon Monoxide	Comments
		(%)					(ppm)	
GEW-126	5/14/2018	17	53	ND	18	8.8	630	
GEW-127	3/15/2018	3.7	53	4.3	15	23	2,100	
GEW-127	5/14/2018	4.9	62	ND	4.3	27	2,300	
GEW-128	3/15/2018	14	48	4.7	21	12	1,000	
GEW-128	5/8/2018	12	45	6.3	24	12	1,100	See Note 3
GEW-129	3/15/2018	13	59	ND	8.0	18	1,800	
GEW-129	5/11/2018	1.0	64	ND	ND	31	3,600	
GEW-130	3/15/2018	3.8	47	3.6	16	28	2,100	
GEW-130	5/14/2018	5.9	53	2.0	9.3	29	2,400	
GEW-131	3/15/2018	21	43	ND	19	16	950	
GEW-131	5/14/2018	20	40	ND	25	14	940	
GEW-132	3/15/2018	0.66	37	5.1	26	30	1,700	See Note 4
GEW-132	5/11/2018	1.0	43	3.7	17	34	1,800	
GEW-133	3/14/2018	7.6	47	2.2	19	24	1,000	
GEW-133	5/14/2018	11	49	ND	16	22	1,000	
GEW-134	3/14/2018	12	34	4.7	38	11	430	
GEW-134	5/11/2018	11	42	ND	28	17	710	
GEW-135	3/12/2018	5.4	38	3.9	30	22	910	
GEW-135	5/11/2018	5.4	39	3.7	30	22	900	
GEW-136	3/14/2018	5.2	30	5.7	36	23	650	See Note 4
GEW-136	5/11/2018	3.4	15	14	57	11	310	See Note 4
GEW-137	3/14/2018	32	32	2.8	34	0.19	32	
GEW-137	5/11/2018	24	29	4.2	43	0.25	39	
GEW-138	3/14/2018	17	38	ND	28	16	910	
GEW-138	5/10/2018	4.4	22	4.7	60	8.1	420	
GEW-139	3/15/2018	0.56	57	ND	ND	40	3,300	
GEW-139	5/11/2018	6.1	50	ND	12	31	2,100	
GEW-140	3/15/2018	0.31	62	ND	ND	34	2,500	
GEW-140	5/11/2018	20	49	ND	5.7	24	1,100	
GEW-141	3/15/2018	0.18	27	12	43	17	1,900	See Note 4
GEW-144	1/10/2018	1.5	24	11	37	25	1,200	See Note 4
GEW-144	3/14/2018	9.0	55	ND	3.4	31	1,200	
GEW-145	3/14/2018	6.8	48	ND	ND	41	1,600	
GEW-145	5/10/2018	5.6	42	3.6	13	36	1,400	
GEW-146	3/12/2018	2.1	5.1	17	75	0.49	ND	See Note 4
GEW-146	5/10/2018	1.9	4.9	18	75	0.40	ND	See Note 4
GEW-147	3/12/2018	8.7	33	2.4	40	16	600	
GEW-147	5/11/2018	9.0	40	ND	26	23	810	
GEW-148	3/12/2018	3.9	46	3.1	10	36	1,900	
GEW-148	5/10/2018	0.052	0.84	22	77	0.25	ND	See Note 4
GEW-149	3/8/2018	9.8	32	5.2	47	6.3	250	
GEW-149	5/10/2018	9.7	37	ND	43	7.7	290	
GEW-150	3/14/2018	9.0	33	8.3	35	14	660	See Note 4
GEW-150	5/15/2018	18	53	ND	7.1	20	940	
GEW-151	3/15/2018	4.7	47	ND	ND	43	1,400	
GEW-151	5/14/2018	25	48	ND	4.7	21	570	
GEW-152	3/9/2018	27	44	ND	4.8	23	1,100	
GEW-152	5/4/2018	25	40	2.5	12	19	950	
GEW-153	3/9/2018	43	34	ND	17	4.6	69	
GEW-153	5/4/2018	32	29	1.8	35	1.6	ND	
GEW-154	3/8/2018	0.19	11	16	62	11	580	See Note 3
GEW-154	5/10/2018	0.015	2.4	20	77	0.47	74	See Note 4
GEW-155	3/14/2018	4.2	25	ND	63	6.6	200	
GEW-155	5/11/2018	0.41	17	7.6	70	5.0	170	See Note 4
GEW-156	3/14/2018	34	41	2.3	17	4.5	120	
GEW-156	5/10/2018	39	48	ND	6.5	5.8	160	

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Well Name	Date Sampled	Methane	CO_2	O_2/Argon	Nitrogen	Hydrogen	Carbon Monoxide	Comments
		(%)					(ppm)	
GEW-157	3/14/2018	11	41	4.4	15	28	990	
GEW-157	5/10/2018	15	47	1.9	6.7	29	1,100	
GEW-158	3/13/2018	14	47	3.7	14	21	600	
GEW-158	5/10/2018	15	46	2.8	17	18	440	
GEW-159	3/9/2018	45	35	2.6	11	6.1	110	
GEW-159	5/4/2018	31	29	1.7	32	5.1	200	
GEW-160	3/8/2018	1.2	2.6	21	74	1.1	76	See Note 3
GEW-160	5/10/2018	6.1	17	12	56	9.2	360	See Note 4
GEW-161	3/8/2018	3.7	48	1.5	8.2	38	1,700	
GEW-161	5/10/2018	3.6	46	1.8	16	31	1,600	
GEW-162	3/12/2018	12	57	ND	19	10	510	
GEW-162	5/10/2018	9.4	59	ND	16	14	730	
GEW-163	3/7/2018	11	40	6.3	29	14	520	See Note 3
GEW-163	5/3/2018	12	48	2.6	23	14	520	
GEW-164	3/7/2018	23	55	1.8	7.4	12	720	
GEW-164	5/3/2018	24	56	ND	7.6	10	640	
GEW-165	3/7/2018	12	62	ND	ND	23	1,000	
GEW-165	5/21/2018	9.5	54	3.3	12	20	930	
GEW-166	3/7/2018	0.58	51	ND	4.1	42	2,600	
GEW-166	5/3/2018	0.93	54	ND	ND	41	2,600	
GEW-167	3/7/2018	0.37	52	ND	ND	45	2,600	
GEW-167	5/3/2018	0.44	30	9.4	34	25	1,500	See Note 3
GEW-168	3/7/2018	11	53	1.5	8.4	25	1,300	
GEW-168	5/3/2018	10	54	ND	8.4	25	1,400	
GEW-169	3/7/2018	4.0	53	3.0	12	28	1,800	
GEW-169	5/3/2018	5.5	61	ND	ND	30	1,900	
GEW-170	3/15/2018	7.2	50	4.4	18	20	1,500	
GEW-170	5/14/2018	8.6	60	ND	4.2	25	2,000	
GEW-171	3/15/2018	0.44	25	13	45	16	1,000	See Note 3
GEW-171	5/10/2018	4.7	34	9.9	36	15	1,100	See Note 3
GEW-172	3/15/2018	4.3	56	ND	ND	35	2,700	
GEW-172	5/10/2018	12	55	ND	ND	29	2,200	
GEW-173	3/15/2018	45	46	ND	6.0	1.7	170	
GEW-173	5/11/2018	3.8	13	11	71	0.50	53	See Note 4
GEW-174	3/14/2018	20	43	ND	20	15	760	
GEW-174	5/10/2018	21	43	ND	20	14	720	
GEW-175	3/14/2018	11	33	8.3	36	12	520	See Note 4
GEW-175	5/10/2018	14	50	2.4	13	20	710	
GEW-176	3/14/2018	15	29	9.7	38	7.6	370	See Note 4
GEW-176	5/10/2018	25	31	7.2	31	4.9	200	See Note 4
GEW-177	3/15/2018	0.32	63	ND	ND	31	3,600	
GEW-177	5/8/2018	2.1	62	ND	ND	33	3,600	
GEW-178	3/6/2018	16	59	1.8	11	11	350	
GEW-178	5/3/2018	16	53	4.0	18	7.8	270	
GEW-179	3/15/2018	19	61	2.7	9.3	6.5	180	
GEW-179	5/3/2018	22	68	ND	3.9	5.2	140	
GEW-180	3/6/2018	18	51	3.1	10	17	310	
GEW-180	5/4/2018	14	64	ND	9.4	11	420	
GEW-181	3/7/2018	11	66	ND	ND	19	1,100	
GEW-181	5/4/2018	15	68	ND	ND	13	850	
GEW-182	3/7/2018	15	40	6.5	26	12	380	See Note 4
GEW-182	5/4/2018	18	44	4.3	19	13	440	
GEW-184	3/7/2018	13	24	14	49	0.28	39	
GEW-184	5/4/2018	16	33	10	40	1.2	100	See Note 4
GEW-185	3/7/2018	16	62	ND	ND	19	870	
GEW-185	5/4/2018	16	59	ND	5.8	17	770	

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO_2	O_2/Argon	Nitrogen	Hydrogen	Carbon Monoxide	Comments
		(%)					(ppm)	
GEW-186	3/7/2018	18	39	7.4	29	7.2	480	See Note 4
GEW-186	5/4/2018	25	52	2.5	11	8.5	630	
GEW-187	3/6/2018	9.4	55	1.7	5.6	27	1,100	
GEW-187	5/3/2018	16	52	2.7	9.2	18	810	
GEW-188	3/7/2018	1.1	11	16	65	6.9	240	See Note 4
GEW-188	5/10/2018	1.8	12	15	68	3.1	160	See Note 4
GIW-01	2/5/2018	4.9	61	ND	5.2	27	1,300	
GIW-01	3/5/2018	7.3	60	ND	6.8	25	1,100	
GIW-01	4/3/2018	9.1	55	2.2	10	23	1,000	
GIW-01	5/2/2018	6.3	59	ND	6.9	25	1,100	
GIW-01	6/5/2018	4.8	53	1.7	16	24	1,100	
GIW-02	2/5/2018	2.5	18	14	61	5.6	380	See Note 4
GIW-02	3/5/2018	7.3	23	9.6	53	6.8	430	See Note 4
GIW-02	4/3/2018	0.98	16	15	60	7.5	480	See Note 4
GIW-02	5/2/2018	0.65	17	15	58	8.5	530	See Note 4
GIW-02	6/5/2018	2.3	16	14	62	4.8	280	See Note 4
GIW-03	2/5/2018	1.4	61	ND	ND	34	1,600	
GIW-03	3/5/2018	9.4	53	ND	13	24	950	
GIW-03	4/3/2018	13	41	3.9	25	16	780	
GIW-03	5/2/2018	9.4	40	3.2	31	15	740	
GIW-03	6/5/2018	8.6	45	2.6	26	17	810	
GIW-04	2/5/2018	0.50	36	5.7	20	37	1,200	See Note 4
GIW-04	3/5/2018	9.6	51	ND	5.8	32	850	
GIW-04	4/3/2018	11	44	4.3	15	25	1,100	
GIW-04	5/2/2018	4.6	38	6.2	25	26	1,100	See Note 3
GIW-04	6/5/2018	0.60	45	3.8	13	37	1,800	See Note 4
GIW-05	2/5/2018	0.45	9.7	17	59	14	180	See Note 4
GIW-05	3/5/2018	0.15	3.8	20	70	5.4	46	See Note 4
GIW-05	4/6/2018	0.011	0.23	22	78	ND	ND	See Note 3
GIW-05	5/10/2018	0.42	11	16	58	14	130	See Note 3
GIW-05	6/5/2018	0.54	15	15	53	16	160	See Note 3
GIW-06	2/5/2018	2.6	47	1.6	9.0	39	740	
GIW-06	3/5/2018	16	43	ND	22	17	230	
GIW-06	4/4/2018	15	44	ND	23	17	280	
GIW-06	5/3/2018	20	43	ND	25	11	170	
GIW-06	6/5/2018	24	41	ND	21	12	180	
GIW-07	2/5/2018	25	56	1.4	11	6.1	310	
GIW-07	3/5/2018	31	54	ND	9.7	4.4	220	
GIW-07	4/4/2018	27	55	2.0	9.4	6.7	410	
GIW-07	5/3/2018	28	58	ND	4.9	7.2	360	
GIW-07	6/5/2018	34	54	ND	4.6	6.6	300	
GIW-08	2/5/2018	22	52	ND	25	0.47	64	
GIW-08	3/5/2018	27	55	ND	17	0.26	52	
GIW-08	4/4/2018	33	53	ND	12	0.12	35	
GIW-08	5/3/2018	37	53	ND	9.0	0.054	ND	
GIW-08	6/5/2018	40	50	ND	9.1	0.15	45	
GIW-09	2/5/2018	3.9	13	12	66	5.0	200	See Note 4
GIW-09	3/5/2018	3.5	19	7.2	63	7.2	220	See Note 3
GIW-09	4/4/2018	2.4	14	13	67	4.1	130	See Note 4
GIW-09	5/3/2018	3.4	24	5.6	64	2.6	120	See Note 4
GIW-09	6/5/2018	5.4	19	8.3	64	2.9	100	See Note 4
GIW-10	2/5/2018	6.9	40	ND	24	28	560	
GIW-10	3/5/2018	8.7	34	ND	40	16	440	
GIW-10	4/4/2018	7.9	30	ND	47	14	410	
GIW-10	5/3/2018	8.5	28	1.8	50	11	310	
GIW-10	6/5/2018	9.8	31	ND	44	14	440	

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO_2	O_2/Argon	Nitrogen	Hydrogen	Carbon Monoxide	Comments
		(%)					(ppm)	
GIW-11	2/5/2018	7.7	44	ND	27	20	860	
GIW-11	3/5/2018	16	44	ND	20	18	730	
GIW-11	4/3/2018	18	41	1.7	25	14	550	
GIW-11	5/2/2018	12	34	2.3	39	13	600	
GIW-11	6/5/2018	12	36	ND	38	13	600	
GIW-12	2/5/2018	9.8	41	2.5	29	18	930	
GIW-12	3/5/2018	9.3	42	3.1	26	19	970	
GIW-12	4/3/2018	9.0	43	4.4	23	20	1,100	
GIW-12	5/2/2018	10	25	10	45	9.3	490	See Note 4
GIW-12	6/5/2018	8.8	34	7.3	34	16	820	See Note 3
GIW-13	2/5/2018	18	59	ND	4.1	18	490	
GIW-13	3/5/2018	23	58	ND	3.2	14	370	
GIW-13	4/3/2018	25	54	ND	6.5	13	350	
GIW-13	5/2/2018	23	50	3.1	12	12	370	
GIW-13	6/5/2018	31	53	ND	4.5	11	330	
Flare Station[2]	2/5/2018	12.2	33.0	7.6	36.2	10.3	505	See Note 6
Flare Station[2]	3/7/2018	11.2	32.8	8.1	37.0	10.2	505	See Note 6
Flare Station[2]	4/5/2018	11.8	34.5	7.4	34.6	10.6	485	See Note 6
Flare Station[2]	5/1/2018	12.3	32.8	7.4	36.3	10.0	495	See Note 6
Flare Station[2]	6/1/2018	12.7	37.1	6.2	32.2	10.4	505	See Note 6

Notes: (1) Based on the comparison of field to laboratory readings, oxygen to balance gas ratios, and historical concentrations, the sample was determined to be suspect due to oxygen introduction which likely occurred during sample collection or laboratory analytical methods. (2) MDNR also collected duplicate LFG samples at these locations during this sampling period. (3) Based on the oxygen verification readings taken with an Envision meter, it was determined there is a sample train leak. (4) Based on the oxygen verification readings taken with an Envision meter, it was determined that the readings are accurate. (5) Flare station gas concentration data is an average of NQ EP14 A (or 1) and NQ EP14 B (or 2), located in the North Quarry. (6) Flare station gas concentration data is an average of Outlets 1 and 2 (A & B) or SQ OU 1 and OU 2, located in the South Quarry. (7) Sample not reported by lab due to canister leak. (8) Invalid sample due to canister leak; resampled.

ND = Analyte not detected in sample.

[2] = Flare Station Inlet measured at EPA Method 2 flow port (blower outlet)

ATTACHMENT E

GAS WELLFIELD DATA

ATTACHMENT E-1

WELLFIELD DATA TABLE

June 2018 Wellfield Monitoring Data - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO_2	O_2	Balance Gas	Init Temp	Adj Temp	Init Flow	Adj Flow	Init Static Press	Adj Static Press	System Pressure
		(% vol)				°F		scfm		H_2O		
GEW-002	6/4/2018 14:56	56.3	39.5	0.0	4.2	116.0	116.0	18.1	17.4	-0.22	-0.26	-13.4
GEW-002	6/4/2018 15:03	55.8	39.7	0.0	4.5	116.0	116.0	18.5	18.5	-0.2	-0.2	-13.7
GEW-002	6/11/2018 9:15	56.0	40.0	0.0	4.0	115.5	115.5	39.8	39.5	-0.9	-0.9	-14.1
GEW-002	6/11/2018 9:16	55.6	40.9	0.0	3.5	115.3	115.3	24.2	20.3	-0.7	-0.6	-13.1
GEW-002	6/18/2018 8:52	54.3	39.7	1.0	5.0	116.0	115.8	29.8	30.1	-1.8	-1.8	-13.3
GEW-002	6/25/2018 9:49	58.6	38.2	0.0	3.2	114.6	114.8	16.6	16.6	-0.5	-0.5	-12.9
GEW-003	6/4/2018 15:06	49.0	37.4	0.0	13.6	114.0	114.0	13.5	7.6	-0.1	-0.2	-12.7
GEW-003	6/4/2018 15:14	48.9	37.3	0.0	13.8	113.7	113.7	8.5	13.5	-0.1	-0.1	-13.2
GEW-003	6/11/2018 9:20	51.5	39.3	0.0	9.2	107.2	107.2	2.7	2.7	-0.2	-0.2	-12.9
GEW-003	6/18/2018 8:48	50.7	41.0	0.2	8.1	116.8	116.8	24.5	24.8	-0.3	-0.3	-12.9
GEW-003	6/25/2018 9:52	51.9	38.9	0.0	9.2	113.9	113.8	25.0	25.0	-0.2	-0.2	-12.9
GEW-003	6/25/2018 9:54	51.4	40.3	0.0	8.3	113.8	113.9	31.2	31.0	-0.2	-0.2	-12.6
GEW-004	6/4/2018 15:19	52.8	38.4	0.0	8.8	115.5	115.8	12.4	10.3	-0.02	-0.02	-13.0
GEW-004	6/4/2018 15:27	53.2	38.0	0.0	8.8	116.3	116.5	11.6	8.3	-0.04	-0.1	-12.8
GEW-004	6/11/2018 9:23	52.1	38.4	0.0	9.5	116.6	116.6	16.1	15.9	-0.4	-0.4	-12.6
GEW-004	6/11/2018 9:24	52.3	39.4	0.0	8.3	116.4	116.6	29.3	28.6	-0.4	-0.4	-13.2
GEW-004	6/18/2018 8:43	50.7	38.4	1.1	9.8	117.4	117.1	0.0	0.0	-0.4	-0.4	-12.7
GEW-004	6/25/2018 9:57	54.1	39.4	0.0	6.5	115.0	115.0	34.5	35.2	-0.3	-0.4	-12.8
GEW-005	6/5/2018 8:28	49.8	35.2	0.0	15.0	88.9	88.9	24.6	24.6	-0.1	-0.1	-13.3
GEW-005	6/5/2018 8:36	50.4	33.9	0.0	15.7	89.8	89.8	10.9	8.2	-0.1	-0.1	-13.0
GEW-005	6/11/2018 9:36	50.1	35.0	0.0	14.9	90.0	90.0	28.1	28.1	-0.1	-0.1	-13.3
GEW-005	6/11/2018 9:38	50.4	35.0	0.0	14.6	90.1	90.1	28.0	28.0	-0.1	-0.1	-13.3
GEW-005	6/18/2018 8:39	49.5	35.7	0.2	14.6	90.8	90.8	28.0	28.7	-0.2	-0.2	-13.1
GEW-005	6/25/2018 10:09	51.7	36.3	0.0	12.0	86.3	86.2	28.4	28.4	0.1	0.04	-13.0
GEW-005	6/25/2018 10:11	52.1	35.6	0.0	12.3	86.3	86.3	8.7	10.0	0.01	0.02	-13.2
GEW-005	6/26/2018 7:11	54.1	37.3	0.0	8.6	85.7	85.7	28.6	28.7	-0.2	-0.2	-13.3
GEW-006	6/4/2018 8:51	56.7	37.2	0.0	6.1	87.7	87.8	30.2	29.7	-0.3	-0.3	-12.5
GEW-006	6/11/2018 9:45	54.9	36.7	0.0	8.4	88.9	88.9	8.7	9.6	-0.4	-0.4	-13.5
GEW-006	6/18/2018 8:27	53.9	38.8	0.5	6.8	89.0	89.0	13.4	12.6	-0.4	-0.4	-13.6
GEW-006	6/25/2018 10:18	55.7	37.8	0.0	6.5	87.5	87.5	16.8	17.5	-0.3	-0.3	-13.2
GEW-007	6/4/2018 9:01	58.1	40.2	0.0	1.7	91.7	91.7	6.1	5.5	-0.7	-0.7	-12.8
GEW-007	6/11/2018 7:27	58.3	39.0	0.0	2.7	90.5	90.5	7.8	7.3	-0.7	-0.7	-13.4
GEW-007	6/18/2018 11:36	54.8	43.2	0.3	1.7	96.7	96.7	0.0	0.0	-0.6	-0.7	-12.8
GEW-007	6/25/2018 7:46	58.4	39.0	0.0	2.6	90.9	91.0	9.9	9.9	-0.7	-0.6	-13.3
GEW-008	6/4/2018 9:52	53.0	42.8	0.0	4.2	113.6	113.7	17.8	17.0	-0.6	-0.6	-13.4
GEW-008	6/4/2018 9:58	53.2	43.1	0.0	3.7	113.5	113.5	28.9	28.0	-0.7	-0.7	-13.3
GEW-008	6/11/2018 7:31	53.2	41.0	0.0	5.8	112.3	112.4	24.9	23.7	-0.9	-0.9	-13.1
GEW-008	6/18/2018 11:40	49.7	45.7	0.3	4.3	114.9	114.8	22.0	24.6	-0.6	-0.6	-13.3
GEW-008	6/25/2018 7:49	53.8	40.8	0.0	5.4	112.2	112.2	12.7	9.7	-0.8	-0.8	-13.3
GEW-009	6/4/2018 10:02	50.4	40.7	0.0	8.9	121.3	121.5	24.4	25.1	-0.1	-0.1	-13.2
GEW-009	6/4/2018 10:09	50.9	40.2	0.0	8.9	121.5	121.2	11.3	10.7	-0.1	-0.1	-13.2

June 2018 Wellfield Monitoring Data - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO_2	O_2	Balance Gas	Init Temp	Adj Temp	Init Flow	Adj Flow	Init Static Press	Adj Static Press	System Pressure
		(% vol)				°F		scfm		H_2O		
GEW-009	6/11/2018 7:34	49.2	40.3	0.0	10.5	121.5	121.0	8.0	7.1	-0.2	-0.2	-13.5
GEW-009	6/11/2018 7:36	49.7	39.7	0.0	10.6	120.6	120.7	7.1	7.6	-0.2	-0.2	-13.3
GEW-009	6/18/2018 11:43	49.1	44.6	0.3	6.0	125.0	124.7	4.5	7.5	-0.1	-0.1	-13.0
GEW-009	6/25/2018 7:53	52.0	40.6	0.0	7.4	122.1	122.3	25.6	25.1	-0.1	-0.1	-13.3
GEW-010	6/5/2018 9:38	54.0	39.7	0.1	6.2	84.9	84.9	4.6	4.5	-1.8	-1.8	-18.7
GEW-010	6/5/2018 9:44	54.3	38.9	0.1	6.7	85.4	85.5	3.0	4.3	-1.8	-1.8	-20.3
GEW-010	6/11/2018 11:23	52.4	43.3	0.4	3.9	101.3	101.3	4.1	4.1	-1.8	-1.8	-19.6
GEW-010	6/18/2018 13:24	54.5	40.7	0.6	4.2	105.2	105.2	4.8	3.2	-1.3	-1.3	-18.3
GEW-010	6/25/2018 10:43	53.8	40.7	0.4	5.1	86.5	86.5	3.1	3.3	-1.2	-1.2	-19.0
GEW-013A	6/5/2018 11:45	9.1	36.7	4.0	50.2	156.9	156.5	38.4	38.9	-0.4	-0.5	-15.5
GEW-013A	6/5/2018 11:46	8.8	37.4	3.9	49.9	159.0	158.1	34.0	34.0	-0.4	-0.4	-15.8
GEW-013A	6/19/2018 7:46	10.7	37.4	4.9	47.0	150.2	149.9	28.9	28.9	-0.3	-0.3	-16.7
GEW-013A	6/19/2018 7:48	10.6	38.5	4.9	46.0	153.7	153.7	21.1	26.4	-0.3	-0.3	-18.4
GEW-015	6/7/2018 10:58	1.6	48.3	0.0	50.1	104.1	104.1	2.0	1.1	-0.1	-0.2	-18.2
GEW-016R	6/7/2018 11:04	10.6	45.7	0.0	43.7	179.7	179.2	NFD		-17.7	-17.7	-17.9
GEW-016R	6/7/2018 11:05	10.6	44.4	0.0	45.0	179.6	179.2	NFD		-17.6	-17.7	-17.9
GEW-016R	6/14/2018 14:41	6.5	47.0	0.0	46.5	179.0	178.7	NFD		-19.1	-19.1	-19.2
GEW-016R	6/14/2018 14:42	6.5	46.1	0.0	47.4	179.2	179.0	NFD		-19.1	-19.0	-19.1
GEW-018B	6/7/2018 14:30	0.6	47.5	1.9	50.0	176.9	176.4	2.0	2.0	-0.2	-0.2	-19.1
GEW-018B	6/7/2018 14:32	0.5	47.5	1.9	50.1	176.2	175.8	1.4	1.0	-0.2	-0.2	-19.1
GEW-018B	6/19/2018 8:50	0.8	42.4	3.3	53.5	167.1	167.1	2.9	3.0	-0.4	-0.4	-19.5
GEW-018B	6/19/2018 8:52	0.7	43.7	3.4	52.2	167.1	167.1	2.3	2.5	-0.4	-0.3	-19.3
GEW-022R	6/8/2018 7:41	2.1	55.6	0.9	41.4	90.4	90.8	2.9	2.9	-19.6	-19.7	-19.6
GEW-038	6/5/2018 10:22	10.0	31.7	9.0	49.3	90.5	90.6	2.2	1.9	-0.4	-0.4	-16.7
GEW-038	6/5/2018 10:28	10.9	33.7	7.9	47.5	93.9	93.9	3.6	3.6	-0.5	-0.5	-17.4
GEW-038	6/11/2018 14:21	11.0	35.5	8.0	45.5	112.0	112.0	1.1	1.1	-0.3	-0.3	-18.7
GEW-038	6/11/2018 14:22	10.9	34.1	8.3	46.7	113.0	113.0	1.6	1.6	-0.3	-0.3	-17.7
GEW-038	6/18/2018 13:56	10.8	39.8	6.3	43.1	109.5	109.5	5.2	4.5	-0.3	-0.3	-15.9
GEW-038	6/18/2018 13:57	10.9	40.3	6.2	42.6	110.6	110.7	5.6	4.5	-0.3	-0.3	-16.4
GEW-038	6/25/2018 13:12	13.7	47.4	2.2	36.7	95.1	95.4	2.8	2.6	-0.1	-0.1	-17.1
GEW-039	6/5/2018 10:40	29.5	36.5	0.0	34.0	118.6	118.6	19.1	18.1	-1.0	-1.0	-21.2
GEW-039	6/5/2018 10:46	29.8	35.7	0.0	34.5	118.4	118.4	17.5	17.0	-1.0	-0.9	-19.3
GEW-039	6/11/2018 14:31	36.8	40.5	0.0	22.7	120.5	120.5	19.2	19.8	-1.0	-1.0	-20.0
GEW-039	6/18/2018 13:44	32.7	40.3	0.2	26.8	119.8	119.8	18.0	20.1	-1.0	-1.0	-20.1
GEW-039	6/25/2018 13:19	33.5	40.6	0.0	25.9	117.2	117.1	20.1	17.4	-0.9	-0.9	-19.7
GEW-040	6/4/2018 11:30	56.7	38.4	0.0	4.9	90.2	90.2	6.7	6.2	-0.6	-0.6	-12.9
GEW-040	6/4/2018 11:37	57.8	36.3	0.0	5.9	90.8	90.8	8.7	8.7	-0.6	-0.6	-12.5
GEW-040	6/11/2018 8:05	57.9	38.8	0.0	3.3	80.0	80.0	7.9	7.4	-0.6	-0.6	-12.9
GEW-040	6/18/2018 9:48	55.9	37.2	0.9	6.0	94.8	94.8	0.0	0.0	-0.5	-0.5	-12.6
GEW-040	6/25/2018 8:32	57.6	38.8	0.0	3.6	76.8	76.8	11.1	11.1	-0.6	-0.6	-12.7
GEW-041R	6/4/2018 11:41	58.2	35.9	0.0	5.9	101.3	101.3	5.1	7.2	-0.3	-0.3	-12.7

June 2018 Wellfield Monitoring Data - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO_2	O_2	Balance Gas	Init Temp	Adj Temp	Init Flow	Adj Flow	Init Static Press	Adj Static Press	System Pressure
		(% vol)				°F		scfm		H_2O		
GEW-041R	6/11/2018 8:10	57.6	36.6	0.2	5.6	99.1	99.1	6.7	6.1	-0.3	-0.3	-12.9
GEW-041R	6/18/2018 9:51	57.2	37.7	0.4	4.7	101.8	101.8	2.4	6.6	-0.2	-0.2	-12.5
GEW-041R	6/25/2018 8:37	58.0	36.7	0.2	5.1	100.0	100.1	7.2	8.2	-0.4	-0.4	-12.9
GEW-042R	6/4/2018 13:30	57.2	39.7	0.1	3.0	106.9	106.8	9.0	9.0	-0.5	-0.5	-12.8
GEW-042R	6/4/2018 13:37	57.0	38.9	0.0	4.1	106.7	106.6	9.8	10.5	-0.5	-0.5	-12.7
GEW-042R	6/11/2018 8:16	55.1	39.8	0.3	4.8	104.3	104.3	24.3	24.1	-0.7	-0.7	-12.9
GEW-042R	6/18/2018 9:55	53.4	39.2	1.0	6.4	107.8	107.9	0.0	0.0	-0.5	-0.5	-12.9
GEW-042R	6/25/2018 8:40	55.2	38.7	0.5	5.6	103.0	102.9	10.5	9.8	-0.6	-0.6	-12.8
GEW-043R	6/4/2018 13:45	55.5	39.9	0.0	4.6	118.7	118.6	26.3	25.9	-0.2	-0.2	-13.0
GEW-043R	6/11/2018 8:20	55.2	40.7	0.0	4.1	123.9	123.9	13.4	9.6	-0.4	-0.4	-13.0
GEW-043R	6/18/2018 9:59	53.4	42.7	0.3	3.6	124.2	124.2	0.0	0.0	-0.3	-0.3	-12.9
GEW-043R	6/25/2018 8:43	55.8	40.4	0.0	3.8	123.1	123.0	14.4	13.4	-0.5	-0.5	-12.9
GEW-044	6/4/2018 13:48	54.3	37.6	0.0	8.1	100.1	100.1	9.1	9.1	-0.4	-0.4	-12.7
GEW-044	6/11/2018 8:23	55.5	38.0	0.0	6.5	95.3	95.3	8.3	9.7	-0.6	-0.6	-12.9
GEW-044	6/18/2018 10:03	52.7	39.0	1.0	7.3	101.4	101.3	0.0	0.0	-0.5	-0.5	-12.7
GEW-044	6/25/2018 8:46	56.2	38.7	0.0	5.1	94.8	94.8	8.2	9.1	-0.6	-0.6	-12.7
GEW-045R	6/4/2018 13:53	56.2	39.3	0.0	4.5	96.9	97.1	5.4	5.4	-1.0	-1.0	-12.7
GEW-045R	6/4/2018 14:00	56.7	39.3	0.0	4.0	99.1	99.0	10.2	10.6	-0.8	-0.8	-12.7
GEW-045R	6/11/2018 8:26	56.5	40.1	0.0	3.4	92.7	92.7	6.7	5.5	-0.9	-0.9	-12.9
GEW-045R	6/18/2018 10:07	53.7	40.6	0.8	4.9	100.1	100.4	0.0	0.0	-0.8	-0.8	-12.5
GEW-045R	6/25/2018 9:26	56.7	39.5	0.0	3.8	90.4	90.1	9.1	8.3	-0.9	-0.9	-12.7
GEW-046R	6/4/2018 14:16	47.2	35.1	0.0	17.7	102.2	102.1	9.4	8.6	-0.4	-0.4	-12.8
GEW-046R	6/4/2018 14:23	47.5	34.8	0.0	17.7	101.8	101.8	8.6	11.2	-0.3	-0.3	-12.7
GEW-046R	6/11/2018 8:29	51.3	37.9	0.0	10.8	96.2	96.3	7.3	7.8	-0.2	-0.2	-12.7
GEW-046R	6/18/2018 10:11	50.9	39.9	0.2	9.0	99.9	99.9	30.6	31.5	-0.2	-0.2	-12.5
GEW-046R	6/25/2018 9:29	52.6	37.9	0.1	9.4	94.6	94.7	29.3	29.3	-0.2	-0.2	-12.6
GEW-046R	6/25/2018 9:31	53.1	37.7	0.1	9.1	95.0	95.1	9.9	10.3	-0.2	-0.2	-12.6
GEW-047R	6/5/2018 8:13	47.5	37.4	0.0	15.1	110.0	110.0	26.3	26.3	-0.2	-0.2	-13.0
GEW-047R	6/5/2018 8:22	48.3	36.2	0.0	15.5	110.1	110.2	5.8	6.8	-0.2	-0.2	-12.7
GEW-047R	6/11/2018 9:30	47.8	38.4	0.0	13.8	111.5	111.5	35.6	35.2	-0.3	-0.3	-12.8
GEW-047R	6/11/2018 9:32	48.0	37.9	0.0	14.1	109.7	109.2	7.7	7.7	-0.1	-0.1	-12.9
GEW-047R	6/18/2018 10:18	50.1	42.0	0.3	7.6	110.0	110.0	30.1	31.1	-0.1	-0.1	-12.8
GEW-047R	6/25/2018 10:03	52.2	40.4	0.0	7.4	104.8	104.8	5.8	7.3	0.01	0.0	-12.7
GEW-047R	6/25/2018 10:05	52.9	39.8	0.0	7.3	105.2	105.4	24.8	23.8	-0.03	-0.02	-12.8
GEW-048	6/5/2018 8:39	56.6	37.5	0.0	5.9	101.4	101.5	13.3	12.7	-0.2	-0.2	-13.6
GEW-048	6/5/2018 8:46	56.3	37.8	0.0	5.9	101.6	101.6	11.5	13.0	-0.2	-0.2	-13.1
GEW-048	6/11/2018 9:41	56.0	38.0	0.0	6.0	102.3	102.3	6.1	7.7	-0.3	-0.3	-13.4
GEW-048	6/18/2018 8:35	54.7	39.0	0.5	5.8	102.3	102.3	0.0	0.0	-0.3	-0.3	-13.1
GEW-048	6/25/2018 10:14	56.3	37.8	0.0	5.9	100.6	100.6	13.4	12.8	-0.2	-0.2	-13.2
GEW-049	6/5/2018 8:54	53.3	36.2	0.0	10.5	104.0	103.9	8.5	8.5	-0.1	-0.1	-12.7
GEW-049	6/5/2018 9:00	53.5	36.4	0.0	10.1	103.6	103.7	10.8	10.5	-0.1	-0.1	-12.9

June 2018 Wellfield Monitoring Data - Bridgeton Landfill												
Well Name	**Date Sampled**	**Methane**	**CO_2**	**O_2**	**Balance Gas**	**Init Temp**	**Adj Temp**	**Init Flow**	**Adj Flow**	**Init Static Press**	**Adj Static Press**	**System Pressure**
		(% vol)				**°F**		**scfm**		**H_2O**		
GEW-049	6/11/2018 8:33	52.4	36.3	0.0	11.3	103.0	102.8	5.5	5.5	-0.1	-0.1	-12.8
GEW-049	6/18/2018 10:21	51.9	39.7	0.6	7.8	107.5	107.5	0.0	0.0	-0.1	-0.1	-12.5
GEW-049	6/25/2018 8:49	55.0	37.4	0.0	7.6	101.8	101.8	10.9	9.8	-0.3	-0.3	-12.9
GEW-049	6/25/2018 8:51	54.8	38.4	0.0	6.8	101.3	100.2	8.1	7.5	-0.3	-0.3	-12.7
GEW-050	6/4/2018 8:54	57.3	39.1	0.0	3.6	104.9	105.0	12.7	8.1	-0.2	-0.2	-9.2
GEW-050	6/11/2018 7:19	56.3	40.5	0.0	3.2	103.0	102.8	9.8	13.1	-0.4	-0.4	-7.2
GEW-050	6/18/2018 11:28	54.1	39.3	0.4	6.2	107.0	107.0	11.8	9.7	-0.1	-0.1	-6.2
GEW-050	6/25/2018 7:40	56.9	40.0	0.0	3.1	103.2	103.2	11.9	13.6	-0.3	-0.3	-7.4
GEW-051	6/4/2018 9:05	55.4	41.0	0.0	3.6	122.6	122.7	12.5	11.3	-0.5	-0.5	-13.2
GEW-051	6/11/2018 7:41	55.0	40.3	0.0	4.7	119.6	119.7	7.6	12.6	-0.5	-0.5	-12.8
GEW-051	6/18/2018 10:25	53.4	40.4	0.4	5.8	123.6	123.7	5.2	4.5	-0.3	-0.3	-12.3
GEW-051	6/25/2018 8:07	55.7	39.5	0.0	4.8	121.0	120.7	13.7	10.4	-0.5	-0.5	-12.8
GEW-052	6/4/2018 8:58	52.5	36.8	0.0	10.7	111.7	111.7	12.6	4.7	-0.1	-0.1	-12.8
GEW-052	6/11/2018 7:22	51.7	35.6	0.0	12.7	110.1	110.0	25.7	24.8	-0.2	-0.2	-13.2
GEW-052	6/11/2018 7:23	52.1	35.3	0.0	12.6	110.0	109.8	8.1	7.7	-0.2	-0.2	-13.5
GEW-052	6/18/2018 11:32	50.9	39.0	0.4	9.7	114.0	114.0	26.4	27.5	-0.02	-0.01	-13.3
GEW-052	6/25/2018 7:43	53.8	36.8	0.0	9.4	109.7	109.7	11.5	11.5	-0.1	-0.1	-13.0
GEW-053	6/4/2018 10:55	51.4	40.9	0.0	7.7	142.9	142.5	13.7	12.6	-0.6	-0.6	-13.3
GEW-053	6/4/2018 11:02	51.2	40.6	0.0	8.2	143.2	142.9	14.4	12.6	-0.6	-0.6	-13.1
GEW-053	6/11/2018 7:47	51.1	40.9	0.0	8.0	142.2	142.9	11.5	16.2	-0.7	-0.7	-12.8
GEW-053	6/11/2018 7:48	50.5	42.0	0.0	7.5	142.5	142.7	11.2	15.8	-0.7	-0.7	-13.1
GEW-053	6/18/2018 10:42	48.5	40.7	0.9	9.9	143.4	143.2	2.4	14.8	-0.5	-0.5	-12.3
GEW-053	6/18/2018 10:43	47.8	41.8	0.9	9.5	143.2	143.2	10.5	9.4	-0.4	-0.5	-12.6
GEW-053	6/25/2018 8:14	51.3	40.5	0.0	8.2	142.5	142.9	13.9	10.8	-0.8	-0.7	-13.0
GEW-053	6/25/2018 8:15	50.8	41.6	0.0	7.6	142.6	142.5	11.5	12.9	-0.7	-0.7	-13.2
GEW-054	6/4/2018 11:06	52.8	41.1	0.0	6.1	143.7	143.7	31.7	29.3	-3.6	-3.5	-13.0
GEW-054	6/4/2018 11:13	53.6	40.6	0.0	5.8	143.5	143.5	37.2	33.9	-3.5	-3.5	-12.6
GEW-054	6/11/2018 7:53	51.9	41.4	0.1	6.6	143.9	143.9	34.2	36.8	-3.8	-3.7	-12.9
GEW-054	6/11/2018 7:54	51.9	41.9	0.1	6.1	143.9	143.9	43.4	34.1	-3.7	-3.8	-13.0
GEW-054	6/18/2018 10:32	50.7	41.2	0.7	7.4	144.2	144.2	31.4	32.0	-3.4	-3.5	-12.9
GEW-054	6/18/2018 10:33	50.1	42.2	0.7	7.0	144.2	144.2	30.4	30.6	-3.5	-3.5	-12.6
GEW-054	6/25/2018 8:18	52.7	41.4	0.0	5.9	143.8	143.8	40.9	38.6	-4.0	-3.9	-13.4
GEW-054	6/25/2018 8:20	52.7	42.1	0.0	5.2	143.9	143.9	40.1	42.5	-4.1	-4.2	-13.2
GEW-055	6/4/2018 11:20	51.5	40.0	0.1	8.4	134.4	134.4	9.5	9.5	-0.7	-0.7	-13.2
GEW-055	6/4/2018 11:27	52.1	39.5	0.0	8.4	134.4	134.4	33.4	33.3	-0.7	-0.7	-13.3
GEW-055	6/11/2018 8:01	51.3	40.1	0.3	8.3	133.8	133.8	19.8	20.0	-0.8	-0.8	-13.2
GEW-055	6/11/2018 8:02	51.0	40.7	0.3	8.0	133.9	133.8	19.6	19.8	-0.8	-0.8	-13.2
GEW-055	6/18/2018 10:47	49.1	41.2	1.1	8.6	135.0	135.1	0.0	0.0	-0.7	-0.7	-13.1
GEW-055	6/18/2018 10:49	48.9	41.3	1.2	8.6	135.0	135.0	0.0	0.0	-0.7	-0.7	-12.6
GEW-055	6/25/2018 8:28	51.2	39.4	0.6	8.8	133.6	133.5	19.1	18.9	-0.9	-0.9	-13.0
GEW-055	6/25/2018 8:29	51.1	40.3	0.5	8.1	133.5	133.2	19.1	19.3	-0.9	-0.9	-13.1

June 2018 Wellfield Monitoring Data - Bridgeton Landfill												
Well Name	**Date Sampled**	**Methane**	**CO_2**	**O_2**	**Balance Gas**	**Init Temp**	**Adj Temp**	**Init Flow**	**Adj Flow**	**Init Static Press**	**Adj Static Press**	**System Pressure**
		(% vol)				**°F**		**scfm**		**H_2O**		
GEW-056R	6/5/2018 10:07	31.2	43.5	0.0	25.3	114.0	114.2	2.7	2.4	-0.3	-0.3	-20.3
GEW-056R	6/5/2018 10:19	31.3	41.3	0.0	27.4	113.8	114.0	2.1	2.1	-0.3	-0.3	-20.3
GEW-056R	6/11/2018 11:41	30.8	46.0	0.0	23.2	124.5	124.5	2.2	2.4	-0.2	-0.2	-19.2
GEW-056R	6/18/2018 13:37	33.1	49.6	0.1	17.2	115.5	115.6	4.3	3.7	-0.3	-0.3	-18.6
GEW-056R	6/25/2018 10:53	36.2	47.3	0.0	16.5	105.8	106.0	3.0	2.8	-0.2	-0.2	-19.0
GEW-057B	6/7/2018 14:01	1.3	11.8	15.6	71.3	106.5	106.7	7.1	3.7	-0.1	-0.2	-18.9
GEW-057B	6/7/2018 14:03	1.7	10.7	15.5	72.1	107.5	107.5	7.8	5.4	-0.1	-0.1	-18.9
GEW-057B	6/20/2018 7:04	0.8	54.4	0.0	44.8	165.7	165.2	6.9	8.1	77.4	77.5	-19.9
GEW-057B	6/20/2018 7:08	0.8	58.6	0.0	40.6	200.1	200.1	17.2	17.6	3.4	3.3	-19.8
GEW-057B	6/21/2018 9:21	2.0	52.8	0.1	45.1	108.2	108.4	4.6	1.8	-19.0	-19.0	-19.3
GEW-057R	6/7/2018 14:06	11.3	19.1	14.0	55.6	98.7	98.7	21.8	22.3	-17.9	-17.9	-19.0
GEW-057R	6/7/2018 14:08	11.3	17.8	14.2	56.7	98.0	97.9	21.3	21.6	-17.9	-17.9	-18.9
GEW-057R	6/20/2018 7:10	24.7	33.3	8.6	33.4	74.3	74.3	2.9	3.3	-19.5	-19.2	-19.8
GEW-057R	6/20/2018 7:11	23.0	32.1	8.5	36.4	74.1	74.1	2.9	2.9	-19.3	-19.3	-19.8
GEW-058	6/7/2018 11:05	10.9	46.4	0.6	42.1	106.9	107.0	3.4	2.0	-0.4	-0.4	-18.1
GEW-058A	6/7/2018 11:02	0.8	47.2	2.9	49.1	106.5	106.5	4.4	3.2	-0.3	-0.3	-18.8
GEW-059R	6/7/2018 10:56	17.8	43.8	1.2	37.2	166.1	166.1	11.3	22.9	-18.0	-18.7	-18.2
GEW-059R	6/7/2018 10:58	17.6	44.1	1.3	37.0	165.9	166.1	17.2	7.0	-18.0	-18.2	-18.5
GEW-059R	6/20/2018 8:46	21.3	43.1	0.0	35.6	159.0	159.3	18.0	19.1	-18.9	-18.9	-19.3
GEW-059R	6/20/2018 8:47	21.2	43.8	0.0	35.0	158.1	159.4	16.7	20.5	-19.1	-19.1	-19.7
GEW-067A	6/7/2018 9:24	3.3	29.9	4.2	62.6	118.6	118.6	6.7	6.2	-0.1	-0.1	-17.0
GEW-068A	6/7/2018 14:26	21.4	54.6	1.4	22.6	184.5	184.5	28.2	29.2	-10.1	-9.8	-18.3
GEW-068A	6/7/2018 14:28	22.5	52.4	1.4	23.7	184.7	184.8	28.6	26.4	-9.5	-9.5	-19.3
GEW-068A	6/20/2018 7:18	1.6	56.3	0.0	42.1	196.4	195.9	28.6	29.0	-2.5	-2.9	-20.5
GEW-068A	6/20/2018 7:19	1.5	57.9	0.0	40.6	196.4	196.2	27.4	27.7	-2.8	-2.5	-18.8
GEW-078R	6/7/2018 11:26	7.2	31.6	0.0	61.2	159.0	159.0	8.6	8.9	-17.7	-17.6	-18.0
GEW-078R	6/7/2018 11:28	7.3	32.2	0.0	60.5	159.0	159.0	9.0	9.1	-17.7	-17.8	-18.2
GEW-078R	6/15/2018 14:35	4.2	31.7	0.0	64.1	158.1	158.1	9.4	8.3	-18.7	-18.7	-19.5
GEW-078R	6/15/2018 14:36	4.0	33.4	0.0	62.6	157.7	157.7	7.2	8.3	-17.7	-17.8	-19.1
GEW-081	6/8/2018 7:25	0.2	19.7	13.8	66.3	83.0	83.0	3.4	3.6	-19.9	-19.9	-20.0
GEW-081	6/8/2018 7:26	0.2	20.5	14.0	65.3	84.7	84.7	3.0	2.6	-19.9	-19.9	-20.0
GEW-081	6/20/2018 10:32	2.5	23.4	12.4	61.7	87.8	87.9	2.1	2.6	-19.1	-19.1	-19.4
GEW-081	6/20/2018 10:33	2.9	24.7	12.0	60.4	89.1	89.1	1.7	3.2	-18.8	-18.8	-19.3
GEW-082R	6/7/2018 11:37	13.3	33.8	0.0	52.9	173.6	173.6	3.6	6.6	-17.1	-17.1	-18.5
GEW-082R	6/7/2018 11:38	13.1	34.1	0.0	52.8	173.6	173.6	5.0	7.5	-15.6	-15.6	-18.0
GEW-082R	6/15/2018 14:43	7.7	36.0	0.0	56.3	175.8	175.5	2.4	2.5	-16.3	-16.3	-19.5
GEW-082R	6/15/2018 14:45	7.9	36.9	0.0	55.2	174.7	174.7	5.9	7.0	-12.4	-12.0	-19.3
GEW-086	6/7/2018 9:45	17.0	37.9	0.5	44.6	103.0	103.0	3.0	3.6	-0.2	-0.2	-18.2
GEW-087	6/7/2018 9:48	6.5	25.5	4.2	63.8	137.0	137.0	NFD		-18.0	-18.0	-18.2
GEW-087	6/7/2018 9:49	6.0	23.4	4.8	65.8	137.1	137.0	NFD		-18.0	-18.0	-18.2
GEW-087	6/15/2018 14:14	5.4	29.6	4.8	60.2	139.3	139.3	NFD		-19.3	-19.3	-19.4

June 2018 Wellfield Monitoring Data - Bridgeton Landfill												
Well Name	**Date Sampled**	**Methane**	**CO_2**	**O_2**	**Balance Gas**	**Init Temp**	**Adj Temp**	**Init Flow**	**Adj Flow**	**Init Static Press**	**Adj Static Press**	**System Pressure**
		(% vol)				**°F**		**scfm**		**H_2O**		
GEW-087	6/15/2018 14:15	5.2	26.0	4.9	63.9	139.3	139.3	NFD		-19.3	-19.3	-19.5
GEW-088	6/7/2018 9:35	1.6	47.2	0.0	51.2	196.4	196.4	4.1	6.5	0.2	0.2	-2.1
GEW-088	6/7/2018 9:36	2.7	48.2	0.0	49.1	196.4	196.1	5.5	9.1	-0.1	-0.1	-2.0
GEW-088	6/14/2018 14:10	8.0	47.1	0.0	44.9	187.0	187.0	7.5	6.9	-1.6	-1.7	-8.9
GEW-088	6/14/2018 14:11	7.9	48.0	0.0	44.1	186.8	186.4	8.4	6.0	-1.5	-1.5	-8.2
GEW-090	6/7/2018 9:01	19.5	41.7	1.8	37.0	164.3	164.3	10.1	12.1	-17.6	-17.6	-18.6
GEW-090	6/7/2018 9:03	19.0	42.8	1.6	36.6	164.4	164.3	6.5	5.6	-17.6	-17.7	-18.7
GEW-090	6/14/2018 14:01	19.0	42.2	1.5	37.3	166.1	165.7	9.5	12.2	-17.9	-17.9	-18.6
GEW-090	6/14/2018 14:02	18.8	43.9	1.3	36.0	167.1	167.0	12.1	9.9	-18.4	-18.2	-19.1
GEW-091	6/7/2018 8:47	1.3	22.0	13.2	63.5	171.0	171.0	16.1	14.5	-6.4	-6.3	-12.9
GEW-091	6/7/2018 8:53	2.2	34.6	7.8	55.4	178.6	178.6	10.1	17.1	-0.6	-1.0	-13.3
GEW-091	6/14/2018 13:51	2.9	50.8	0.0	46.3	194.3	194.1	5.7	4.8	1.2	1.2	-16.7
GEW-091	6/14/2018 13:53	2.6	54.2	0.1	43.1	195.0	195.0	2.6	2.2	-0.1	-0.1	-16.1
GEW-100	6/11/2018 11:01	1.0	50.4	3.4	45.2	103.3	103.5	7.6	5.3	-9.5	-9.1	-18.4
GEW-101	6/7/2018 14:20	22.6	43.1	7.1	27.2	108.3	108.3	12.1	12.3	-0.4	-0.4	-19.2
GEW-101	6/7/2018 14:22	24.5	42.1	7.1	26.3	108.5	108.5	11.9	11.4	-0.4	-0.4	-19.5
GEW-101	6/20/2018 9:32	14.1	31.5	10.8	43.6	102.3	102.3	12.9	12.9	-0.4	-0.4	-20.3
GEW-101	6/20/2018 9:35	19.2	37.4	8.4	35.0	98.4	98.4	6.3	6.6	-0.1	-0.1	-19.8
GEW-102	6/7/2018 14:16	21.0	52.1	1.3	25.6	103.3	103.3	11.1	11.2	-18.3	-18.3	-18.9
GEW-104	6/7/2018 13:41	22.9	54.0	0.3	22.8	192.9	192.9	9.9	5.1	-2.8	-2.9	-9.6
GEW-104	6/7/2018 13:43	23.8	54.6	0.3	21.3	193.5	193.6	15.4	16.8	-3.1	-3.1	-9.3
GEW-104	6/20/2018 9:15	29.3	49.7	0.0	21.0	192.3	192.3	17.3	19.3	-4.4	-4.5	-14.4
GEW-104	6/20/2018 9:17	29.6	49.4	0.0	21.0	191.6	191.6	19.8	18.6	-3.4	-3.4	-13.8
GEW-105	6/7/2018 11:37	15.0	45.7	4.8	34.5	156.5	156.5	11.8	7.8	-7.2	-7.2	-18.7
GEW-105	6/7/2018 11:39	15.2	43.7	4.8	36.3	155.2	155.0	8.0	6.7	-5.8	-5.8	-19.0
GEW-105	6/20/2018 9:00	17.6	53.2	0.0	29.2	140.8	140.6	2.7	3.7	-8.3	-8.3	-19.7
GEW-105	6/20/2018 9:02	17.7	53.1	0.0	29.2	140.6	140.9	7.3	6.4	-8.3	-8.4	-20.1
GEW-106	6/7/2018 11:28	2.2	60.2	0.2	37.4	109.2	109.5	1.9	2.2	-0.1	-0.1	-18.5
GEW-107	6/11/2018 11:11	20.3	55.1	0.4	24.2	139.3	139.3	6.0	8.1	-14.4	-14.4	-19.6
GEW-107	6/11/2018 11:12	20.0	57.0	0.4	22.6	139.9	139.7	8.7	5.9	-14.4	-14.4	-19.5
GEW-107	6/21/2018 9:41	30.3	58.9	0.5	10.3	112.0	112.2	13.7	2.5	-15.2	-15.1	-19.4
GEW-108	6/7/2018 10:48	32.3	54.5	0.9	12.3	148.0	147.9	8.3	7.3	-16.2	-16.3	-18.6
GEW-108	6/7/2018 10:49	33.7	50.7	0.9	14.7	148.0	148.0	8.5	8.5	-16.2	-16.2	-18.7
GEW-108	6/20/2018 8:41	39.3	45.4	0.0	15.3	142.2	142.5	3.0	1.9	-17.3	-17.4	-20.0
GEW-108	6/20/2018 8:42	39.0	46.7	0.0	14.3	143.2	143.4	4.9	5.2	-17.4	-17.3	-19.8
GEW-109	6/5/2018 10:31	27.0	38.9	0.0	34.1	123.2	122.9	3.9	3.9	-8.3	-8.4	-19.5
GEW-109	6/5/2018 10:37	27.2	37.3	0.0	35.5	122.9	122.6	2.7	2.2	-8.0	-8.0	-18.7
GEW-109	6/11/2018 14:27	29.5	41.1	0.1	29.3	137.1	136.8	4.4	3.3	-6.9	-6.9	-19.8
GEW-109	6/11/2018 14:28	29.7	42.4	0.1	27.8	136.9	136.8	6.3	6.1	-7.0	-6.9	-20.0
GEW-109	6/18/2018 13:47	27.8	41.6	0.4	30.2	134.7	134.7	7.0	6.1	-7.2	-7.2	-18.7
GEW-109	6/18/2018 13:49	27.6	42.1	0.4	29.9	135.0	135.0	1.1	9.0	-7.4	-7.4	-20.1

June 2018 Wellfield Monitoring Data - Bridgeton Landfill												
Well Name	**Date Sampled**	**Methane**	**CO_2**	**O_2**	**Balance Gas**	**Init Temp**	**Adj Temp**	**Init Flow**	**Adj Flow**	**Init Static Press**	**Adj Static Press**	**System Pressure**
		(% vol)				**°F**		**scfm**		**H_2O**		
GEW-109	6/25/2018 13:16	28.4	41.6	0.1	29.9	125.0	125.3	3.0	3.5	-7.1	-7.0	-20.0
GEW-110	6/5/2018 9:49	16.1	31.1	7.6	45.2	96.6	96.5	2.1	1.3	-0.04	-0.1	-19.4
GEW-110	6/5/2018 9:55	16.4	32.2	7.0	44.4	95.7	95.8	2.2	3.1	-0.04	-0.04	-19.5
GEW-110	6/7/2018 8:41	17.8	38.3	4.3	39.6	97.7	97.7	2.3	2.3	-0.04	-0.04	-18.4
GEW-110	6/11/2018 11:26	19.5	41.6	3.2	35.7	114.0	114.0	2.5	4.6	-0.02	-0.03	-19.5
GEW-110	6/18/2018 13:27	20.7	41.7	3.1	34.5	115.8	115.7	4.9	4.9	-0.1	-0.1	-18.9
GEW-110	6/25/2018 10:46	20.5	39.5	4.0	36.0	97.9	98.0	2.8	1.1	-0.1	-0.1	-19.0
GEW-113	6/7/2018 11:01	15.0	49.1	1.4	34.5	151.8	151.7	13.8	10.3	-3.2	-3.1	-18.1
GEW-113	6/7/2018 11:02	15.9	48.8	1.4	33.9	152.1	152.1	12.7	10.8	-3.2	-3.2	-18.2
GEW-113	6/14/2018 14:38	10.5	50.7	1.0	37.8	151.7	151.5	14.7	11.8	-3.3	-3.3	-19.2
GEW-113	6/14/2018 14:39	10.0	52.5	1.0	36.5	151.7	151.6	12.2	11.9	-3.3	-3.3	-19.5
GEW-116	6/7/2018 14:36	10.7	63.1	0.1	26.1	193.6	193.6	22.0	19.2	-2.3	-2.1	-19.9
GEW-116	6/7/2018 14:37	10.8	64.1	0.1	25.0	193.7	193.6	21.7	21.7	-2.2	-2.2	-20.9
GEW-116	6/19/2018 8:55	11.7	60.2	0.2	27.9	191.8	191.6	25.0	19.0	-3.4	-3.4	-20.1
GEW-116	6/19/2018 8:57	12.0	62.6	0.0	25.4	190.2	190.2	21.4	23.4	-2.7	-2.2	-20.2
GEW-117	6/7/2018 14:45	42.0	50.4	0.1	7.5	124.5	124.3	5.3	6.9	-18.2	-18.2	-19.3
GEW-118	6/7/2018 14:53	1.5	48.3	2.7	47.5	188.4	188.3	20.3	21.2	-11.8	-12.9	-19.3
GEW-118	6/7/2018 14:54	1.3	51.2	2.3	45.2	190.2	190.0	25.8	24.5	-10.4	-9.4	-19.2
GEW-118	6/19/2018 9:11	1.7	55.9	0.0	42.4	190.9	190.9	18.9	18.4	-8.8	-13.0	-19.4
GEW-118	6/19/2018 9:12	1.7	58.2	0.0	40.1	192.3	192.3	25.6	27.7	-10.4	-8.7	-19.3
GEW-120	6/7/2018 14:48	17.1	50.4	0.0	32.5	157.7	157.3	20.2	19.7	-7.0	-7.0	-13.9
GEW-120	6/7/2018 14:49	17.0	52.2	0.0	30.8	153.7	153.7	10.3	10.4	-4.1	-4.1	-13.7
GEW-120	6/19/2018 9:06	17.5	52.6	0.0	29.9	149.1	149.1	10.5	10.0	-3.6	-3.6	-14.5
GEW-120	6/19/2018 9:08	17.9	53.7	0.0	28.4	143.3	143.2	6.9	5.8	-1.9	-1.9	-14.8
GEW-121	6/8/2018 7:12	9.1	43.8	1.2	45.9	172.6	172.6	33.5	31.1	-17.6	-17.3	-19.3
GEW-121	6/8/2018 7:14	8.9	45.4	1.1	44.6	173.1	173.1	32.6	32.6	-15.8	-15.8	-19.5
GEW-121	6/20/2018 10:22	12.3	43.3	1.1	43.3	172.3	172.1	30.5	31.0	-14.7	-15.0	-19.3
GEW-121	6/20/2018 10:23	13.1	44.0	1.0	41.9	172.6	172.6	16.8	26.5	-13.7	-14.2	-19.3
GEW-122	6/8/2018 7:28	12.2	37.0	1.3	49.5	154.0	153.9	61.5	62.1	-13.3	-13.2	-19.5
GEW-122	6/8/2018 7:30	12.2	38.1	1.1	48.6	154.0	154.0	62.6	63.1	-13.1	-13.1	-19.5
GEW-122	6/20/2018 10:35	21.3	36.3	0.9	41.5	151.3	151.1	63.9	63.8	-11.8	-11.8	-19.2
GEW-122	6/20/2018 10:37	22.5	36.6	0.8	40.1	151.3	151.3	63.8	63.7	-11.8	-11.8	-19.2
GEW-123	6/8/2018 7:35	18.1	51.0	0.0	30.9	154.4	154.4	5.4	4.5	-11.7	-11.7	-19.5
GEW-123	6/8/2018 7:37	16.8	52.0	0.0	31.2	153.7	153.7	3.8	0.8	-7.8	-7.9	-19.3
GEW-123	6/20/2018 10:26	25.0	49.6	0.0	25.4	137.3	137.3	5.8	9.7	-7.8	-7.8	-19.7
GEW-123	6/20/2018 10:27	26.1	50.0	0.0	23.9	137.4	137.2	6.4	3.0	-7.9	-7.9	-19.3
GEW-124	6/8/2018 7:44	43.7	38.9	3.1	14.3	88.4	88.6	5.8	5.1	-13.5	-13.6	-13.7
GEW-125	6/8/2018 8:20	3.3	52.1	0.5	44.1	172.6	172.6	10.1	10.4	-2.0	-2.0	-19.9
GEW-125	6/8/2018 8:21	3.2	54.7	0.5	41.6	173.1	172.7	6.8	5.7	-2.0	-2.0	-19.7
GEW-125	6/20/2018 10:45	10.8	51.1	0.7	37.4	178.7	178.6	5.6	8.0	-1.4	-1.5	-19.5
GEW-125	6/20/2018 10:47	11.8	52.6	0.7	34.9	179.2	179.2	3.2	2.9	-1.5	-1.4	-19.3

June 2018 Wellfield Monitoring Data - Bridgeton Landfill												
Well Name	**Date Sampled**	**Methane**	**CO_2**	**O_2**	**Balance Gas**	**Init Temp**	**Adj Temp**	**Init Flow**	**Adj Flow**	**Init Static Press**	**Adj Static Press**	**System Pressure**
		(% vol)				**°F**		**scfm**		**H_2O**		
GEW-126	6/8/2018 8:24	18.1	52.9	0.5	28.5	114.0	113.9	14.7	18.7	-4.8	-4.9	-5.2
GEW-127	6/8/2018 8:27	7.8	56.3	0.6	35.3	179.2	179.2	12.0	9.2	-1.4	-1.3	-19.6
GEW-127	6/8/2018 8:28	7.7	58.6	0.6	33.1	179.2	179.2	9.8	9.9	-1.3	-1.3	-19.5
GEW-127	6/20/2018 11:44	9.2	55.1	0.8	34.9	176.0	175.8	6.6	11.1	-1.6	-1.6	-19.3
GEW-127	6/20/2018 11:46	9.0	57.2	0.6	33.2	176.3	176.3	8.4	8.4	-1.6	-1.6	-19.5
GEW-128	6/8/2018 10:53	8.6	56.0	1.1	34.3	184.3	184.4	5.0	12.6	-0.1	-0.1	-16.1
GEW-128	6/8/2018 10:55	8.5	59.3	1.0	31.2	185.0	184.8	7.4	8.1	-0.1	-0.1	-15.7
GEW-128	6/20/2018 13:19	12.0	43.2	5.2	39.6	154.9	155.0	17.9	17.9	-2.6	-2.5	-19.9
GEW-128	6/20/2018 13:25	11.8	44.1	4.9	39.2	153.7	153.6	10.8	10.0	-0.9	-0.9	-19.5
GEW-129	6/8/2018 11:28	4.8	60.3	0.1	34.8	185.1	185.1	4.9	6.9	-0.9	-0.8	-12.9
GEW-129	6/8/2018 11:29	5.0	62.2	0.0	32.8	185.1	185.1	5.1	5.1	-0.8	-0.8	-13.7
GEW-129	6/20/2018 13:28	3.8	57.7	0.0	38.5	185.5	185.1	4.6	6.2	-0.4	-0.5	-17.6
GEW-129	6/20/2018 13:30	3.6	60.1	0.0	36.3	185.3	185.2	4.9	2.0	-0.5	-0.5	-13.8
GEW-130	6/8/2018 8:35	7.9	52.2	1.8	38.1	184.5	184.5	16.0	25.6	-3.0	-3.0	-19.3
GEW-130	6/8/2018 8:36	7.7	53.3	1.7	37.3	184.5	184.5	29.0	20.5	-2.6	-2.6	-19.4
GEW-130	6/20/2018 11:15	26.3	51.1	1.3	21.3	185.1	185.0	29.6	30.0	-2.5	-2.5	-19.5
GEW-130	6/20/2018 11:16	24.0	50.8	1.3	23.9	185.1	185.0	21.8	21.9	-2.2	-2.3	-19.6
GEW-131	6/8/2018 8:16	23.3	40.5	0.0	36.2	131.2	131.3	11.0	13.8	-15.0	-15.0	-18.3
GEW-131	6/8/2018 8:17	23.4	40.3	0.0	36.3	130.6	130.6	10.2	11.2	-14.4	-14.4	-18.3
GEW-132	6/8/2018 7:18	1.2	24.1	6.5	68.2	165.2	165.2	5.6	6.5	-0.9	-0.9	-20.3
GEW-132	6/8/2018 7:20	1.2	23.5	6.5	68.8	145.9	145.2	7.5	3.2	-0.1	-0.1	-20.0
GEW-132	6/19/2018 9:17	0.7	55.1	0.0	44.2	112.5	112.3	1.9	1.1	0.1	0.2	-19.3
GEW-132	6/19/2018 9:18	0.6	55.7	0.0	43.7	159.8	159.8	1.8	1.8	-0.1	-0.2	-19.3
GEW-133	6/7/2018 14:40	11.0	53.7	0.0	35.3	168.8	168.5	39.0	39.0	-12.4	-12.3	-18.5
GEW-133	6/7/2018 14:41	11.5	52.2	0.0	36.3	168.5	168.1	38.6	37.9	-12.4	-12.8	-17.8
GEW-133	6/19/2018 9:00	11.6	53.7	0.1	34.6	162.9	162.9	39.4	38.4	-12.3	-12.6	-18.7
GEW-133	6/19/2018 9:02	11.8	52.7	0.1	35.4	162.8	162.5	45.6	39.9	-11.7	-11.7	-19.2
GEW-134	6/7/2018 14:26	11.6	46.9	0.1	41.4	164.7	164.8	3.1	1.8	-0.5	-0.5	-19.4
GEW-134	6/7/2018 14:27	11.6	47.5	0.1	40.8	165.2	165.6	2.0	2.3	-0.5	-0.5	-19.2
GEW-134	6/19/2018 8:46	12.9	42.8	0.8	43.5	159.2	159.4	3.6	2.9	-0.5	-0.5	-19.5
GEW-134	6/19/2018 8:48	12.5	44.3	0.7	42.5	159.4	159.4	2.3	3.8	-0.5	-0.5	-19.3
GEW-135	6/7/2018 14:18	6.3	42.9	1.6	49.2	153.3	153.0	11.5	10.8	-3.1	-3.1	-19.3
GEW-135	6/7/2018 14:19	6.1	43.8	1.6	48.5	153.3	153.3	12.2	12.3	-3.4	-3.4	-19.1
GEW-135	6/15/2018 14:22	6.9	41.8	1.6	49.7	153.7	153.4	28.2	22.0	-4.5	-4.0	-19.7
GEW-135	6/15/2018 14:23	6.4	43.4	1.5	48.7	153.7	153.7	14.9	25.0	-3.7	-4.2	-19.4
GEW-136	6/7/2018 7:10	2.8	17.4	13.8	66.0	128.6	128.8	5.4	3.2	-0.3	-0.2	-14.8
GEW-136	6/7/2018 7:12	2.7	15.9	14.0	67.4	123.4	123.9	7.3	7.5	-0.1	-0.1	-14.3
GEW-136	6/15/2018 14:26	3.9	20.7	11.7	63.7	126.6	126.4	2.2	2.2	-0.2	-0.2	-17.5
GEW-136	6/15/2018 14:27	4.1	18.9	11.9	65.1	125.9	126.1	1.9	1.5	-0.2	-0.2	-18.0
GEW-137	6/7/2018 11:19	37.4	36.1	0.8	25.7	108.5	108.7	1.5	2.2	-9.7	-9.4	-18.1
GEW-138	6/7/2018 11:22	9.0	24.6	4.0	62.4	134.7	134.4	4.8	5.8	-0.2	-0.2	-17.8

June 2018 Wellfield Monitoring Data - Bridgeton Landfill												
Well Name	**Date Sampled**	**Methane**	**CO_2**	**O_2**	**Balance Gas**	**Init Temp**	**Adj Temp**	**Init Flow**	**Adj Flow**	**Init Static Press**	**Adj Static Press**	**System Pressure**
		(% vol)				**°F**		**scfm**		**H_2O**		
GEW-138	6/7/2018 11:24	9.1	24.5	3.9	62.5	133.1	132.9	2.4	3.0	-0.1	-0.1	-18.0
GEW-138	6/15/2018 14:32	5.7	27.3	2.0	65.0	125.1	125.0	1.1	1.9	-0.1	-0.1	-19.2
GEW-139	6/8/2018 13:58	5.5	51.2	0.2	43.1	187.0	186.4	11.2	11.7	-5.3	-5.3	-18.6
GEW-139	6/8/2018 13:59	5.8	52.6	0.1	41.5	187.0	186.4	10.9	11.1	-5.4	-5.3	-20.1
GEW-139	6/20/2018 13:51	5.0	50.8	0.1	44.1	185.7	185.7	13.8	9.5	-5.3	-5.3	-19.4
GEW-139	6/20/2018 13:53	4.9	53.2	0.0	41.9	185.7	185.7	10.1	11.9	-5.3	-5.3	-20.0
GEW-140	6/11/2018 10:13	17.7	47.0	0.0	35.3	187.0	187.0	21.9	24.4	-6.4	-6.6	-19.2
GEW-140	6/11/2018 10:15	17.3	49.9	0.0	32.8	188.3	187.9	20.5	18.4	-5.4	-5.3	-18.9
GEW-140	6/21/2018 10:29	19.3	51.4	0.0	29.3	189.1	189.3	21.9	21.9	-4.6	-4.6	-20.5
GEW-140	6/21/2018 10:30	19.2	52.0	0.0	28.8	189.3	189.1	22.8	22.0	-4.6	-4.6	-20.7
GEW-141	6/8/2018 14:02	0.4	14.7	16.2	68.7	107.5	107.6	2.6	2.6	-0.1	-0.1	-18.6
GEW-141	6/8/2018 14:03	0.4	12.4	16.6	70.6	109.0	109.0	1.3	1.3	-0.1	-0.1	-18.6
GEW-141	6/20/2018 13:38	0.1	14.8	16.0	69.1	107.0	107.0	2.2	2.2	-0.1	-0.1	-18.5
GEW-141	6/20/2018 13:39	0.1	13.6	15.9	70.4	108.1	108.1	3.0	2.7	-0.1	-0.1	-19.1
GEW-142	6/8/2018 14:07	0.3	1.1	20.2	78.4	104.0	104.0	2.0	2.0	-7.4	-7.2	-18.6
GEW-142	6/8/2018 14:08	0.3	0.2	20.4	79.1	105.7	105.7	1.3	1.3	-7.7	-7.7	-18.2
GEW-142	6/20/2018 14:00	0.0	1.0	20.2	78.8	102.9	103.0	1.1	1.1	-0.03	-0.03	-20.0
GEW-142	6/20/2018 14:01	0.0	0.2	20.4	79.4	103.5	103.5	2.0	2.0	-0.04	-0.04	-20.0
GEW-143	6/11/2018 10:52	0.0	0.7	20.6	78.7	105.2	105.5	1.9	1.1	-4.0	-4.0	-18.6
GEW-143	6/11/2018 10:53	0.0	0.2	20.6	79.2	108.5	108.7	2.7	2.2	-4.0	-4.0	-18.6
GEW-143	6/21/2018 10:37	0.8	13.1	18.0	68.1	79.4	79.4	3.3	2.9	-0.1	-0.1	-19.0
GEW-143	6/21/2018 10:39	0.7	11.9	18.2	69.2	79.8	80.1	1.2	2.8	-0.02	-0.02	-19.1
GEW-144	6/5/2018 11:36	28.6	44.4	1.1	25.9	97.7	97.8	4.3	6.6	-17.1	-17.2	-18.2
GEW-145	6/7/2018 14:13	9.2	49.5	1.2	40.1	123.4	123.4	10.7	9.8	-16.6	-16.6	-18.9
GEW-146	6/7/2018 10:45	3.2	6.3	14.5	76.0	100.5	100.4	11.9	14.4	-0.1	-0.1	-18.4
GEW-146	6/7/2018 10:48	7.1	8.0	13.4	71.5	101.8	101.8	3.4	3.2	-0.02	-0.02	-18.1
GEW-146	6/14/2018 14:29	8.1	13.5	11.9	66.5	110.0	110.2	3.2	3.2	0.02	0.02	-19.6
GEW-146	6/14/2018 14:31	4.6	8.6	13.9	72.9	112.0	112.0	6.8	7.3	-0.1	-0.1	-19.7
GEW-147	6/7/2018 14:07	11.9	41.3	0.2	46.6	154.8	154.8	27.1	26.5	-17.9	-17.9	-19.0
GEW-147	6/7/2018 14:09	11.6	42.6	0.1	45.7	154.4	154.4	25.9	25.6	-17.2	-17.2	-19.2
GEW-147	6/14/2018 14:46	11.8	44.6	0.0	43.6	153.0	152.9	26.6	25.1	-17.4	-17.4	-19.3
GEW-147	6/14/2018 14:47	12.5	44.2	0.0	43.3	153.0	152.9	25.0	25.9	-17.4	-17.4	-19.1
GEW-148	6/7/2018 9:53	5.6	43.7	3.6	47.1	178.0	178.0	3.6	5.2	-9.2	-9.2	-18.4
GEW-148	6/7/2018 9:55	6.9	48.8	1.9	42.4	178.6	178.2	2.9	3.9	-6.8	-6.9	-18.4
GEW-148	6/15/2018 14:10	9.5	37.7	4.0	48.8	146.3	146.3	3.2	5.8	-16.2	-16.3	-19.5
GEW-148	6/15/2018 14:11	8.7	41.8	4.4	45.1	145.9	145.9	5.6	3.3	-16.3	-16.3	-19.5
GEW-149	6/7/2018 9:22	9.8	39.2	0.3	50.7	137.7	137.7	12.1	12.1	-0.1	-0.1	-3.0
GEW-149	6/7/2018 9:39	10.4	38.8	0.2	50.6	138.7	138.7	10.5	11.9	-0.2	-0.2	-3.0
GEW-149	6/14/2018 14:04	11.2	38.4	0.3	50.1	141.9	141.9	14.9	14.1	-0.2	-0.2	-10.2
GEW-149	6/14/2018 14:06	10.8	38.5	0.3	50.4	141.9	141.8	13.7	13.2	-0.2	-0.2	-10.3
GEW-150	6/7/2018 13:36	18.1	45.2	2.9	33.8	178.7	178.7	2.1	15.7	-1.2	-1.0	-14.9

June 2018 Wellfield Monitoring Data - Bridgeton Landfill												
Well Name	**Date Sampled**	**Methane**	**CO_2**	**O_2**	**Balance Gas**	**Init Temp**	**Adj Temp**	**Init Flow**	**Adj Flow**	**Init Static Press**	**Adj Static Press**	**System Pressure**
		(% vol)				**°F**		**scfm**		**H_2O**		
GEW-150	6/7/2018 13:38	18.2	46.6	2.9	32.3	178.6	178.7	10.1	11.2	-0.8	-0.9	-15.1
GEW-150	6/20/2018 9:10	20.4	46.0	2.0	31.6	190.2	190.2	9.5	13.0	-0.5	-0.4	-15.6
GEW-150	6/20/2018 9:12	20.6	46.6	2.0	30.8	190.2	190.2	17.4	10.9	-0.4	-0.4	-15.4
GEW-151	6/7/2018 9:29	19.5	46.5	0.1	33.9	100.8	100.8	2.3	2.3	-0.2	-0.2	-2.4
GEW-152	6/11/2018 11:15	22.3	48.4	0.7	28.6	119.9	119.9	2.9	3.1	-3.9	-3.9	-19.6
GEW-153	6/7/2018 10:53	42.7	39.1	0.2	18.0	108.5	108.5	4.5	2.9	-2.3	-2.3	-18.1
GEW-154	6/7/2018 8:57	0.0	3.9	17.7	78.4	97.0	97.2	1.1	2.0	-1.5	-1.5	-13.9
GEW-154	6/7/2018 8:58	0.0	3.4	17.7	78.9	97.9	97.8	1.1	1.1	-1.6	-1.6	-13.5
GEW-154	6/14/2018 13:57	1.8	18.6	8.1	71.5	115.3	115.3	3.1	2.2	-0.9	-0.9	-16.7
GEW-154	6/14/2018 13:58	1.9	17.1	8.2	72.8	115.3	115.3	3.1	3.1	-0.9	-0.9	-15.2
GEW-155	6/7/2018 11:32	2.3	19.4	5.3	73.0	129.4	129.4	4.0	4.4	-0.1	-0.1	-18.1
GEW-155	6/7/2018 11:33	2.4	19.0	5.4	73.2	128.0	128.0	3.2	3.1	-0.04	-0.03	-18.2
GEW-155	6/15/2018 14:40	0.6	23.0	3.7	72.7	126.9	126.9	2.2	2.4	-0.1	-0.1	-19.0
GEW-156	6/11/2018 11:06	35.5	51.3	0.2	13.0	113.6	113.5	21.4	22.6	-11.1	-11.1	-18.9
GEW-157	6/7/2018 13:47	13.7	35.9	7.5	42.9	118.9	118.9	8.6	7.4	-11.2	-11.2	-18.3
GEW-157	6/7/2018 13:49	15.9	34.7	7.7	41.7	119.2	119.2	8.8	7.9	-10.9	-10.8	-18.3
GEW-157	6/20/2018 9:20	14.3	46.5	2.7	36.5	135.5	135.4	2.5	8.6	-6.9	-6.9	-19.7
GEW-157	6/20/2018 9:23	17.2	52.8	0.4	29.6	129.4	129.4	1.7	3.5	-1.5	-1.5	-20.0
GEW-158	6/7/2018 11:32	17.0	62.9	0.4	19.7	167.4	167.5	6.6	10.5	-2.7	-2.7	-19.2
GEW-158	6/7/2018 11:34	17.8	62.2	0.4	19.6	167.1	167.1	12.0	6.3	-2.8	-2.8	-18.0
GEW-158	6/20/2018 8:55	19.3	54.1	0.0	26.6	164.7	164.3	5.3	5.8	-1.7	-1.6	-8.4
GEW-158	6/20/2018 8:57	19.4	54.8	0.0	25.8	164.3	164.0	14.8	5.1	-1.6	-1.6	-6.0
GEW-159	6/7/2018 10:46	0.8	60.8	0.2	38.2	109.0	109.2	4.2	3.7	-0.8	-0.8	-18.1
GEW-160	6/7/2018 9:10	7.4	38.2	4.4	50.0	98.2	98.4	3.8	4.6	-7.8	-7.8	-13.2
GEW-160	6/7/2018 9:12	7.5	36.5	4.2	51.8	101.8	101.8	7.0	4.6	-5.3	-5.4	-13.0
GEW-161	6/7/2018 9:14	6.4	41.7	1.8	50.1	98.7	98.7	1.9	1.9	-10.9	-10.8	-13.6
GEW-162	6/7/2018 9:06	10.9	52.2	1.4	35.5	112.5	112.5	7.9	8.1	-7.9	-7.8	-18.5
GEW-163	6/5/2018 13:35	17.5	52.3	1.4	28.8	170.1	170.0	16.3	11.4	-0.3	-0.3	-19.6
GEW-163	6/5/2018 13:37	17.2	53.5	1.4	27.9	170.5	170.5	13.0	7.0	-0.3	-0.3	-18.7
GEW-163	6/12/2018 9:57	13.7	43.9	4.5	37.9	168.1	168.1	14.8	2.4	-0.2	-0.2	-19.3
GEW-163	6/12/2018 9:59	13.3	45.7	4.5	36.5	168.1	168.1	12.7	17.3	-0.2	-0.2	-19.4
GEW-163	6/19/2018 10:15	14.6	38.8	5.2	41.4	162.9	162.8	12.3	10.0	-0.3	-0.3	-17.8
GEW-163	6/19/2018 10:17	14.9	39.6	5.2	40.3	163.0	162.9	10.3	11.9	-0.3	-0.2	-17.8
GEW-163	6/26/2018 10:39	13.1	41.3	5.0	40.6	162.1	162.2	24.8	25.1	-0.2	-0.2	-19.3
GEW-163	6/26/2018 10:41	13.2	41.6	4.9	40.3	162.4	162.4	31.8	31.7	-0.2	-0.2	-19.1
GEW-164	6/5/2018 13:40	28.1	57.3	0.4	14.2	156.9	156.9	25.0	33.8	-0.3	-0.3	-20.2
GEW-164	6/5/2018 13:42	28.1	59.4	0.4	12.1	156.9	156.9	35.9	24.6	-0.3	-0.3	-18.2
GEW-164	6/12/2018 10:02	24.7	58.7	1.3	15.3	156.8	156.5	33.6	43.6	-0.3	-0.2	-19.8
GEW-164	6/12/2018 10:04	24.6	59.2	1.3	14.9	156.7	156.5	31.6	22.8	-0.3	-0.2	-19.6
GEW-164	6/19/2018 10:20	29.8	53.5	0.5	16.2	157.6	157.3	35.2	33.0	-0.2	-0.2	-18.7
GEW-164	6/19/2018 10:22	29.7	53.7	0.4	16.2	157.3	157.3	15.4	32.6	-0.3	-0.2	-18.5

June 2018 Wellfield Monitoring Data - Bridgeton Landfill												
Well Name	**Date Sampled**	**Methane**	**CO_2**	**O_2**	**Balance Gas**	**Init Temp**	**Adj Temp**	**Init Flow**	**Adj Flow**	**Init Static Press**	**Adj Static Press**	**System Pressure**
		(% vol)				**°F**		**scfm**		**H_2O**		
GEW-164	6/26/2018 10:44	26.6	54.6	0.5	18.3	152.9	152.9	29.1	29.3	-0.3	-0.3	-19.5
GEW-164	6/26/2018 10:45	26.8	54.7	0.5	18.0	152.9	152.9	31.8	37.0	-0.3	-0.3	-19.7
GEW-165	6/5/2018 13:46	12.2	62.1	1.4	24.3	179.8	179.7	21.6	23.1	-0.4	-0.4	-18.1
GEW-165	6/5/2018 13:47	12.2	62.6	1.4	23.8	179.8	179.8	26.7	19.2	-0.5	-0.5	-20.1
GEW-165	6/12/2018 10:08	10.1	61.8	2.1	26.0	179.2	179.2	21.8	18.5	-0.5	-0.5	-19.4
GEW-165	6/12/2018 10:12	10.1	62.7	2.1	25.1	179.2	179.2	26.1	12.2	-0.6	-0.5	-19.3
GEW-165	6/19/2018 10:25	12.0	48.7	3.2	36.1	172.6	172.7	22.9	23.2	-1.0	-1.0	-18.0
GEW-165	6/19/2018 10:27	11.6	50.8	3.2	34.4	173.1	172.8	13.4	20.4	-1.0	-1.0	-18.0
GEW-165	6/26/2018 10:49	12.4	54.1	1.7	31.8	178.0	178.0	19.0	19.0	-0.5	-0.5	-19.0
GEW-165	6/26/2018 10:50	12.4	55.4	1.7	30.5	178.1	178.0	14.4	20.7	-0.5	-0.5	-19.8
GEW-166	6/5/2018 13:51	1.5	58.8	0.8	38.9	195.7	195.7	9.5	14.6	-5.8	-6.1	-15.3
GEW-166	6/5/2018 13:53	1.4	60.4	0.8	37.4	195.7	195.7	52.6	38.5	-6.8	-6.8	-9.4
GEW-166	6/12/2018 10:13	0.8	58.3	1.8	39.1	195.7	195.7	37.6	41.7	-6.2	-6.2	-15.8
GEW-166	6/12/2018 10:15	0.7	57.3	1.9	40.1	195.7	195.7	20.3	24.3	-7.0	-6.9	-19.6
GEW-166	6/19/2018 10:30	2.2	52.5	0.7	44.6	195.0	195.0	32.3	32.5	-6.3	-6.3	-19.0
GEW-166	6/19/2018 10:32	2.1	53.9	0.7	43.3	195.1	195.0	37.9	38.2	-6.8	-6.8	-18.8
GEW-166	6/26/2018 10:53	1.8	54.9	0.2	43.1	195.0	195.0	18.4	15.9	-6.8	-6.3	-19.1
GEW-166	6/26/2018 10:55	1.7	56.1	0.2	42.0	195.0	195.0	48.0	54.0	-7.0	-7.3	-19.3
GEW-167	6/5/2018 14:08	1.9	51.8	3.1	43.2	191.5	191.1	5.9	11.7	-0.2	-0.2	-15.0
GEW-167	6/5/2018 14:10	1.8	51.0	2.9	44.3	190.9	191.5	13.4	18.9	-0.4	-0.4	-16.3
GEW-167	6/12/2018 10:31	0.3	48.1	5.3	46.3	190.3	190.8	9.6	11.4	-0.2	-0.2	-14.6
GEW-167	6/12/2018 10:36	0.3	47.9	5.3	46.5	190.9	190.9	9.5	18.2	-0.3	-0.2	-15.1
GEW-167	6/19/2018 10:09	1.0	33.0	8.6	57.4	180.3	180.3	12.4	9.7	-0.4	-0.4	-14.3
GEW-167	6/19/2018 10:11	0.9	32.9	8.8	57.4	179.7	180.1	7.4	3.3	-0.4	-0.4	-13.4
GEW-167	6/26/2018 11:12	1.8	43.1	4.6	50.5	188.4	188.9	10.4	17.5	-0.2	-0.2	-14.4
GEW-167	6/26/2018 11:14	1.9	44.5	4.7	48.9	188.3	188.3	35.6	28.8	-0.3	-0.3	-14.2
GEW-168	6/5/2018 13:56	13.9	58.9	1.9	25.3	168.5	168.9	11.9	2.9	-0.2	-0.2	-19.6
GEW-168	6/5/2018 13:58	14.7	58.3	1.9	25.1	168.6	169.0	12.1	12.3	-0.2	-0.2	-18.1
GEW-168	6/12/2018 10:19	11.6	56.9	2.4	29.1	168.5	168.5	7.6	6.8	-0.2	-0.1	-19.3
GEW-168	6/12/2018 10:21	11.7	57.5	2.5	28.3	168.2	168.2	5.9	9.6	-0.2	-0.1	-18.7
GEW-168	6/19/2018 10:36	18.7	49.4	2.7	29.2	153.3	153.3	11.8	10.1	-0.2	-0.2	-18.4
GEW-168	6/19/2018 10:37	18.7	49.8	2.7	28.8	153.7	153.3	8.1	8.5	-0.2	-0.2	-18.2
GEW-168	6/26/2018 10:59	16.6	48.1	2.7	32.6	156.5	156.5	6.5	4.2	-0.1	-0.2	-19.1
GEW-168	6/26/2018 11:00	16.6	49.8	2.6	31.0	156.5	156.9	8.5	6.0	-0.2	-0.2	-18.6
GEW-169	6/5/2018 14:02	6.9	63.3	0.5	29.3	187.6	187.6	32.0	14.4	-0.9	-0.8	-19.4
GEW-169	6/5/2018 14:04	7.0	65.2	0.5	27.3	187.6	187.6	30.1	32.9	-1.0	-1.1	-19.2
GEW-169	6/12/2018 10:25	4.6	64.0	1.2	30.2	187.6	187.6	26.2	27.7	-0.8	-0.8	-19.6
GEW-169	6/12/2018 10:26	4.4	65.5	1.2	28.9	187.6	187.6	44.1	44.2	-0.9	-1.0	-19.1
GEW-169	6/19/2018 10:41	8.7	55.7	1.3	34.3	186.4	186.4	19.3	11.4	-0.8	-0.8	-18.5
GEW-169	6/19/2018 10:43	8.4	55.5	1.3	34.8	186.4	186.4	36.9	40.0	-0.9	-0.9	-18.2
GEW-169	6/26/2018 11:04	8.0	56.3	0.5	35.2	185.7	185.9	40.5	37.3	-0.9	-0.9	-18.8

June 2018 Wellfield Monitoring Data - Bridgeton Landfill												
Well Name	**Date Sampled**	**Methane**	**CO_2**	**O_2**	**Balance Gas**	**Init Temp**	**Adj Temp**	**Init Flow**	**Adj Flow**	**Init Static Press**	**Adj Static Press**	**System Pressure**
		(% vol)				**°F**		**scfm**		**H_2O**		
GEW-169	6/26/2018 11:06	8.0	58.0	0.5	33.5	185.7	185.7	63.8	64.1	-1.1	-1.0	-19.0
GEW-170	6/8/2018 8:31	9.9	57.2	0.4	32.5	179.7	179.7	15.1	11.2	-1.3	-1.3	-11.7
GEW-170	6/8/2018 8:32	10.1	58.7	0.4	30.8	179.7	179.7	11.7	10.1	-1.3	-1.3	-12.9
GEW-170	6/20/2018 11:48	11.2	56.2	0.6	32.0	174.2	173.8	14.0	13.2	-1.7	-1.7	-13.7
GEW-170	6/20/2018 11:49	11.4	57.3	0.5	30.8	174.2	173.7	13.6	24.6	-1.7	-1.7	-14.9
GEW-171	6/11/2018 10:56	6.0	58.7	0.4	34.9	162.9	162.4	1.8	4.0	-4.0	-3.9	-17.1
GEW-171	6/11/2018 10:58	5.8	61.0	0.3	32.9	162.0	162.0	4.9	2.7	-3.8	-3.7	-15.5
GEW-171	6/21/2018 10:43	8.2	55.2	2.3	34.3	152.5	152.9	4.1	11.5	-12.3	-12.3	-16.8
GEW-171	6/21/2018 10:45	8.1	55.7	2.3	33.9	145.2	145.6	11.7	7.7	-9.8	-9.7	-16.6
GEW-172	6/8/2018 14:11	11.0	55.7	0.1	33.2	174.7	174.7	21.6	16.3	-0.9	-0.8	-18.7
GEW-172	6/8/2018 14:13	10.7	56.8	0.0	32.5	175.2	174.7	15.1	23.7	-0.9	-0.8	-18.6
GEW-172	6/20/2018 13:57	0.4	51.7	1.4	46.5	112.5	113.1	8.3	8.3	-19.8	-19.8	-19.7
GEW-173	6/11/2018 10:18	2.9	12.4	11.3	73.4	120.7	120.5	12.5	23.1	-0.2	-0.2	-18.8
GEW-173	6/11/2018 10:20	2.8	10.4	11.5	75.3	120.3	120.2	2.6	3.7	-0.1	-0.1	-18.7
GEW-173	6/21/2018 11:06	13.0	21.0	6.4	59.6	108.0	107.8	6.5	8.4	-0.1	-0.1	-19.0
GEW-173	6/21/2018 11:07	13.1	20.4	6.4	60.1	107.9	107.7	5.3	2.7	-0.1	-0.1	-18.8
GEW-174	6/11/2018 10:26	21.9	43.9	0.0	34.2	149.2	149.5	44.1	32.0	-3.7	-3.7	-18.9
GEW-174	6/11/2018 10:27	21.5	44.8	0.0	33.7	149.2	149.4	34.3	40.7	-3.7	-3.8	-18.7
GEW-174	6/21/2018 11:17	27.6	45.6	0.0	26.8	150.2	150.5	24.4	23.8	-3.0	-3.0	-19.1
GEW-174	6/21/2018 11:18	27.0	46.7	0.0	26.3	150.6	150.2	28.4	21.4	-3.0	-3.0	-19.0
GEW-175	6/7/2018 13:29	19.9	40.4	3.2	36.5	157.4	157.7	34.0	32.6	-0.3	-0.3	-19.1
GEW-175	6/7/2018 13:31	20.0	43.1	3.2	33.7	157.7	157.7	37.4	35.5	-0.3	-0.3	-18.9
GEW-175	6/20/2018 9:05	18.8	39.3	4.3	37.6	152.1	151.7	36.2	40.1	-0.3	-0.2	-20.4
GEW-175	6/20/2018 9:06	19.5	37.8	4.3	38.4	152.5	152.5	24.1	32.4	-0.2	-0.2	-20.4
GEW-176	6/7/2018 11:43	31.3	44.7	2.7	21.3	110.9	110.9	6.6	6.1	-0.03	-0.04	-18.9
GEW-177	6/8/2018 11:31	5.8	60.0	0.0	34.2	194.3	194.3	23.9	22.8	-8.7	-8.7	-13.8
GEW-177	6/8/2018 11:33	6.7	62.3	0.0	31.0	194.3	194.3	31.3	32.6	-8.6	-8.7	-15.5
GEW-177	6/20/2018 13:32	3.4	57.8	0.9	37.9	195.0	195.0	19.7	13.7	-2.6	-2.6	-13.2
GEW-177	6/20/2018 13:34	3.4	58.5	0.9	37.2	195.0	195.0	15.8	13.1	-2.7	-2.8	-14.6
GEW-178	6/6/2018 9:51	22.8	53.7	1.1	22.4	119.2	119.2	10.6	10.7	-0.8	-0.8	-19.7
GEW-178	6/12/2018 13:45	15.2	50.6	1.3	32.9	113.2	113.4	9.1	9.1	-1.1	-1.1	-18.9
GEW-178	6/19/2018 11:29	21.7	44.1	1.3	32.9	114.0	114.1	40.4	40.6	-1.1	-1.1	-18.9
GEW-178	6/27/2018 7:38	19.7	49.6	0.5	30.2	112.4	112.3	11.2	10.2	-0.9	-0.9	-20.0
GEW-179	6/6/2018 9:55	23.0	59.7	0.8	16.5	140.8	140.6	19.0	19.2	-5.2	-5.2	-19.2
GEW-179	6/6/2018 9:57	23.4	59.3	0.8	16.5	140.4	140.6	19.4	12.3	-5.2	-5.2	-19.5
GEW-179	6/12/2018 13:51	18.6	57.4	0.7	23.3	130.8	130.8	18.1	10.4	-7.1	-6.9	-19.5
GEW-179	6/19/2018 11:32	23.3	53.2	0.3	23.2	139.6	139.6	26.7	27.6	-5.1	-5.1	-19.3
GEW-179	6/19/2018 11:34	23.0	53.1	0.3	23.6	139.4	139.6	26.7	26.3	-4.9	-4.9	-19.3
GEW-179	6/27/2018 7:42	19.2	51.2	0.4	29.2	118.9	118.6	11.9	19.0	-6.4	-6.3	-19.5
GEW-180	6/6/2018 10:02	18.7	55.9	2.5	22.9	152.5	152.5	15.5	14.1	-9.3	-8.9	-18.7
GEW-180	6/6/2018 10:04	18.7	58.3	2.2	20.8	151.7	151.7	14.5	15.3	-6.9	-6.9	-20.6

June 2018 Wellfield Monitoring Data - Bridgeton Landfill												
Well Name	**Date Sampled**	**Methane**	**CO_2**	**O_2**	**Balance Gas**	**Init Temp**	**Adj Temp**	**Init Flow**	**Adj Flow**	**Init Static Press**	**Adj Static Press**	**System Pressure**
		(% vol)				**°F**		**scfm**		**H_2O**		
GEW-180	6/12/2018 13:54	13.9	69.0	0.8	16.3	149.5	149.9	12.1	9.3	-5.7	-5.5	-19.1
GEW-180	6/12/2018 13:56	13.5	70.3	0.8	15.4	149.5	149.5	11.7	9.8	-5.5	-5.5	-19.2
GEW-180	6/19/2018 11:38	17.9	59.4	0.7	22.0	150.6	150.6	35.0	34.8	-4.9	-4.9	-19.4
GEW-180	6/19/2018 11:40	18.0	59.1	0.7	22.2	150.9	151.0	35.9	35.6	-4.8	-4.8	-18.9
GEW-180	6/27/2018 7:45	14.7	62.4	0.0	22.9	143.9	143.5	8.4	9.7	-4.1	-4.2	-19.8
GEW-180	6/27/2018 7:46	14.7	62.9	0.0	22.4	143.9	143.8	10.8	9.7	-4.2	-4.2	-19.5
GEW-181	6/6/2018 10:07	22.0	65.7	1.3	11.0	158.1	158.2	15.1	17.3	-1.6	-1.5	-20.6
GEW-181	6/6/2018 10:09	21.6	67.0	1.8	9.6	158.5	158.5	17.2	18.8	-1.5	-1.5	-20.5
GEW-181	6/12/2018 14:01	14.3	68.8	0.7	16.2	156.0	156.0	19.4	17.9	-1.4	-1.4	-20.6
GEW-181	6/12/2018 14:03	14.7	73.9	0.5	10.9	156.9	157.3	16.6	16.9	-1.4	-1.4	-19.6
GEW-181	6/19/2018 11:43	19.9	56.4	1.6	22.1	154.4	154.4	26.3	26.5	-2.7	-2.7	-19.7
GEW-181	6/19/2018 11:45	20.4	56.7	1.6	21.3	154.4	154.4	26.9	27.4	-2.8	-2.8	-19.9
GEW-181	6/27/2018 7:49	16.4	62.3	0.0	21.3	158.3	158.1	17.2	17.6	-1.3	-1.3	-21.1
GEW-181	6/27/2018 7:51	16.4	62.8	0.0	20.8	158.1	158.5	9.6	9.9	-1.6	-1.5	-20.8
GEW-182	6/7/2018 10:12	20.0	46.9	2.9	30.2	148.4	148.4	13.5	13.8	-0.5	-0.5	-19.1
GEW-182	6/7/2018 10:14	19.6	48.3	2.9	29.2	148.4	148.4	14.3	13.8	-0.4	-0.5	-18.6
GEW-182	6/12/2018 11:20	18.3	49.0	4.2	28.5	128.3	128.1	15.5	16.3	-0.6	-0.6	-19.1
GEW-182	6/19/2018 14:12	27.5	47.6	2.2	22.7	144.7	144.8	9.2	10.6	-0.4	-0.4	-19.9
GEW-182	6/19/2018 14:14	28.2	47.7	2.2	21.9	144.9	144.8	15.0	14.8	-0.4	-0.4	-20.6
GEW-182	6/26/2018 14:16	20.4	48.5	2.1	29.0	154.5	154.8	14.8	14.6	-0.3	-0.4	-19.9
GEW-182	6/26/2018 14:17	20.4	49.8	2.0	27.8	154.8	154.8	17.0	16.0	-0.4	-0.4	-18.8
GEW-184	6/7/2018 10:28	22.6	56.1	2.7	18.6	119.2	119.2	4.5	4.4	-0.1	-0.1	-18.5
GEW-184	6/12/2018 11:37	21.4	55.2	4.3	19.1	116.9	116.7	2.2	1.6	-0.1	-0.1	-18.5
GEW-184	6/19/2018 14:32	31.6	45.5	4.2	18.7	122.9	123.1	5.3	4.2	-0.04	-0.04	-19.9
GEW-184	6/27/2018 9:26	20.7	41.3	6.0	32.0	107.7	107.8	3.5	1.6	-0.03	-0.02	-18.9
GEW-184	6/27/2018 9:28	20.6	42.8	5.9	30.7	108.0	109.7	4.3	4.4	-0.02	-0.02	-19.2
GEW-185	6/7/2018 10:23	13.9	55.6	3.4	27.1	171.6	171.6	9.0	6.9	-0.2	-0.3	-18.4
GEW-185	6/7/2018 10:24	13.7	58.5	3.3	24.5	171.6	171.6	10.1	6.0	-0.3	-0.2	-18.7
GEW-185	6/12/2018 11:31	13.6	61.2	2.5	22.7	171.1	171.2	5.8	4.6	-0.3	-0.3	-18.4
GEW-185	6/12/2018 11:33	13.7	62.9	2.5	20.9	171.6	171.6	8.0	7.7	-0.3	-0.3	-18.7
GEW-185	6/19/2018 14:27	22.7	54.1	1.7	21.5	172.1	172.1	16.1	16.7	-0.4	-0.5	-20.0
GEW-185	6/19/2018 14:29	22.8	54.3	1.7	21.2	172.1	172.1	20.2	19.1	-0.6	-0.6	-19.9
GEW-185	6/27/2018 9:33	15.0	51.0	2.3	31.7	170.0	170.1	8.7	8.2	-0.3	-0.3	-18.9
GEW-185	6/27/2018 9:34	14.5	54.4	2.2	28.9	169.2	169.0	6.1	6.3	-0.2	-0.2	-19.2
GEW-186	6/7/2018 9:37	19.1	47.0	4.6	29.3	140.6	140.6	9.7	11.1	-0.2	-0.2	-18.8
GEW-186	6/7/2018 9:39	18.6	49.5	4.6	27.3	140.4	140.6	11.9	11.1	-0.2	-0.2	-18.6
GEW-186	6/12/2018 13:30	19.5	44.3	4.1	32.1	138.0	138.0	10.5	6.5	-0.2	-0.2	-19.1
GEW-186	6/12/2018 13:32	18.9	49.2	4.0	27.9	138.3	138.3	11.4	15.2	-0.3	-0.2	-19.3
GEW-186	6/19/2018 13:54	26.0	43.0	4.2	26.8	145.7	145.6	13.3	25.3	-0.2	-0.2	-19.9
GEW-186	6/19/2018 14:10	25.9	44.0	4.1	26.0	145.8	145.6	16.3	20.6	-0.2	-0.2	-20.6
GEW-186	6/27/2018 9:16	18.8	41.2	5.7	34.3	142.5	142.5	10.2	11.9	-0.2	-0.1	-19.5

June 2018 Wellfield Monitoring Data - Bridgeton Landfill												
Well Name	Date Sampled	Methane	CO_2	O_2	Balance Gas	Init Temp	Adj Temp	Init Flow	Adj Flow	Init Static Press	Adj Static Press	System Pressure
		(% vol)				°F		scfm		H_2O		
GEW-186	6/27/2018 9:17	18.7	43.0	5.7	32.6	141.9	141.9	10.7	9.0	-0.1	-0.1	-19.4
GEW-187	6/6/2018 9:35	23.3	57.5	1.8	17.4	156.5	156.2	11.3	11.5	-6.2	-6.2	-20.5
GEW-187	6/6/2018 9:37	23.9	56.6	1.9	17.6	156.5	156.5	11.7	12.0	-6.0	-6.0	-20.0
GEW-187	6/12/2018 14:22	18.4	58.9	1.9	20.8	154.8	154.5	8.4	8.0	-6.2	-6.2	-19.6
GEW-187	6/12/2018 14:24	18.7	58.7	1.7	20.9	155.6	155.6	9.8	10.7	-6.2	-6.2	-19.3
GEW-187	6/19/2018 10:53	26.6	49.6	2.4	21.4	154.4	154.1	27.5	27.4	-5.8	-5.9	-18.8
GEW-187	6/19/2018 10:55	27.2	51.1	1.4	20.3	154.8	154.5	37.2	38.0	-5.9	-5.9	-18.7
GEW-187	6/27/2018 7:30	19.8	50.9	2.2	27.1	146.6	147.0	5.9	7.9	-6.4	-6.4	-20.4
GEW-187	6/27/2018 7:31	19.3	51.0	2.1	27.6	147.0	146.6	7.4	4.5	-5.4	-5.3	-20.7
GEW-188	6/7/2018 10:18	1.4	18.1	12.0	68.5	122.9	123.1	8.3	8.0	-0.1	-0.04	-18.2
GEW-188	6/7/2018 10:19	1.2	15.7	12.1	71.0	123.7	123.7	7.7	6.0	-0.1	-0.04	-18.1
GEW-188	6/12/2018 11:25	0.3	16.2	9.9	73.6	129.7	129.7	5.8	4.2	-0.03	-0.03	-18.3
GEW-188	6/12/2018 11:27	0.2	15.5	9.9	74.4	130.0	129.8	5.6	4.9	-0.03	-0.03	-18.1
GEW-188	6/19/2018 14:23	2.4	28.3	3.7	65.6	130.2	130.1	8.3	8.4	-0.03	-0.03	-19.9
GEW-188	6/27/2018 9:38	0.6	21.9	9.7	67.8	106.5	106.5	6.1	6.7	-0.1	-0.1	-19.2
GEW-188	6/27/2018 9:40	0.5	20.2	9.8	69.5	106.2	106.2	4.6	5.6	-0.1	-0.1	-19.3
GEW-1A	6/4/2018 14:30	6.3	3.8	17.5	72.4	94.8	95.8	5.4	5.3	-12.7	-12.7	-12.7
GEW-1A	6/4/2018 14:32	6.1	2.8	17.6	73.5	96.7	96.7	5.9	6.5	-12.7	-12.7	-12.9
GEW-1A	6/11/2018 9:04	3.4	3.7	19.2	73.7	85.4	86.3	0.0	0.0	-12.8	-12.8	-12.9
GEW-1A	6/11/2018 9:05	3.9	1.8	19.3	75.0	86.8	86.8	0.0	0.0	-12.8	-12.8	-12.9
GEW-1A	6/18/2018 9:03	3.3	1.3	19.1	76.3	96.5	96.5	11.2	10.9	-12.8	-12.8	-12.8
GEW-1A	6/18/2018 9:05	3.2	1.0	19.1	76.7	97.2	97.3	11.4	11.2	-12.8	-12.7	-12.8
GEW-1A	6/25/2018 9:36	3.7	6.0	18.5	71.8	78.0	78.1	0.0	0.0	-12.9	-12.8	-12.9
GEW-1A	6/25/2018 9:37	3.1	2.5	19.4	75.0	78.4	78.4	0.0	0.0	-12.8	-12.9	-13.0
GEW-2S	6/7/2018 7:47	60.7	32.3	0.8	6.2	82.1	82.1	15.6	15.8	-9.8	-9.8	-11.1
GEW-2S	6/11/2018 9:08	59.9	33.6	0.8	5.7	82.1	82.1	18.6	17.4	-9.7	-9.7	-12.8
GEW-2S	6/18/2018 8:59	58.2	36.4	0.9	4.5	87.9	88.0	0.0	0.0	-6.8	-6.4	-12.7
GEW-2S	6/25/2018 9:41	59.8	34.6	0.7	4.9	75.5	75.5	18.7	18.7	-5.5	-5.5	-12.8
GIW-01	6/5/2018 10:27	4.6	58.6	1.2	35.6	150.6	150.5	5.6	5.6	-3.3	-3.3	-19.7
GIW-01	6/5/2018 10:35	4.8	61.8	1.1	32.3	151.3	151.3	5.3	4.4	-3.2	-3.2	-18.4
GIW-01	6/11/2018 13:58	8.0	58.8	0.0	33.2	167.1	167.1	1.8	3.4	2.7	2.6	-20.2
GIW-01	6/11/2018 14:00	7.6	61.0	0.0	31.4	174.2	174.2	6.8	5.6	-2.4	-2.4	-20.0
GIW-01	6/19/2018 8:06	8.1	57.8	0.7	33.4	172.1	172.1	7.8	7.4	-1.3	-1.3	-19.7
GIW-01	6/19/2018 8:07	7.6	58.9	0.6	32.9	172.1	172.1	6.9	8.7	-1.3	-1.3	-19.9
GIW-01	6/25/2018 11:33	8.1	56.7	0.3	34.9	172.1	172.1	4.2	1.7	-1.7	-1.7	-18.8
GIW-01	6/25/2018 11:34	7.5	60.6	0.1	31.8	172.6	172.1	5.6	6.2	-1.7	-1.7	-19.2
GIW-02	6/5/2018 10:40	2.1	18.1	14.0	65.8	94.8	94.8	1.1	1.6	-0.3	-0.3	-18.7
GIW-02	6/5/2018 10:46	2.1	16.5	14.0	67.4	94.8	94.6	2.3	2.0	-0.3	-0.3	-19.8
GIW-02	6/11/2018 14:02	2.7	25.7	10.9	60.7	108.8	108.9	1.6	1.9	-0.3	-0.3	-20.0
GIW-02	6/11/2018 14:04	2.8	24.0	11.0	62.2	109.5	109.5	3.0	1.6	-0.3	-0.3	-19.8
GIW-02	6/19/2018 8:11	3.2	22.1	12.8	61.9	92.2	92.2	4.0	1.2	-0.3	-0.3	-19.5

June 2018 Wellfield Monitoring Data - Bridgeton Landfill												
Well Name	Date Sampled	Methane	CO_2	O_2	Balance Gas	Init Temp	Adj Temp	Init Flow	Adj Flow	Init Static Press	Adj Static Press	System Pressure
		(% vol)				°F		scfm		H_2O		
GIW-02	6/19/2018 8:12	3.3	22.3	12.7	61.7	91.7	91.7	0.0	2.8	-0.3	-0.3	-19.7
GIW-02	6/25/2018 11:37	3.3	28.3	10.7	57.7	89.8	89.6	1.2	2.0	-0.3	-0.3	-19.0
GIW-02	6/25/2018 11:38	3.5	26.0	10.9	59.6	88.7	88.6	2.6	2.6	-0.3	-0.3	-19.0
GIW-03	6/5/2018 10:50	9.1	51.7	1.4	37.8	87.9	87.9	4.3	5.8	-8.1	-8.0	-13.6
GIW-03	6/5/2018 10:58	9.1	52.6	1.4	36.9	87.3	87.3	4.1	1.1	-8.8	-8.6	-15.7
GIW-03	6/11/2018 14:07	10.6	45.4	0.7	43.3	104.6	104.5	1.9	3.5	-8.5	-8.5	-15.7
GIW-03	6/19/2018 8:17	10.9	46.9	1.4	40.8	90.7	90.8	0.0	3.8	-6.3	-6.3	-14.4
GIW-03	6/25/2018 11:40	10.6	51.3	0.6	37.5	85.7	85.7	4.3	3.8	-4.4	-4.4	-13.0
GIW-04	6/5/2018 11:02	0.4	49.9	3.8	45.9	91.8	91.9	3.6	2.3	-4.4	-4.4	-17.0
GIW-04	6/5/2018 11:09	0.5	52.9	3.4	43.2	93.6	93.7	4.1	1.6	-4.4	-4.4	-17.0
GIW-04	6/11/2018 14:09	1.7	46.2	3.6	48.5	102.1	102.3	2.5	2.2	-4.9	-4.9	-16.7
GIW-04	6/19/2018 8:21	1.6	47.7	2.2	48.5	91.9	91.9	2.3	3.0	-3.5	-3.5	-13.5
GIW-04	6/25/2018 11:42	2.3	51.5	1.5	44.7	85.2	85.2	3.8	3.7	-2.4	-2.4	-16.9
GIW-05	6/5/2018 11:36	0.7	27.6	11.6	60.1	90.9	91.0	0.0	2.8	-0.5	-0.5	-17.7
GIW-05	6/5/2018 11:43	0.4	13.5	15.1	71.0	94.4	94.4	0.0	4.8	-0.5	-0.5	-17.3
GIW-05	6/11/2018 14:12	1.9	43.4	3.8	50.9	101.3	101.4	7.7	7.2	-0.1	-0.1	-18.6
GIW-05	6/19/2018 8:25	2.5	42.1	4.8	50.6	87.0	87.0	8.7	9.2	-0.2	-0.1	-13.5
GIW-05	6/25/2018 11:45	1.6	52.9	0.8	44.7	84.9	84.9	9.2	7.8	-0.1	-0.1	-16.6
GIW-06	6/5/2018 8:09	24.4	45.7	0.5	29.4	82.3	82.4	5.7	5.0	-11.8	-11.7	-13.1
GIW-06	6/5/2018 8:16	24.6	45.9	0.4	29.1	85.1	85.2	1.9	2.0	-12.4	-12.4	-14.3
GIW-06	6/11/2018 14:14	28.8	43.9	0.2	27.1	106.0	106.2	1.9	3.6	-14.9	-14.8	-18.1
GIW-06	6/18/2018 14:06	26.1	44.2	1.0	28.7	104.0	104.0	8.5	8.0	-14.8	-14.7	-17.7
GIW-06	6/25/2018 13:05	27.2	43.3	0.3	29.2	91.7	91.7	2.7	4.0	-13.9	-13.8	-17.1
GIW-07	6/5/2018 8:22	34.0	55.9	0.2	9.9	82.8	82.9	2.6	0.0	-3.5	-3.5	-12.6
GIW-07	6/5/2018 8:28	33.7	56.0	0.2	10.1	85.1	85.2	2.8	2.8	-3.6	-3.6	-14.2
GIW-07	6/11/2018 14:16	37.0	51.4	0.1	11.5	103.3	103.3	3.2	3.0	-4.4	-4.4	-17.2
GIW-07	6/18/2018 14:03	35.0	52.6	0.5	11.9	101.2	101.1	5.3	5.0	-3.7	-3.7	-16.9
GIW-07	6/25/2018 13:07	37.6	49.4	0.2	12.8	88.6	88.9	4.7	4.7	-3.7	-3.7	-17.3
GIW-08	6/5/2018 8:33	39.5	52.7	0.0	7.8	90.1	90.1	1.2	2.3	-2.1	-2.1	-14.5
GIW-08	6/5/2018 8:39	39.5	50.8	0.0	9.7	91.0	91.0	2.0	3.6	-2.0	-2.0	-13.6
GIW-08	6/11/2018 14:19	44.2	49.5	0.0	6.3	115.5	115.6	2.7	2.7	-2.3	-2.2	-18.5
GIW-08	6/18/2018 14:00	41.6	50.4	0.2	7.8	111.3	111.2	4.7	4.0	-2.1	-2.1	-17.4
GIW-08	6/25/2018 13:10	41.1	49.5	0.0	9.4	92.9	93.0	3.8	3.2	-2.1	-2.1	-17.8
GIW-09	6/5/2018 8:43	5.1	23.2	7.2	64.5	89.6	89.8	4.3	3.1	-0.9	-0.9	-12.9
GIW-09	6/5/2018 8:49	5.1	20.5	7.2	67.2	91.9	92.0	2.8	2.8	-1.0	-0.9	-12.9
GIW-09	6/11/2018 14:25	10.7	26.1	2.6	60.6	108.5	108.5	1.1	1.1	-0.9	-0.9	-18.1
GIW-09	6/18/2018 13:52	8.2	28.1	3.2	60.5	103.2	103.3	5.8	5.3	-0.9	-0.9	-17.8
GIW-09	6/25/2018 13:14	7.6	30.6	3.0	58.8	89.1	89.1	2.3	2.0	-0.8	-0.8	-17.0
GIW-10	6/5/2018 9:35	9.9	35.5	0.0	54.6	84.9	84.9	3.3	2.0	-4.1	-4.0	-14.0
GIW-10	6/5/2018 9:41	9.8	36.4	0.0	53.8	85.9	85.9	2.0	1.6	-4.2	-4.2	-15.8
GIW-10	6/11/2018 11:45	10.4	35.1	0.0	54.5	103.0	103.0	1.1	1.9	-3.9	-3.9	-15.9

June 2018 Wellfield Monitoring Data - Bridgeton Landfill												
Well Name	**Date Sampled**	**Methane**	**CO_2**	**O_2**	**Balance Gas**	**Init Temp**	**Adj Temp**	**Init Flow**	**Adj Flow**	**Init Static Press**	**Adj Static Press**	**System Pressure**
		(% vol)				**°F**		**scfm**		**H_2O**		
GIW-10	6/18/2018 14:09	11.0	36.9	0.3	51.8	102.8	103.0	7.2	6.8	-4.1	-4.1	-17.7
GIW-10	6/25/2018 10:58	11.1	36.5	0.0	52.4	87.0	87.2	2.3	1.6	-3.8	-3.8	-15.4
GIW-11	6/5/2018 9:46	11.7	41.5	0.6	46.2	89.8	89.8	3.0	3.6	-2.6	-2.5	-17.9
GIW-11	6/5/2018 9:51	11.9	40.4	0.6	47.1	89.8	89.6	4.4	3.6	-2.4	-2.5	-19.2
GIW-11	6/11/2018 11:43	12.2	39.9	0.4	47.5	106.1	106.2	1.6	1.6	-2.3	-2.3	-18.8
GIW-11	6/18/2018 13:40	18.6	40.6	0.5	40.3	104.5	104.5	7.3	5.0	-2.4	-2.3	-16.5
GIW-11	6/25/2018 10:55	18.9	40.7	0.2	40.2	86.8	86.8	2.3	4.0	-2.2	-2.2	-15.3
GIW-12	6/5/2018 9:55	8.8	40.1	6.7	44.4	88.3	88.4	2.8	2.8	-0.2	-0.2	-17.7
GIW-12	6/5/2018 10:02	9.0	39.7	6.7	44.6	88.5	88.6	1.2	1.6	-0.2	-0.2	-17.7
GIW-12	6/11/2018 11:38	8.8	40.6	5.0	45.6	105.7	105.7	2.8	2.8	-0.1	-0.1	-17.3
GIW-12	6/11/2018 11:39	8.7	40.2	5.0	46.1	105.9	105.9	3.0	2.8	-0.1	-0.1	-17.3
GIW-12	6/18/2018 13:34	9.9	49.6	3.4	37.1	97.9	97.9	5.3	4.7	-0.2	-0.2	-16.6
GIW-12	6/25/2018 10:50	9.6	48.1	2.0	40.3	84.2	84.2	2.6	2.6	-0.1	-0.1	-17.0
GIW-13	6/5/2018 10:06	31.1	56.2	0.0	12.7	90.1	90.1	3.8	2.3	-1.7	-1.7	-12.2
GIW-13	6/5/2018 10:13	31.2	56.9	0.0	11.9	89.3	89.3	2.6	3.5	-1.6	-1.6	-11.7
GIW-13	6/11/2018 11:30	28.2	51.4	0.0	20.4	102.4	102.5	4.5	3.2	-1.3	-1.3	-11.8
GIW-13	6/18/2018 13:31	26.0	58.1	0.2	15.7	100.0	100.1	4.7	4.9	-1.1	-1.1	-11.2
GIW-13	6/25/2018 10:48	28.4	52.2	0.0	19.4	84.0	84.2	3.1	3.9	-1.1	-1.1	-10.8
LCS-1D	6/13/2018 9:17	45.7	35.0	3.8	15.5	139.3	139.3	11.6	14.4	-17.7	-17.3	-18.2
LCS-1D	6/13/2018 9:19	47.0	36.1	3.2	13.7	139.4	139.5	11.7	9.7	-17.9	-17.7	-19.0
LCS-2D	6/13/2018 8:51	55.1	44.3	0.6	0.0	88.8	88.6	9.0	8.5	-18.9	-18.8	-19.2
LCS-3D	6/13/2018 8:43	2.5	53.2	5.5	38.8	89.5	89.4	6.0	5.9	-12.1	-12.1	-19.0
LCS-3D	6/13/2018 8:46	2.6	53.7	5.5	38.2	88.0	88.1	7.3	6.9	-11.2	-11.2	-19.3
LCS-5A	6/4/2018 9:10	54.0	40.7	0.6	4.7	92.0	92.2	2.6	7.5	-12.1	-12.0	-12.4
LCS-5A	6/11/2018 7:44	55.2	40.4	0.2	4.2	86.4	86.3	25.0	25.7	-11.3	-11.2	-12.6
LCS-5A	6/18/2018 10:29	50.7	38.0	1.8	9.5	103.3	103.3	27.3	28.3	-10.8	-11.5	-12.5
LCS-5A	6/25/2018 8:10	55.8	40.1	0.3	3.8	85.1	85.2	14.7	13.5	-11.2	-11.2	-12.6
LCS-5B	6/4/2018 9:13	54.0	41.8	0.0	4.2	148.5	148.5	21.1	21.1	-4.5	-4.5	-13.1
LCS-5B	6/4/2018 9:14	53.8	41.9	0.0	4.3	148.8	148.7	19.9	21.4	-4.5	-4.5	-12.8
LCS-5B	6/11/2018 7:57	52.9	41.2	0.0	5.9	148.1	148.1	22.4	17.7	-3.6	-3.6	-13.3
LCS-5B	6/11/2018 7:58	53.2	41.2	0.0	5.6	148.0	148.1	20.3	21.3	-3.5	-3.5	-13.2
LCS-5B	6/18/2018 10:37	51.6	41.8	0.6	6.0	148.1	148.2	25.1	27.3	-3.6	-3.6	-13.1
LCS-5B	6/18/2018 10:38	51.1	42.5	0.6	5.8	148.3	148.2	27.8	27.8	-3.7	-3.7	-12.9
LCS-5B	6/25/2018 8:22	53.2	41.3	0.0	5.5	147.3	147.3	19.5	23.9	-3.6	-3.6	-13.0
LCS-5B	6/25/2018 8:24	53.4	40.9	0.1	5.6	147.9	147.8	21.0	22.4	-3.8	-3.8	-13.1
LCS-6B	6/4/2018 15:31	53.1	42.9	0.0	4.0	99.6	99.6	7.6	7.1	0.2	0.2	-12.6
LCS-6B	6/4/2018 15:32	53.0	43.3	0.0	3.7	101.7	101.6	6.6	3.8	-0.3	-0.3	-12.6
LCS-6B	6/11/2018 9:27	52.4	41.6	0.3	5.7	104.2	104.2	6.0	5.3	-0.6	-0.6	-12.4
LCS-6B	6/18/2018 10:15	51.0	42.1	1.1	5.8	107.8	107.9	12.5	10.7	-0.3	-0.3	-12.6
LCS-6B	6/25/2018 10:00	54.1	41.0	0.0	4.9	91.5	92.3	7.2	7.2	-0.3	-0.2	-12.7
SEW-002	6/8/2018 11:36	18.1	59.0	0.0	22.9	105.5	105.7	10.2	10.0	-0.1	-0.04	-10.3

June 2018 Wellfield Monitoring Data - Bridgeton Landfill												
Well Name	**Date Sampled**	**Methane**	**CO_2**	**O_2**	**Balance Gas**	**Init Temp**	**Adj Temp**	**Init Flow**	**Adj Flow**	**Init Static Press**	**Adj Static Press**	**System Pressure**
		(% vol)				**°F**		**scfm**		**H_2O**		
SEW-002	6/8/2018 11:37	18.8	61.6	0.0	19.6	109.2	109.2	9.8	8.7	-0.1	-0.1	-7.7
SEW-003	6/7/2018 9:58	4.3	51.7	1.3	42.7	123.1	123.1	20.1	20.1	-0.2	-0.2	-18.4
T-56	6/4/2018 8:48	46.7	34.4	0.0	18.9	74.4	74.4	14.5	14.2	-0.1	-0.1	-13.2
T-56	6/11/2018 9:48	51.7	35.8	0.0	12.5	77.3	77.3	11.5	11.8	-0.1	-0.1	-13.3
T-56	6/18/2018 8:30	44.2	34.3	0.8	20.7	79.3	79.4	10.3	14.4	-0.1	-0.1	-13.7
T-56	6/25/2018 10:21	44.6	33.9	0.0	21.5	76.4	76.5	17.7	12.5	-0.1	-0.1	-13.5
T-56	6/25/2018 10:22	44.5	34.2	0.0	21.3	77.5	77.5	12.2	13.4	-0.02	-0.02	-13.2

ATTACHMENT E-2

MAXIMUM WELLHEAD TEMPERATURE TABLE

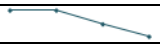
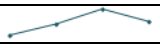
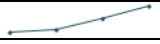
Wellfield Temperature - Bridgeton Landfill

Well Name					Temp Trend	Comments
	March 2018	April 2018	May 2018	June 2018	><30°F	
GEW-002	115.0	116.0	117.2	116.0		
GEW-003	106.0	119.7	118.6	116.8		
GEW-004	112.5	114.8	115.5	117.4		
GEW-005	88.9	80.5	91.0	90.8		
GEW-006	86.6	87.7	89.1	89.0		
GEW-007	84.4	88.5	95.0	96.7		
GEW-008	110.8	112.9	114.4	114.9		
GEW-009	119.9	123.1	123.9	125.0		
GEW-010	50.6	67.7	94.4	105.2		
GEW-013A	122.6	147.3	150.2	159.0		
GEW-015	158.0	155.9	103.6	104.1		
GEW-016R	179.2	179.7	180.3	179.7		
GEW-018B	163.8	163.3	175.3	176.9		
GEW-022R	52.6	77.5	104.5	90.4		
GEW-038	55.3	54.7	93.4	113.0		
GEW-039	116.1	116.1	118.6	120.5		
GEW-040	67.9	75.2	94.3	94.8		
GEW-041R	94.5	96.7	100.8	101.8		
GEW-042R	94.6	100.4	107.0	107.8		
GEW-043R	110.2	117.6	118.1	124.2		
GEW-044	83.8	88.4	97.6	101.4		
GEW-045R	81.6	90.1	95.5	100.1		
GEW-046R	94.3	103.0	101.1	102.2		
GEW-047R	106.8	111.2	113.2	111.5		
GEW-048	98.9	94.1	102.5	102.3		
GEW-049	102.4	105.7	105.3	107.5		
GEW-050	104.8	103.1	106.4	107.0		
GEW-051	122.1	120.9	124.6	123.6		
GEW-052	117.9	111.6	113.5	114.0		
GEW-053	140.1	141.5	142.2	143.4		
GEW-054	144.6	144.5	143.5	144.2		
GEW-055	132.6	133.2	135.0	135.0		
GEW-056R	79.5	85.6	118.4	124.5		
GEW-057B	63.4	94.8	95.4	200.1		
GEW-057R	60.2	88.9	102.3	98.7		
GEW-058	59.2	92.7	94.1	106.9		
GEW-058A	63.6	91.3	89.8	106.5		
GEW-059R	160.7	161.7	164.7	166.1		
GEW-067A	128.0	93.4	112.5	118.6		

Wellfield Temperature - Bridgeton Landfill

Well Name					Temp Trend	Comments
	March 2018	April 2018	May 2018	June 2018	><30°F	
GEW-068A	182.7	182.1	185.3	196.4		
GEW-077	139.6	125.6	137.4	--		
GEW-078R	155.6	155.6	159.0	159.0		
GEW-081	68.2	74.1	101.9	89.1		
GEW-082R	176.4	176.4	175.8	175.8		
GEW-086	68.8	71.8	98.7	103.0		
GEW-087	113.5	115.9	128.0	139.3		
GEW-088	195.0	197.9	197.2	196.4		
GEW-090	157.7	157.7	162.8	167.1		
GEW-091	177.5	182.6	195.0	195.0		
GEW-100	61.6	86.3	104.3	103.3		
GEW-101	80.4	85.6	105.7	108.5		
GEW-102	63.7	60.1	106.0	103.3		
GEW-104	162.8	205.4	200.8	193.5		
GEW-105	144.2	130.6	153.3	156.5		
GEW-106	56.7	92.9	86.8	109.2		
GEW-107	170.5	148.2	169.5	139.9		
GEW-108	121.3	123.1	136.5	148.0		
GEW-109	105.5	109.7	130.6	137.1		
GEW-110	58.1	77.0	103.7	115.8		
GEW-113	148.1	151.3	151.7	152.1		
GEW-116	190.9	193.6	194.3	193.7		
GEW-117	108.7	120.2	118.6	124.5		
GEW-118	195.7	197.2	197.9	192.3		
GEW-120	160.7	159.4	159.3	157.7		
GEW-121	173.6	174.2	174.2	173.1		
GEW-122	156.0	156.0	156.5	154.0		
GEW-123	159.8	156.0	156.1	154.4		
GEW-124	69.8	54.6	105.3	88.4		
GEW-125	182.7	163.8	176.4	179.2		
GEW-126	94.6	96.0	121.5	114.0		
GEW-127	79.4	186.4	184.4	179.2		
GEW-128	144.6	145.9	177.5	185.0		
GEW-129	169.5	167.1	197.9	185.5		
GEW-130	187.0	187.0	185.1	185.1		
GEW-131	159.4	158.5	157.3	131.2		
GEW-132	182.7	179.7	179.7	165.2		
GEW-133	169.0	167.1	172.1	168.8		
GEW-134	109.2	139.9	159.4	165.2		

Wellfield Temperature - Bridgeton Landfill

Well Name					Temp Trend	Comments
	March 2018	April 2018	May 2018	June 2018	><30°F	
GEW-135	148.6	147.0	151.7	153.7		
GEW-136	117.6	126.9	141.5	128.6		
GEW-137	77.7	97.2	90.3	108.5		
GEW-138	135.9	134.1	127.0	134.7		
GEW-139	197.9	188.9	185.7	187.0		
GEW-140	203.9	190.2	166.1	189.3		
GEW-141	68.6	81.2	108.7	109.0		
GEW-142	75.2	83.7	98.4	105.7		
GEW-143	65.0	87.4	101.1	108.5		
GEW-144	69.5	79.3	101.1	97.7		
GEW-145	93.6	115.3	123.7	123.4		
GEW-146	77.0	87.0	102.1	112.0		
GEW-147	158.4	180.7	181.5	154.8		
GEW-148	120.2	174.7	117.8	178.6		
GEW-149	93.7	126.9	138.9	141.9		
GEW-150	188.0	193.6	197.2	190.2		
GEW-151	172.2	172.6	135.0	100.8		
GEW-152	119.7	115.5	119.6	119.9		
GEW-153	63.5	83.3	92.7	108.5		
GEW-154	48.5	75.7	112.4	115.3		
GEW-155	115.8	121.5	128.3	129.4		
GEW-156	95.8	102.5	109.8	113.6		
GEW-157	98.7	124.2	142.6	135.5		
GEW-158	167.6	130.6	160.2	167.4		
GEW-159	58.0	77.9	87.0	98.2		
GEW-160	49.6	75.5	104.8	101.8		
GEW-161	48.6	89.8	145.9	98.7		
GEW-162	45.9	99.9	130.7	112.5		
GEW-163	173.2	182.1	177.9	170.5		
GEW-164	162.4	159.9	159.8	157.6		
GEW-165	183.3	180.3	181.0	179.8		
GEW-166	195.7	195.7	195.7	195.7		
GEW-167	193.6	193.3	191.7	191.5		
GEW-168	170.1	169.0	172.1	168.6		
GEW-169	186.4	185.7	187.6	187.6		
GEW-170	182.1	182.7	183.3	179.7		
GEW-171	66.4	75.0	116.8	162.9		
GEW-172	158.2	90.9	175.8	175.2		
GEW-173	114.8	102.3	116.3	120.7		

Wellfield Temperature - Bridgeton Landfill

Well Name					Temp Trend	Comments
	March 2018	April 2018	May 2018	June 2018	><30°F	
GEW-174	144.3	149.9	153.7	150.6		
GEW-175	164.7	174.7	175.8	157.7		
GEW-176	54.9	76.1	97.7	110.9		
GEW-177	203.9	192.3	196.4	195.0		
GEW-178	100.6	87.2	109.7	119.2		
GEW-179	121.4	125.3	139.3	140.8		
GEW-180	126.7	129.4	151.7	152.5		
GEW-181	169.0	159.4	159.4	158.5		
GEW-182	139.0	142.5	149.9	154.8		
GEW-184	85.0	83.8	117.4	122.9		
GEW-185	159.4	167.1	169.8	172.1		
GEW-186	139.3	139.3	150.5	145.8		
GEW-187	172.6	153.3	158.5	156.5		
GEW-188	82.8	94.1	128.3	130.2		
GEW-1A	51.5	85.1	95.4	97.2		
GEW-2S	65.8	82.3	83.9	87.9		
GIW-01	173.1	169.0	173.1	174.2		
GIW-02	50.2	56.7	99.4	109.5		
GIW-03	47.0	56.2	94.6	104.6		
GIW-04	46.8	55.7	98.4	102.1		
GIW-05	46.5	50.7	87.7	101.3		
GIW-06	46.5	53.2	92.4	106.0		
GIW-07	48.2	52.1	91.9	103.3		
GIW-08	50.2	58.0	94.5	115.5		
GIW-09	53.4	57.5	95.5	108.5		
GIW-10	48.5	53.1	96.5	103.0		
GIW-11	48.4	72.7	99.4	106.1		
GIW-12	48.2	68.6	96.7	105.9		
GIW-13	48.5	70.0	91.5	102.4		
LCS-1D	55.1	46.6	114.3	139.4		
LCS-2D	56.9	72.9	84.6	88.8		
LCS-3D	55.2	71.2	96.8	89.5		
LCS-4B	--	--	--	--		
LCS-5A	72.3	91.5	102.8	103.3		
LCS-5B	142.8	142.5	149.5	148.8		
LCS-6B	92.2	103.0	111.2	107.8		
PGW-60	80.7	79.1	87.2	Abandoned		
SEW-002	59.7	68.8	92.2	109.2		
SEW-003	88.4	90.5	115.5	123.1		
T-56	50.7	56.2	71.4	79.3		

-- = Indicates no data available.

ATTACHMENT F

SETTLEMENT FRONT MAP

Thickness Map				
Range	Minimum Depth	Maximum Depth	2D Area (Sq. Ft.)	Color
1	-5.00	-4.00	0.00	
2	-4.00	-3.00	0.00	
3	-3.00	-2.00	0.00	
4	-2.00	-1.00	0.00	
5	-1.00	0.00	1,524,075.73	
6	0.00	1.00	13,663.78	

LEGEND

- 12-1-2017TOPOGRAPHY (2' CONTOUR)
- 500 — 12-2-2017 TOPOGRAPHY (10' CONTOUR)
- .25 — MINOR ELEVATION CHANGE CONTOUR (0.25 FEET)
- .50 — MAJOR ELEVATION CHANGE CONTOUR (0.50 FEET)
- -.03 — SPOT ELEVATION DIFFERENCE (5-16-2018 to 6-15-2018)
- *6–2018* — *SETTLEMENT FRONT CONTOUR FOR AREA WITH 1.35' PER 30 DAYS FOR CURRENT PERIOD OF DAYS

*NONE FOR JUNE 2018

NOTES:

1. EXISTING CONTOURS DEVELOPED FROM SITE AERIAL TOPOGRAPHIC SURVEY BY COOPER AERIAL SURVEYS CO. ON DECEMBER 1, 2017.
2. FOR CLARITY, NOT ALL SITE FEATURES MAY BE SHOWN.
3. ELEVATION DIFFERENCE DETERMINED BY SUBTRACTING SPOT ELEVATIONS SURVEYED ON 5-16-18 FROM SPOT ELEVATIONS SURVEYED ON 6-15-18.
4. SURVEY POINTS WERE PERFORMED USING GPS METHODS.
5. SETTLEMENT RANGE SURFACE WAS GENERATED FROM THE SPOT ELEVATION DIFFERENCES.
6. ELEVATION DIFFERENCES THAT ARE SHOWN AS NEGATIVE INDICATE SPOTS OF SETTLEMENT.
7. ANY POINTS THAT ARE NOT A GROUND-TO-GROUND COMPARISON TO THE PREVIOUS MONTH'S POINTS, OR THAT WERE NOT SURVEYED IN THE SAME LOCATION AS THE PREVIOUS MONTH ARE NOT INCLUDED AND WERE NOT USED IN ANY SURFACE GENERATION.

N

0 200 400 Feet

BRIDGETON LANDFILL, LLC
13570 SAINT CHARLES ROCK RD
BRIDGETON, MO 63044

BRIDGETON LANDFILL
SETTLEMENT MONITORING

SETTLEMENT MAP 5/16/2018 - 6/15/2018

PROJECT NUMBER: BT-145 | FILE PATH: C:\Users\plinsi\Dropbox (Feezor Engineering)\Bridgeton\100-149\BT-145 (Agreed Order Reporting)\Monthly Reports\06-2018 Report\Internal Draft\Site Data\settlement\3_deliverables\Settlement And Fill 6-15-2018.dwg

Engineering for a Better World
FEEZOR ENGINEERING, INC.

JUNE 2018
DESIGNED BY: PML
APPROVED BY: DRF

REVISION	DATE

DRAWING NO.: 001

ATTACHMENT G

SUMMARY OF ODOR COMPLAINTS

June 1, 2018 – June 30, 2018 / MDNR ODOR COMPLAINTS

Name: Donna Sparks

Message: Odor logged June 4, 2018, at 12:07 am strength of 7

Follow-up: The following concern has been investigated by Bridgeton Landfill staff. No odor was observed at this location within an hour of the time cited in this concern. Odor patrols performed before and after the time cited in this concern did not observe Bridgeton Landfill odor. There is no evidence to suggest that this was a Bridgeton Landfill odor.

Name: N/A

Message: No date, time, or odor strength was provided.

Follow-up: No information was provided in this odor concern received on June 4, 2018, therefore Bridgeton Landfill staff could not investigate.

Name: N/A

Message: No date, time, or odor strength was provided.

Follow-up: No information was provided in this odor concern received on June 4, 2018, therefore Bridgeton Landfill staff could not investigate.

Name: Donna Sparks

Message: Odor logged June 5, 2018, at 11:22 pm strength of 8

Follow-up: The following concern has been investigated by Bridgeton Landfill staff. No odor was observed at this location within an hour of the time cited in this concern. Odor patrols performed before and after the time cited in this concern did not observe Bridgeton Landfill odor. There is no evidence to suggest that this was a Bridgeton Landfill odor.

Name: Donna Sparks

Message: Odor logged June 6, 2018, at 10:59 pm strength of 7

Follow-up: The following concern has been investigated by Bridgeton Landfill staff. No odor was observed at this location within an hour of the time cited in this concern. Odor patrols performed before and after the time cited in this concern did not observe Bridgeton Landfill odor. There is no evidence to suggest that this was a Bridgeton Landfill odor.

Name: N/A

Message: No date, time, or odor strength was provided.

Follow-up: No information was provided in this odor concern received on June 9, 2018, therefore Bridgeton Landfill staff could not investigate.

Name: N/A

Message: No date, time, or odor strength was provided.

Follow-up: No information was provided in this odor concern received on June 9, 2018, therefore Bridgeton Landfill staff could not investigate.

Name: Donna Sparks

Message: Odor logged June 11, 2018, at 10:58 pm strength of 8

Follow-up: The following concern has been investigated by Bridgeton Landfill staff. No odor was observed at this location within an hour of the time cited in this concern. Odor patrols performed before and after the time cited in this concern did not observe Bridgeton Landfill odor. There is no evidence to suggest that this was a Bridgeton Landfill odor.

Name: Melissa Rawe

Message: Odor logged June 13, 2018, at 10:51 am strength of 7

Follow-up: The following concern has been investigated by Bridgeton Landfill staff. No odor was observed at this location within an hour of the time cited in this concern. Odor patrols performed before and after the time cited in this concern did not observe Bridgeton Landfill odor. There is no evidence to suggest that this was a Bridgeton Landfill odor.

Name: N/A

Message: No date, time, or odor strength was provided.

Follow-up: No information was provided in this odor concern received on June 23, 2018, therefore Bridgeton Landfill staff could not investigate.

ATTACHMENT H

LIQUID CHARACTERIZATION DATA AND DISCHARGE LOG

Bridgeton Landfill - Leachate PreTreatment Plant

June 2018

Liquid Characterization Data

Liquid characterization data is made available to MDNR on an ongoing basis. No additional lechate characterization data, beyond that produced for MSD, was collected during the prior month.

Hauled Disposal to MSD – Bissell Point

Date	Waste	Source	Transporter	Quantity
6/1/2018	LPTP Activated Sludge/ Permeate	Tank 1 (T1)	MBI	0
6/2/2018				0
6/3/2018				0
6/4/2018				0
6/5/2018				0
6/6/2018				0
6/7/2018				0
6/8/2018				0
6/9/2018				0
6/10/2018				0
6/11/2018				0
6/12/2018				0
6/13/2018				0
6/14/2018				0
6/15/2018				0
6/16/2018				0
6/17/2018				0
6/18/2018				0
6/19/2018				0
6/20/2018				0
6/21/2018				0
6/22/2018				0
6/23/2018				0
6/24/2018				0
6/25/2018				0
6/26/2018				0
6/27/2018				0
6/28/2018				0
6/29/2018				0
6/30/2018				0
			Total	**0**

Direct Discharge to MSD

Date	Waste	Source	Quantity (gal)
6/1/2018	LPTP Permeate	Through Tank AST 97k (MSD Sampling Point 013)	126,432
6/2/2018			140,576
6/3/2018			134,248
6/4/2018			128,584
6/5/2018			123,016
6/6/2018			116,136
6/7/2018			118,680
6/8/2018			149,096
6/9/2018			238,368
6/10/2018			241,960
6/11/2018			218,696
6/12/2018			122,536
6/13/2018			149,872
6/14/2018			140,040
6/15/2018			137,424
6/16/2018			128,024
6/17/2018			259,168
6/18/2018			208,928
6/19/2018			115,520
6/20/2018			116,320
6/21/2018			114,712
6/22/2018			213,496
6/23/2018			232,144
6/24/2018			228,256
6/25/2018			257,832
6/26/2018			242,496
6/27/2018			229,464
6/28/2018			130,368
6/29/2018			123,447
6/30/2018			118,489
		Total	**5,004,328**

ATTACHMENT I

LOW FILL PROJECT AREA

ATTACHMENT I-1

LOW FILL AREA BOUNDARY

LEGEND

BOUNDARY OF FILL AREA FOR 4-17-2018 THROUGH 5-16-2018

(NOTE: NO FILL WAS PLACED BETWEEN 4-17-2018 AND 5-16-2018)

NOTES:

1. SITE AERIAL TOPOGRAPHIC SURVEY BY COOPER AERIAL SURVEYS CO. ON DECEMBER 1, 2017.
2. FOR CLARITY, NOT ALL SITE FEATURES MAY BE SHOWN.
3. SURVEY POINTS WERE PERFORMED USING GPS METHODS.

N

0 350 700 Feet

BRIDGETON LANDFILL, LLC
13570 SAINT CHARLES ROCK RD
BRIDGETON, MO 63044

BRIDGETON LANDFILL
SETTLEMENT MONITORING

LOW FILL AREA BOUNDARY 4/17/2018 - 5/16/2018

PROJECT NUMBER: BT-145

FILE PATH: C:\Users\plins\Dropbox (Feezor Engineering)\Bridgeton\100-149\BT-145 (Agreed Order Reporting)\Monthly Reports\05-2018 Report\Internal Draft\draft Site Data\settlement3_deliverables\Settlement And Fill 5-16-2018.dwg

Engineering for a Better World
FEEZOR ENGINEERING, INC.

REVISION	DATE

MAY 2018
DESIGNED BY: PML
APPROVED BY: DRF

DRAWING NO.:
002