

Bridgeton Landfill, LLC

Monthly Data Submittals

May 2018

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

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Provided Separately:

- Flare Raw Data Excel Spreadsheet
- Gas Wellfield Raw Data Excel Spreadsheet

June 20, 2018

Commentary on Data

June 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 290 SCFM from the North Quarry and 1,056 SCFM from the South Quarry, for a total site flow of 1,346 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 31 GEW wells that are experiencing low or restricted flows, two (2) leachate collection sumps (LCS), and five (5) GIW wells that have low gas flow due to the cooling loops that are installed within these wells. By the end of the month, 20 of the GEW wells, 2 of the LCS, and 4 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. Fourteen (14) vertical wells (excluding GIW wells) increased by 30°F during this reporting period. Additionally, three (3) 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 (65 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 Second 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 29 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 May 2018

Gas Collection and Control System (GCCS)

- Continued operation and maintenance of GCCS system.
- Continued upgrades to GCCS system as necessary.

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.
- Attempted pump and transducer replacement on LCS-1D.
- Replaced LCS-5B pump, motor, and transducer.

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.

Other Projects:

- Continue construction of alternative first responder entrance, pending suitable weather conditions and contractor availability.
- Abandonment of Perimeter Extraction Wells (PEWs) began.

Work Planned for June 2018

Gas Collection and Control System (GCCS)

- Continue operation and maintenance of GCCS system.
- Continue upgrades to GCCS system as necessary.
- Begin preparatory work for GCCS expansion.

Heat Extraction System (HES)

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

Leachate Management System

- Continue routine operation of previously installed and upgraded features.
- Perform 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).

ATTACHMENT B

DAILY FLARE MONITORING DATA

ATTACHMENT B-1

FLOW DATA TABLE

Daily Flare Monitoring Data - Bridgeton Landfill
May 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***	
5/1/2018	0	1,097	0	287	1,384
5/2/2018	0	1,084	0	287	1,372
5/3/2018	0	1,036	0	274	1,310
5/4/2018	0	1,039	0	284	1,323
5/5/2018	0	1,061	0	295	1,356
5/6/2018	0	1,057	0	293	1,350
5/7/2018	0	1,065	0	290	1,355
5/8/2018	0	1,048	0	290	1,339
5/9/2018	0	1,042	0	287	1,329
5/10/2018	0	1,069	0	294	1,363
5/11/2018	0	1,058	0	311	1,369
5/12/2018	0	1,039	0	311	1,351
5/13/2018	0	1,050	0	314	1,364
5/14/2018	0	1,047	0	304	1,351
5/15/2018	0	993	0	292	1,286
5/16/2018	0	1,034	0	287	1,321
5/17/2018	0	1,079	0	277	1,355
5/18/2018	0	1,032	0	281	1,312
5/19/2018	0	1,042	0	285	1,327
5/20/2018	0	1,043	0	288	1,331
5/21/2018	0	1,055	0	277	1,332
5/22/2018	0	1,068	0	302	1,370
5/23/2018	0	1,082	0	298	1,380
5/24/2018	0	1,109	0	267	1,376
5/25/2018	0	1,066	0	290	1,357
5/26/2018	0	1,065	0	281	1,346
5/27/2018	0	1,068	0	278	1,347
5/28/2018	0	1,081	0	284	1,366
5/29/2018	0	1,042	0	290	1,332
5/30/2018	0	1,049	0	300	1,349
5/31/2018	0	1,042	0	295	1,337
AVERAGE	0	1,056	0	290	1,346

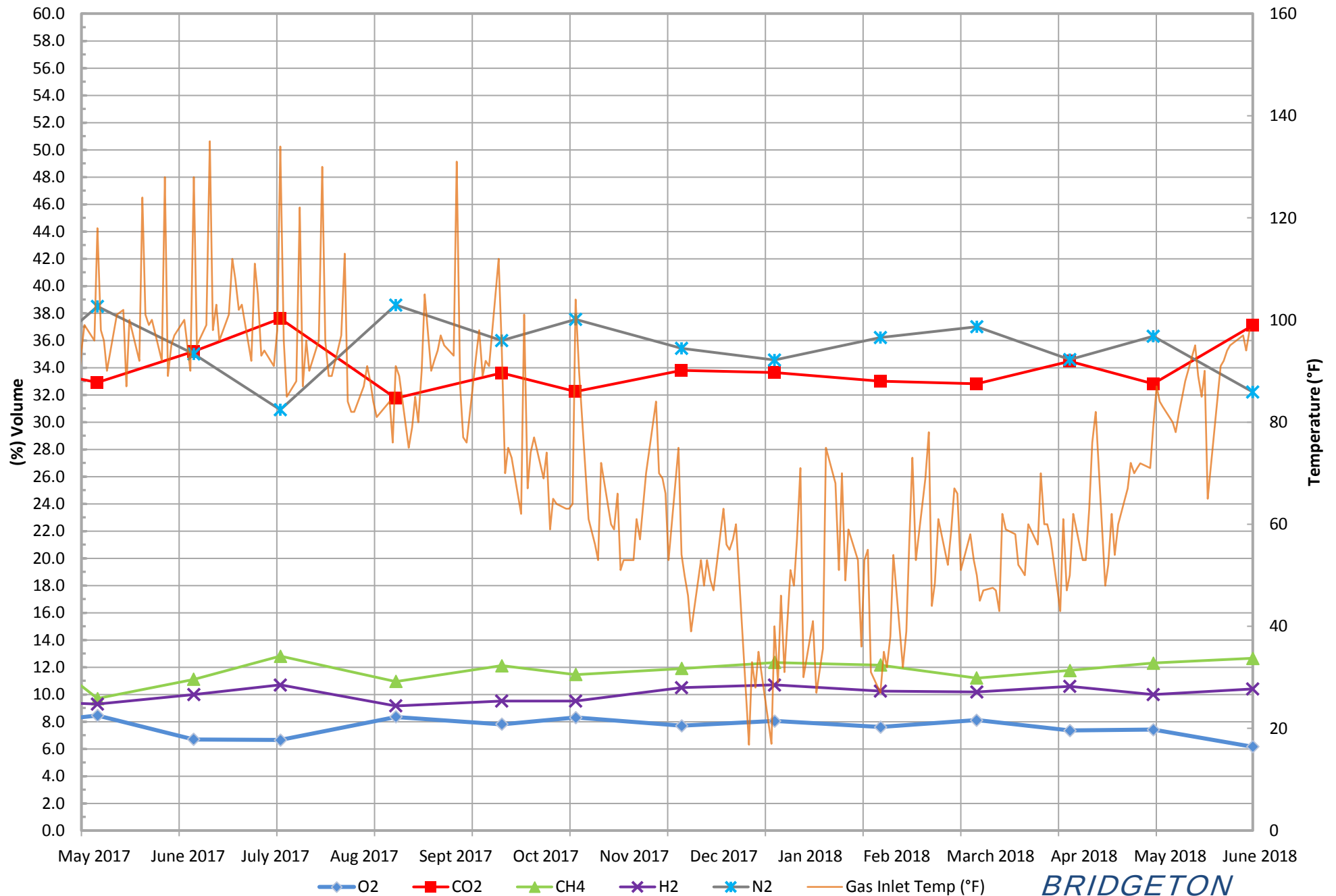
* Flows normalized to **Blower Outlet Flowmeter - EPA Method 2 measurement verified

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

ATTACHMENT B-2

FLOW DATA GRAPHS

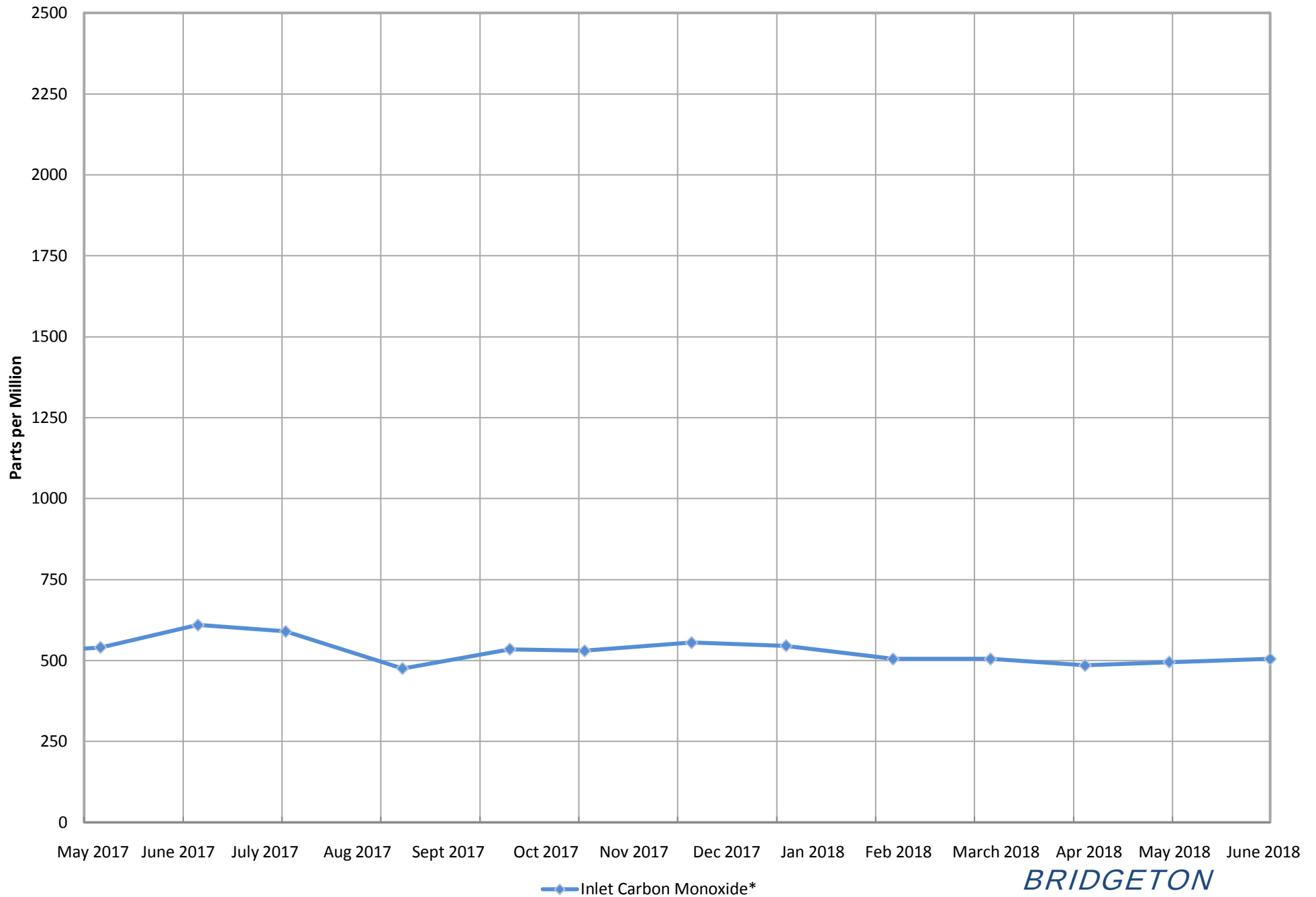
South Quarry Inlet Gas and Temperature*



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

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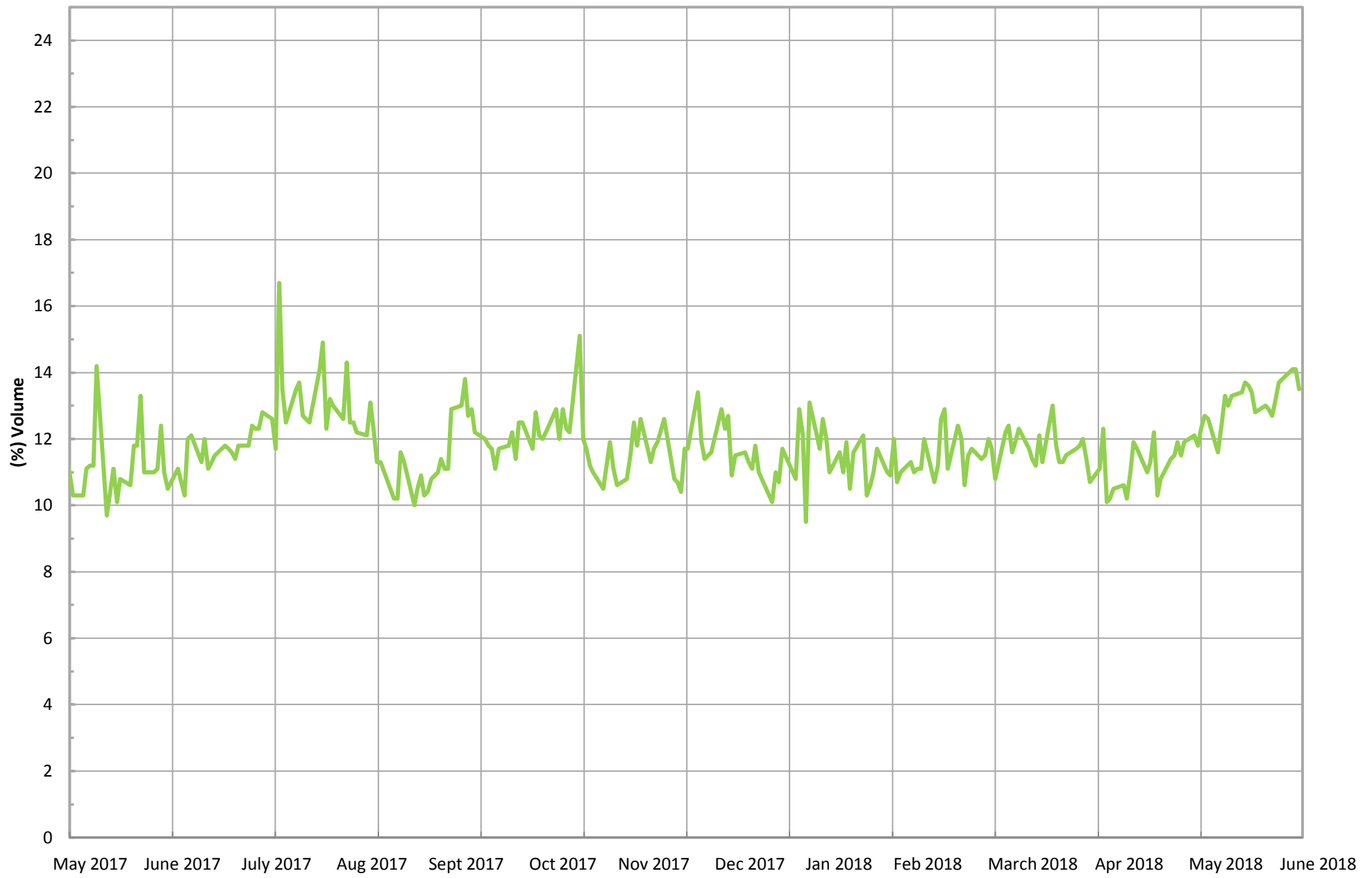
South Quarry Inlet Carbon Monoxide*



*Data collected from Laboratory Reports for the South Quarry.

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South Quarry Inlet Methane (Field Data)*

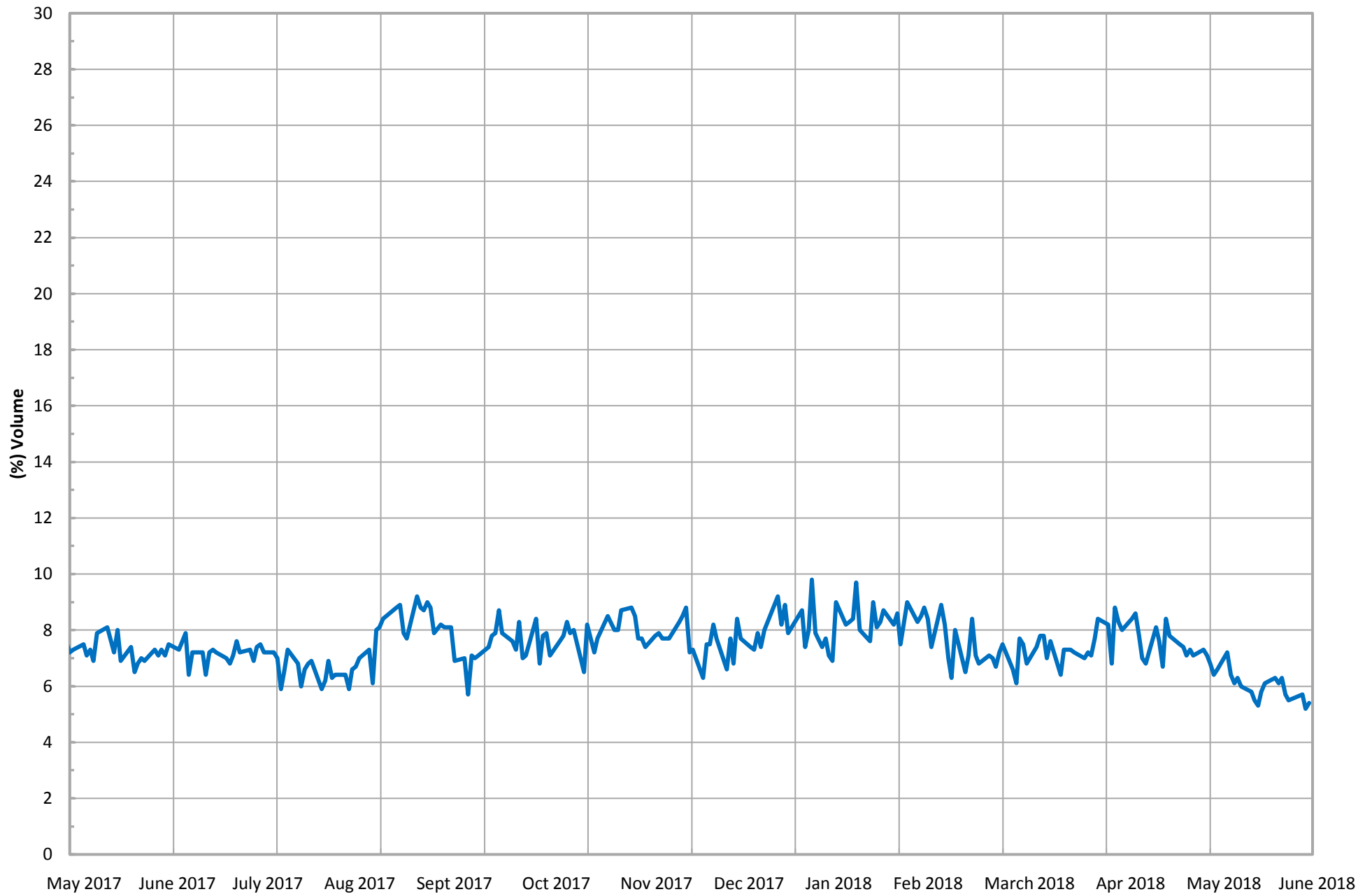


*Gas data collected from field monitoring data in the South Quarry.

— Combined Inlet Methane (Field Data)*

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South Quarry Inlet Oxygen (Field Data)*

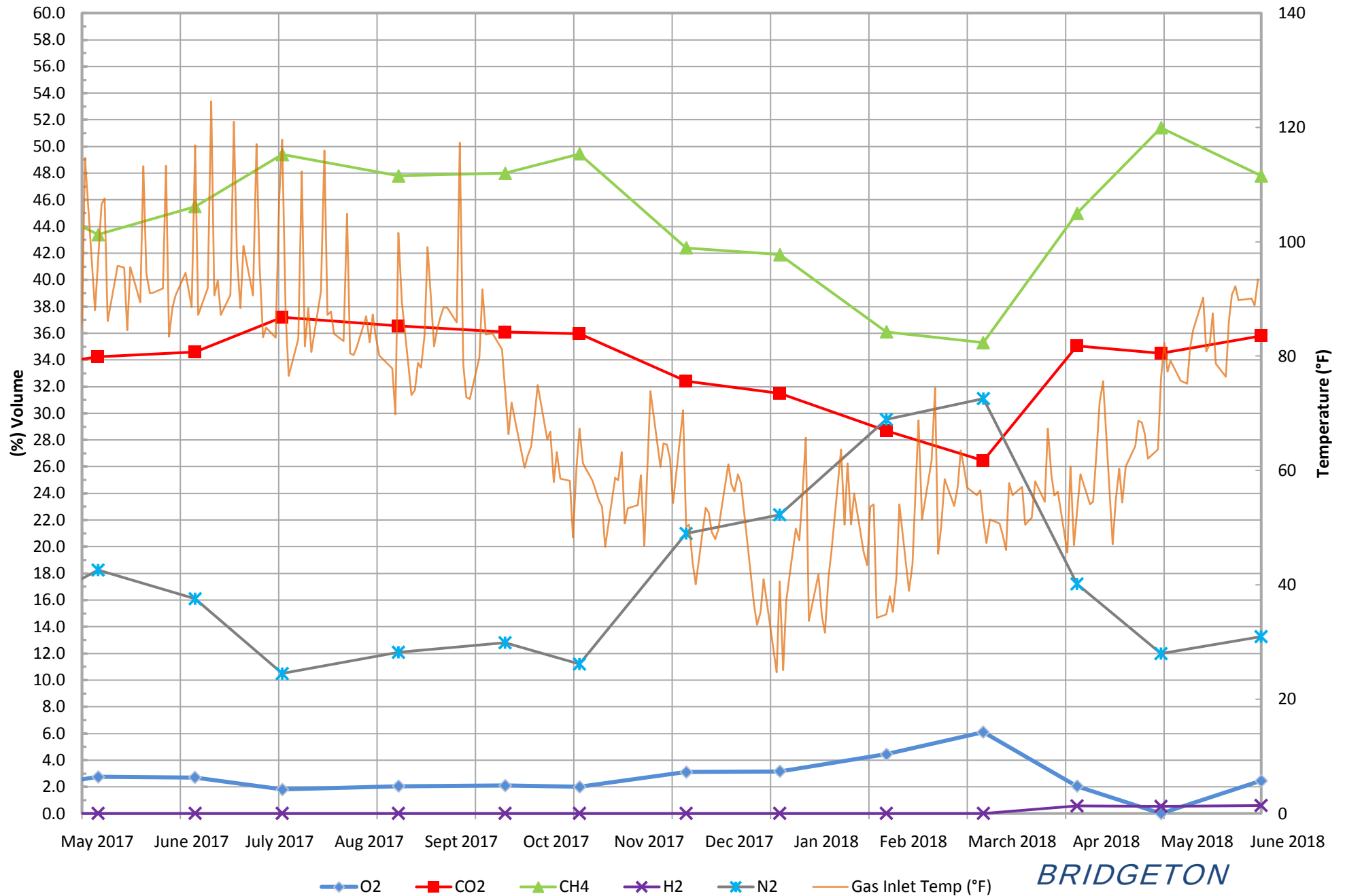


*Gas data collected from field monitoring data
in the South Quarry.

— Combined Inlet Oxygen (Field Data)*

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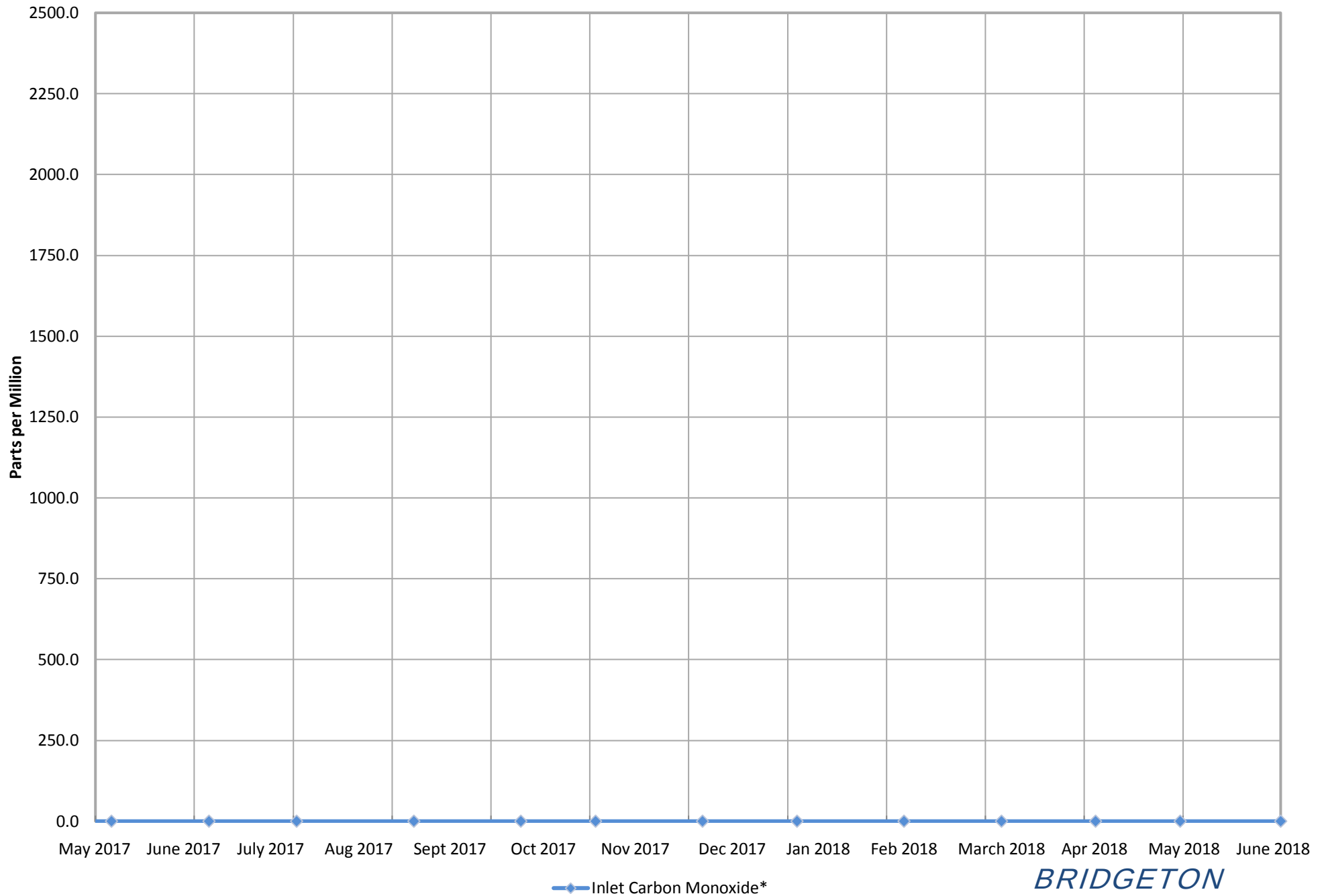
North Quarry Inlet Gas and Temperature*



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

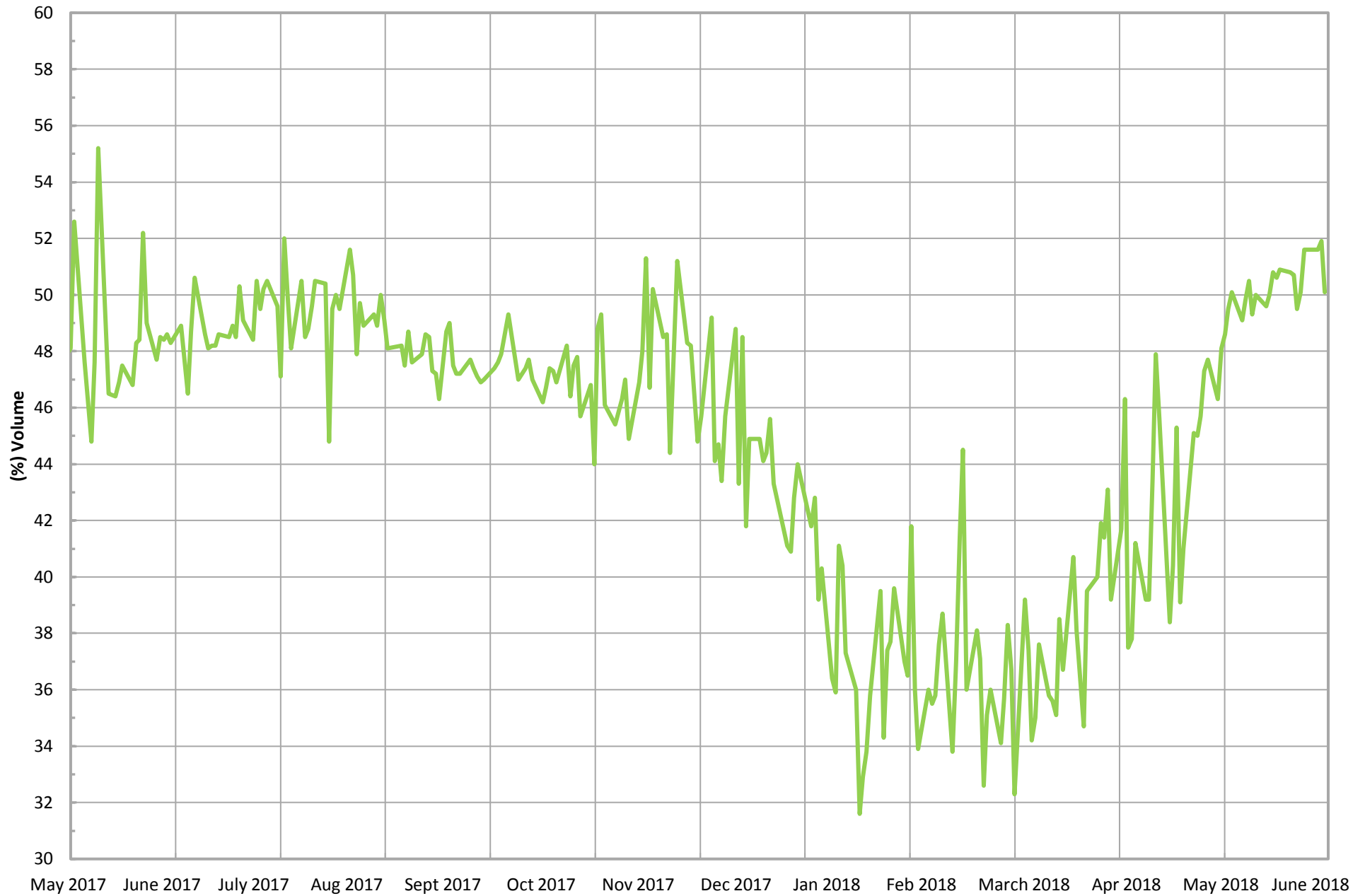
North Quarry Inlet Carbon Monoxide*



*Data collected from Laboratory Reports for the North Quarry.

*BRIDGETON
LANDFILL*

North Quarry Inlet Methane (Field Data)*

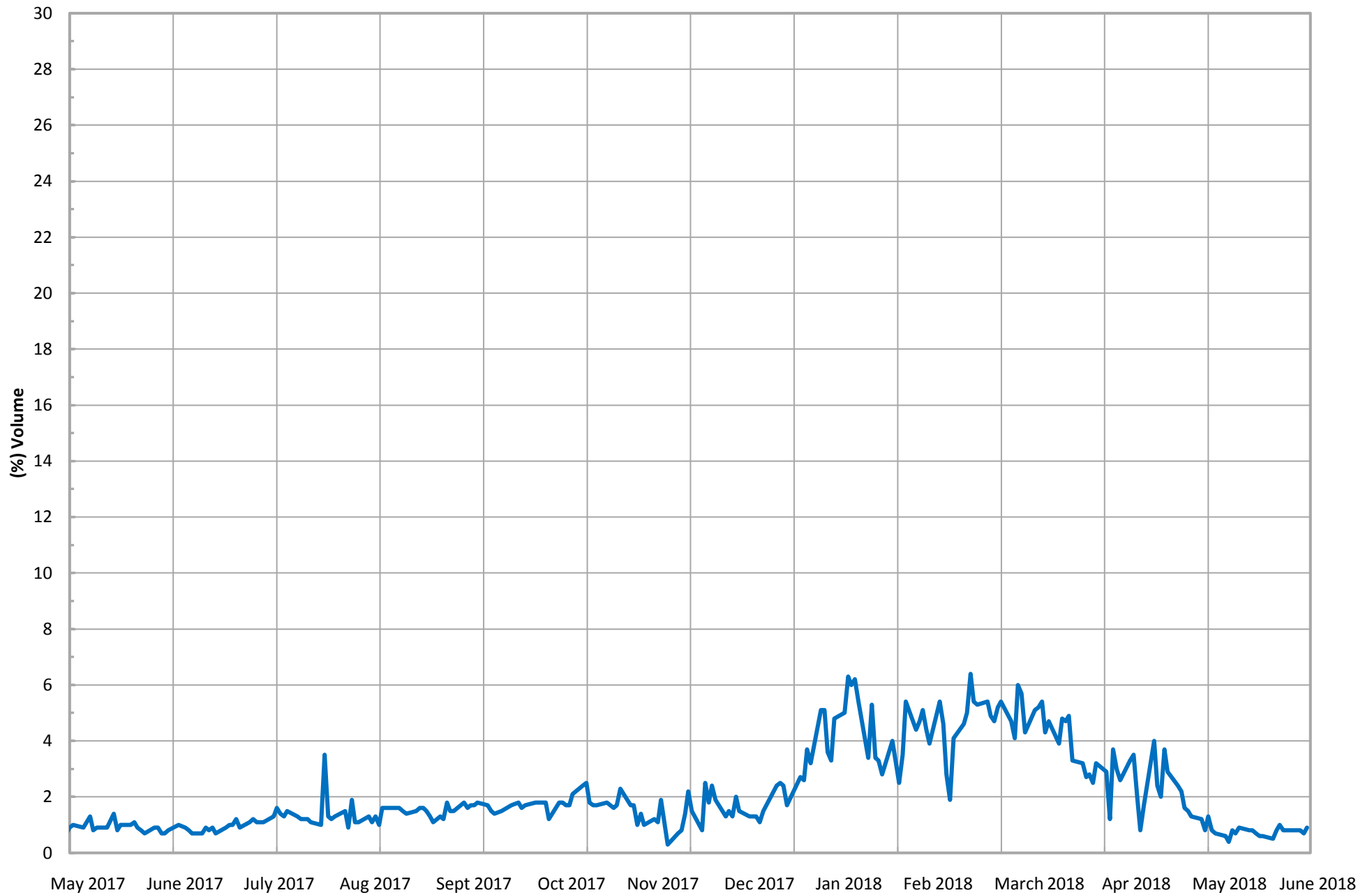


*Gas data collected from field monitoring data in the North Quarry.

— Combined Inlet Methane (Field Data)*

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North Quarry Inlet Oxygen (Field Data)*

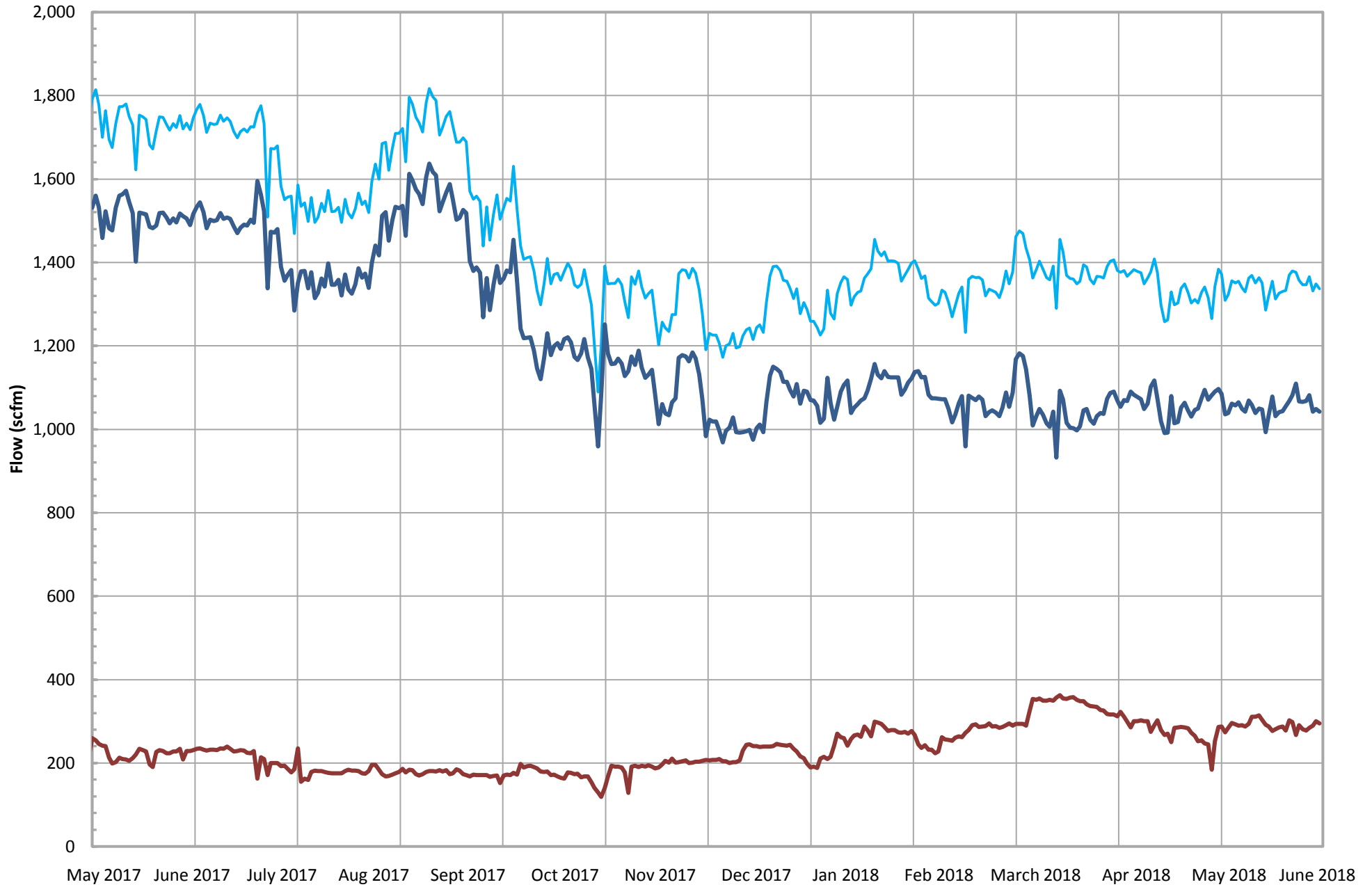


*Gas data collected from field monitoring data
in the North Quarry.

— Combined Inlet Oxygen (Field Data)*

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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.

— Total Combined Flow (scfm)*
— SQ Flare Station Total Utility Flare Flow
— NQ Utility Flare

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ATTACHMENT B-3

FLARE TRS / FLARE STATION FLOW

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)
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)
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	
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	04/04/17	NA	NA		

① per new MO ACP Air Construction Permit No. 201804-005, sampling frequency reduced to twice a month

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

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

Constants		
MW _{sulfur} =	32.06	g/g-mol
P =	1	atm
SO ₂ =	2	ratio of S to SO ₂
R =	8.21E-05	m ³ *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 Emissions 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)
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	
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	

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		

① per new MO ACP Air Construction Permit No. 201804-005, sampling frequency reduced to twice a month

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

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

Constants		
MW _{sulfur} =	32.06	g/g-mol
P =	1	atm
SO ₂ =	2	ratio of S to SO ₂
R =	8.21E-05	m ³ *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 Emissions from the combustion of landfill gas in all flares (EP-011, EP-012, EP-013, and EP-014).

Total Flow of all collected landfill gas, in units of dry standard cubic feet (DSCF) from the previous sampling date to the

Q_{LFG} = 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

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)
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-NG}

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

SO_{2-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

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)
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	● 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	

● This source newly constructed 04/17/2018

Per MO APCP Air Construction Permit No. 042018-005, Page 16, Attachment A, Equation SO₂-EmGen

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

SO₂-EmGen = Generator diesel engine SO₂ emissions, tons/period
MR = hour meter display, (hours)
SO₂ EF Per permit table, page 16

Emergency Generator	Emission Factor (ton SO ₂ /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	6/1/18
Start	Run Start Time	8:28
	Run Finish Time	9:28
	Net Traversing Points	8 (2 x 4)
⊖	Net Run Time, minutes	0:59:55
C _p	Pitot Tube Coeficient	0.99
P _{Br}	Barometric Pressure, inches of Mercury	29.40
% H ₂ O	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 ₂ O	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 ₂ O	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
①E _{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.			
①	TRS assumed moelcular mass = SO2, 64.06 gram/mole, i.e. 1 TRS in LFG assumed to = 1 SO2 emitted from the stack		

SQ Blower Outlet (pre diversion chamber)

6/1/2018

FleetZoom Flow Average = 1,040 scfm

KURZ FM Average = 1,022 scfm

The below based on final QA/QC lab fixed gas results

CALCULATED RESULTS		
$V_s =$	13.28	ft/sec
$Q_{dscfm} =$	991	ft ³ /min
$Q_{scfm} =$	1,035	ft ³ /min
$Q_{acfm} =$	1,078	ft ³ /min
$Q_{lb} =$	4,561	dry air flow rate lb/hr

CALCULATED VALUES

$A_s =$	1.35	ft ²
$P_s =$	30.40	in. Hg
%H ₂ O =	4.50	%
$M_d =$	29.57	lb/lb-mole
$M_s =$	29.05	lb/lb-mole

TEST VARIABLES

$C_p =$	0.99	[unitless]
$P_{br} =$	29.40	in Hg
$T_A =$	82.9	°F
Point ID =	15.75	inches
RH% ambient =	74.8	%

SOURCE GAS PARAMETERS

BWS	4.50	%
$P_g =$	13.6	in H ₂ O
$T_d =$	97.6	°F
$T_w =$	90.5	°F
$T_g =$	97.6	°F
RH% =	76.0	%

FIXED GAS RESULTS*

CH ₄ =	12.7	%
CO ₂ =	37.1	%
O ₂ =	6.2	%
N ₂ =	32.2	%
H ₂ =	10.4	%
CO =	0.0505	%

FIELD DATA

*based on final QA/QC lab results

Duration = 8:28 to 9:28

Average DP= 0.039 in H₂O

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
NO _x =	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		
1 lb =	453.5924	grams
1 Liter =	0.0353	ft ³
1 minute =	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 Atomic 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: NO_x 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 ₂ S	34.08088	grams/mole
Carboynl Sulfide	COS	60.0751	grams/mole
Methyl Mercaptan	CH ₄ S	48.10746	grams/mole
Ethyl Mercaptan	C ₂ H ₆ S	62.13404	grams/mole
Dimethyl Sulfide	(CH ₃) ₂ S	62.13404	grams/mole
Carbon Disulfide	CS ₂	76.1407	grams/mole
Dimethyl Disulfide	C ₂ H ₆ S ₂	94.19904	grams/mole

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

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

If pollutant/gas measured as a:

	%	ppm _{vd}
SO ₂ =	0.1663	1.663E-07 lb/ft ³ _{sd}
NO _x =	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 ³ _{sd}

		ppmvd
Hydrogen Sulfide	H ₂ S	8.84808E-08
Carboynl Sulfide	COS	1.55967E-07
Methyl Mercaptan	CH ₄ S	1.24897E-07
Ethyl Mercaptan	C ₂ H ₆ S	1.61312E-07
Dimethyl Sulfide	(CH ₃) ₂ S	1.61312E-07
Carbon Disulfide	CS ₂	1.97676E-07
Dimethyl Disulfide	C ₂ H ₆ S ₂	2.4456E-07

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

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

$$\text{Gas E } x = \frac{X \text{ compound } (\text{ppmvd})}{1,000,000} \times Q_{SD} \left[\frac{\text{ft}^3, \text{dry \& standard}}{\text{min}} \right] \times \frac{60 \text{ minutes}}{\text{hour}} \times X \text{ gas density} \left[\frac{\text{lbs}}{\text{ft}^3} \right]$$

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

$$V_s = 85.49 \times C_p \times \sqrt{\frac{(460 + t_s) \times \Delta P_{AVG}}{(P_s \times M_s)}}$$

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

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

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

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

- 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: CO₂ lb/hr determination from CO₂% measurement (for "dry" sample collection)

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

- 10) %H₂O - Moisture Content via wet-bulb-dry-bulb determination

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

t_{std} = standard temperature; 68 °F
t_s = stack temperature; in units of °F
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
ΔP_{avg} = stack average differential pressure; in inches of H ₂ O from pitot tube & manometer
P_{Br} = barometric pressure, inches of Hg
P_g = stack, static pressure, inches of H ₂ O
t_d = temperature, dry bulb; °F
t_{wet} = temperature, wet-bulb; °F
%H ₂ O = moisture content, % by volume

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 Coefficient	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 Crosssectional 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_{CH_4}	Methane, lb/hr	347.5
	Methane, grains/dscf	41.25
LFG_{CO_2}	Carbon Dioxide, lb/hr	2,630.8
	Carbon Dioxide, grains/dscf	312.32
LFG_{O_2}	Oxygen, lb/hr	271.9
	Oxygen, grains/dscf	32.27
LFG_{N_2}	Balance gas as Nitrogen, lb/hr	1,318.7
	Balance gas as Nitrogen, grains/dscf	156.55
LFG_{H_2}	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 ₂ O =	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	°F
Point ID =	15.75	inches
RH% ambient =	74.80	%

SOURCE LFG PARAMETERS

BWS	4.50	%
$P_g =$	13.6	in H ₂ O
$T_d =$	97.6	°F
$T_w =$	90.5	°F
$T_g =$	97.6	°F
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 H ₂ %
H ₂ =	10.5	% assumed based on historical
CO =	0.0030	% assumed based on historical

FIELD DATA

* based on field data

Duration = 8:28 to 9:28

Average DP= 0.039 in H₂O

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 Degrees 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
6/1/2018 9:38	113	8.01	1,022.09				1,039.95					
6/1/2018 9:48	114	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 9:58	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 10:08	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 10:18	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 10:28	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 10:38	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 10:48	113	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 10:58	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 11:08	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 11:18	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 11:28	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 11:38	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 11:48	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 11:58	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 12:08	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 12:18	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 12:28	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 12:38	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 12:48	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 12:58	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 13:08	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 13:18	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 13:28	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 13:38	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 13:48	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 13:58	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 14:08	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 14:18	106	7.98	1,121.32	117.45	0	1,212.43	1,242.15	121.03	0	23.99	-18.6	100

6/1/2018 14:19	105	7.98	1,112.48	116.7	0	1,256.21	1,241.34	123.12	0	23.99	-18.53	100
6/1/2018 14:29	105	7.98	1,124.86	115.58	0	1,258.45	1,260.34	121.47	0	23.99	-18.73	100
6/1/2018 14:39	108	7.98	1,117.43	118.57	0	1,211.23	1,259.13	118.64	0	23.99	-18.64	100
6/1/2018 14:49	110	7.98	1,110.72	109.39	0	1,257.70	1,262.16	116.55	0	23.96	-18.59	100
6/1/2018 14:59	111	7.98	1,143.59	110.36	0	1,219.66	1,376.30	115.43	0	23.96	-18.54	100
6/1/2018 15:09	112	7.98	1,137.94	107.6	0	1,309.09	1,307.33	115.58	0	23.96	-18.74	100
6/1/2018 15:19	114	7.98	1,137.05	103.27	0	1,334.98	1,301.26	110.29	0	23.96	-18.71	100
6/1/2018 15:29	114	7.98	1,133.16	101.48	0	1,245.62	1,288.13	109.54	0	23.96	-18.7	100
6/1/2018 15:39	114	7.98	1,116.55	100.44	0	1,294.92	1,273.38	105.44	0	23.96	-18.8	100
6/1/2018 15:49	114	7.98	1,113.90	98.2	0	1,313.64	1,345.37	103.8	0	23.96	-18.86	100
6/1/2018 15:59	113	7.98	1,132.63	99.17	0	1,342.58	1,272.16	104.76	0	23.96	-18.78	100
6/1/2018 16:09	113	7.98	1,135.46	103.42	0	1,321.33	1,293.79	108.35	0	23.96	-18.69	100
6/1/2018 16:19	113	7.98	1,141.29	106.11	0	1,335.20	1,295.51	109.24	0	23.96	-18.64	100
6/1/2018 16:29	114	7.98	1,122.74	104.09	0	1,295.59	1,289.85	108.57	0	23.96	-18.86	100
6/1/2018 16:39	114	7.98	1,138.11	104.39	0	1,281.20	1,305.61	109.02	0	23.96	-18.64	100
6/1/2018 16:49	114	7.98	1,139.53	106.33	0	1,295.82	1,299.55	111.93	0	23.96	-18.64	100
6/1/2018 16:59	114	7.98	1,133.52	103.87	0	1,279.63	1,300.05	111.78	0	23.96	-18.63	100
6/1/2018 17:09	113	7.98	1,124.86	104.69	0	1,263.97	1,299.65	110.81	0	23.96	-18.71	100
6/1/2018 17:19	113	7.98	1,134.05	103.27	0	1,288.06	1,314.40	109.24	0	23.96	-18.63	100
6/1/2018 17:29	114	7.98	1,132.63	104.47	0	1,337.21	1,295.91	110.43	0	23.96	-18.73	100
6/1/2018 17:39	114	7.98	1,134.05	102.6	0	1,311.33	1,302.28	109.09	0	23.96	-18.68	100
6/1/2018 17:49	114	7.98	1,126.62	101.33	0	1,336.91	1,297.43	106.33	0	23.96	-18.72	100
6/1/2018 17:59	113	7.98	1,116.37	99.32	0	1,284.55	1,297.22	104.09	0	23.96	-18.81	100
6/1/2018 18:10	112	7.98	1,112.66	96.26	0	1,293.80	1,284.79	101.33	0	23.96	-18.89	100
6/1/2018 18:20	111	7.98	1,114.78	97.31	0	1,275.75	1,280.15	101.41	0	23.96	-18.97	100
6/1/2018 18:30	110	7.95	1,127.68	98.2	0	1,318.57	1,287.52	102.53	0	23.99	-19.01	100
6/1/2018 18:40	109	7.95	1,120.79	98.13	0	1,294.77	1,290.96	103.05	0	23.99	-19.17	100
6/1/2018 18:50	108	7.95	1,135.64	98.2	0	1,265.01	1,293.99	104.17	0	23.99	-19.17	100
6/1/2018 19:00	108	7.95	1,128.57	99.24	0	1,300.59	1,298.74	103.72	0	23.99	-19.3	100
6/1/2018 19:10	107	7.95	1,123.62	98.27	0	1,283.43	1,294.39	102.9	0	23.99	-19.51	100
6/1/2018 19:20	107	7.95	1,135.99	97.31	0	1,292.24	1,295.71	101.56	0	23.99	-19.6	100
6/1/2018 19:30	106	7.95	1,127.15	96.41	0	1,302.16	1,285.10	100.89	0	23.99	-19.73	100
6/1/2018 19:40	106	7.95	1,132.10	96.41	0	1,289.70	1,287.62	99.69	0	23.99	-19.85	100
6/1/2018 19:50	105	7.95	1,120.26	96.34	0	1,265.91	1,279.74	100.96	0	23.99	-20.03	100
6/1/2018 20:00	105	7.95	1,120.44	95.37	0	1,335.72	1,280.04	99.47	0	23.99	-20.16	100
6/1/2018 20:10	104	7.95	1,112.66	93.35	0	1,313.64	1,265.09	97.83	0	23.99	-20.39	100
6/1/2018 20:20	103	7.95	1,120.79	91.41	0	1,321.62	1,277.22	95.14	0	23.99	-20.5	100
6/1/2018 20:30	102	7.95	1,062.29	90.37	0	1,303.28	1,197.29	93.65	0	23.99	-19.13	100
6/1/2018 20:40	101	7.95	1,075.19	90.22	0	1,348.85	1,212.54	91.93	0	23.99	-19.15	100
6/1/2018 20:50	100	7.95	1,063.88	89.4	0	1,351.68	1,198.30	91.26	0	23.99	-19.4	100
6/1/2018 21:00	100	7.95	1,077.31	88.35	0	1,312.23	1,214.26	90.59	0	23.99	-19.42	100
6/1/2018 21:10	99	7.95	1,078.02	88.5	0	1,217.27	1,213.45	90.67	0	23.99	-19.63	100
6/1/2018 21:20	99	7.95	1,090.04	87.09	0	1,304.10	1,213.15	89.99	0	23.99	-19.76	100
6/1/2018 21:30	98	7.95	1,088.80	86.26	0	1,314.46	1,203.75	89.17	0	23.99	-19.93	100
6/1/2018 21:40	98	7.95	1,083.67	86.34	0	1,297.31	1,191.02	88.2	0	23.99	-20.22	100
6/1/2018 21:50	97	7.95	1,086.33	86.34	0	1,292.39	1,204.76	88.35	0	23.99	-20.28	100
6/1/2018 22:00	97	7.95	1,079.26	85.22	0	1,253.90	1,187.08	87.38	0	23.99	-20.48	100
6/1/2018 22:10	96	7.95	1,082.08	85.15	0	1,201.09	1,202.95	87.38	0	23.99	-20.41	100
6/1/2018 22:20	96	7.95	1,078.37	84.1	0	1,212.50	1,203.15	86.49	0	23.99	-20.36	100
6/1/2018 22:30	96	7.95	1,078.20	84.25	0	1,223.61	1,182.74	86.94	0	23.99	-20.35	100
6/1/2018 22:40	95	7.95	1,082.97	84.4	0	1,211.31	1,182.33	87.16	0	23.99	-20.43	100
6/1/2018 22:50	95	7.95	1,072.01	84.4	0	1,219.74	1,170.10	86.94	0	23.99	-20.41	100
6/1/2018 23:00	95	7.95	1,075.37	84.25	0	1,186.47	1,178.19	86.41	0	23.99	-20.48	100
6/1/2018 23:10	95	7.95	1,052.04	83.36	0	1,219.89	1,154.04	85.67	0	23.99	-20.35	100
6/1/2018 23:20	94	7.95	1,076.78	83.36	0	1,195.42	1,171.12	85.37	0	23.99	-20.47	100
6/1/2018 23:30	94	7.95	1,050.27	83.36	0	1,203.10	1,141.71	85	0	23.99	-19.91	100
6/1/2018 23:40	94	7.95	1,057.87	83.58	0	1,221.38	1,136.15	86.12	0	24.02	-20.02	100
6/1/2018 23:50	94	7.95	1,059.46	83.36	0	1,251.06	1,144.44	86.26	0	23.99	-20.17	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	6/1/18
Start	Run Start Time	8:17
	Run Finish Time	9:17
	Net Traversing Points	8 (2 x 4)
Θ	Net Run Time, minutes	0:59:55
C_p	Pitot Tube Coefficient	0.99
P_{Br}	Barometric Pressure, inches of Mercury	29.59
% H_2O	Moisture Content of LFG, %	2.85
% RH	Relative Humidity, %	43.80
M_{fd}	Dry Mole Fraction	0.972
% CH_4	Methane, %	47.8
% CO_2	Carbon Dioxide, %	35.8
% O_2	Oxygen, %	2.5
% Balance	Assumed as Nitrogen, %	13.3
% H_2	Hydrogen, %	0.60
% CO	Carbon Monoxide, %	0.0032
M_d	Dry Molecular Weight, lb/lb-Mole	27.93
M_s	Wet Molecular weight, lb/lb-Mole	27.65
P_g	Flue Gas Static Pressure, inches of H_2O	1.50
P_s	Absolute Flue Gas Pressure, inches of Mercury	29.70
t_s	Average Stack Gas Temperature, °F	100
ΔP_{avg}	Average Velocity Head, inches of H_2O	0.022
v_s	Average LFG Velocity, feet/second	10.37
A_s	Stack Crosssectional Area, square feet	0.51
Q_{sd}	Dry Volumetric Flow Rate, dry scfm	290
Q_s	Standard Volumetric Flow Rate, scfm	298
Q_{aw}	Actual Wet Volumetric Flue Gas Flow Rate, acfm	319
$Q_{lb/hr}$	Dry Air Flow Rate at Standard Conditions, lb/hr	1,262
NHV	Net Heating Value, Btu/scf	434.4
LFG_{CH_4}	Methane, lb/hr	346.6
	Methane, grains/dscf	139.36
LFG_{CO_2}	Carbon Dioxide, lb/hr	712.2
	Carbon Dioxide, grains/dscf	286.33
LFG_{O_2}	Oxygen, lb/hr	35.4
	Oxygen, grains/dscf	14.25
LFG_{N_2}	Balance gas as Nitrogen, lb/hr	167.8
	Balance gas as Nitrogen, grains/dscf	67.46
LFG_{H_2}	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
① E_{TRS-SO_2}	TRS-->SO2 Emission Concentration, ppm	58	46
	TRS-->SO2 Emission Rate, lb/hr	0.17	0.13
	TRS-->SO2 Emission Rate, grains/dscf	0.068	0.054

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

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

EP14 NQ Blower Outlet (pre flame arrestor - header)

FleetZoom Data Flow Average = scfm

6/1/2018

The below based on final QA/QC lab fixed gas results

CALCULATED RESULTS		
$V_s =$	10.37	ft/sec
$Q_{dscfm} =$	290	ft ³ /min
$Q_{scfm} =$	298	ft ³ /min
$Q_{acfm} =$	319	ft ³ /min
$Q_{lb} =$	1,262	dry air flow rate lb/hr

CALCULATED VALUES

$A_s =$	0.51	ft ²
$P_s =$	29.70	in. Hg
%H ₂ O =	2.85	%
$M_d =$	27.93	lb/lb-mole
$M_s =$	27.65	lb/lb-mole

TEST VARIABLES

$C_p =$	0.99	[unitless]
$P_{br} =$	29.59	in Hg
$T_A =$	69.6	°F
Point ID =	9.70	inches
RH% ambient =	37.2	%

SOURCE LFG PARAMETERS

BWS	2.85	%
$P_g =$	1.5	in H ₂ O
$T_d =$	100.2	°F
$T_w =$	80.4	°F
$T_g =$	100.2	°F
RH% =	43.8	%

FIXED GAS RESULTS*

CH ₄ =	47.8	%
CO ₂ =	35.8	%
O ₂ =	2.5	%
N ₂ =	13.3	%
H ₂ =	0.60	%
CO =	0.0032	%

FIELD DATA

Duration = to

Average DP = in H₂O

*based on final QA/QC lab results

Friday, June 01, 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	8:17	9:17	298	299	-0.4%

**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	6/1/18
Start	Run Start Time	8:17
	Run Finish Time	9:17
	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	29.45
% H_2O	Moisture Content of LFG, %	2.87
% RH	Relative Humidity, %	43.80
M_{fd}	Dry Mole Fraction	0.971
% CH_4	Methane, %	51.0
% CO_2	Carbon Dioxide, %	36.7
% O_2	Oxygen, %	1.0
% Balance	Assumed as Nitrogen, %	11.7
% H_2	Hydrogen, %	0.0
% CO	Carbon Monoxide, %	0.000
M_d	Dry Molecular Weight, lb/lb-Mole	27.91
M_s	Wet Molecular weight, lb/lb-Mole	27.62
P_g	Flue Gas Static Pressure, inches of H_2O	1.50
P_s	Absolute Flue Gas Pressure, inches of Mercury	29.55
t_s	Average Stack Gas Temperature, °F	100
ΔP_{avg}	Average Velocity Head, inches of H_2O	0.022
v_s	Average LFG Velocity, feet/second	10.40
A_s	Stack Crossectional Area, square feet	0.51
Q_{sd}	Dry Volumetric Flow Rate, dry scfm	290
Q_s	Standard Volumetric Flow Rate, scfm	298
Q_{aw}	Actual Wet Volumetric Flue Gas Flow Rate, acfm	320
$Q_{lb/hr}$	Dry Air Flow Rate at Standard Conditions, lb/hr	1,258
LFG_{CH_4}	Methane, lb/hr	369.0
	Methane, grains/dscf	148.69
LFG_{CO_2}	Carbon Dioxide, lb/hr	727.5
	Carbon Dioxide, grains/dscf	293.13
LFG_{O_2}	Oxygen, lb/hr	14.4
	Oxygen, grains/dscf	5.82
LFG_{N_2}	Balance gas as Nitrogen, lb/hr	147.8
	Balance gas as Nitrogen, grains/dscf	59.56
LFG_{H_2}	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 = **299** scfm

6/1/2018

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

CALCULATED RESULTS		
$V_s =$	10.40	ft/sec
$Q_{dscfm} =$	290	ft ³ /min
$Q_{scfm} =$	298	ft ³ /min
$Q_{acfm} =$	320	ft ³ /min
$Q_{lb} =$	1,258	dry air flow rate lb/hr

CALCULATED VALUES

$A_s =$	0.51	ft ²
$P_s =$	29.55	in. Hg
%H ₂ O =	2.87	%
$M_d =$	27.91	lb/lb-mole
$M_s =$	27.62	lb/lb-mole

TEST VARIABLES

$C_p =$	0.99	[unitless]
$P_{br} =$	29.45	in Hg
$T_A =$	86.9	°F
Point ID =	9.70	inches
RH% ambient =	61.6	%

SOURCE LFG PARAMETERS

BWS	2.87	%
$P_g =$	1.5	in H ₂ O
$T_d =$	100.2	°F
$T_w =$	80.4	°F
$T_g =$	100.2	°F
RH% =	43.8	%

FIXED GAS RESULTS*

CH ₄ =	51.0	%
CO ₂ =	36.65	%
O ₂ =	1.00	%
N ₂ =	11.70	% field balance subtracting H ₂ %
H ₂ =	0.0	% assumed based on historical
CO =	0.000	% assumed based on historical

FIELD DATA

* based on field data

Duration = **8:17** to **9:17**

Average DP = **0.022** in H₂O

Device: Bridgeton Auxiliary Flare
ESN: FXA-1212
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	Flare Flow (2500) scfm	Flare Temperature F	Main Power Volts	Signal Strength %
6/1/2018 0:02	84	7.98	285.18	793.14	24.15	68
6/1/2018 0:12	83	7.98	286.5	809.47	24.15	68
6/1/2018 0:22	83	7.98	284.61	929.47	24.15	68
6/1/2018 0:32	82	7.98	285.43	1,071.82	24.15	68
6/1/2018 0:42	82	7.98	285.49	1,024.78	24.15	68
6/1/2018 0:52	82	7.98	285.24	990.7	24.15	68
6/1/2018 1:02	82	7.98	283.09	947.3	24.15	68
6/1/2018 1:12	82	7.98	281.64	862.52	24.15	68
6/1/2018 1:22	81	7.98	283.98	1,100.25	24.15	68
6/1/2018 1:32	81	7.98	283.47	1,067.74	24.15	68
6/1/2018 1:42	81	7.98	283.98	884.58	24.15	68
6/1/2018 1:52	81	7.98	283.09	931.26	24.15	68
6/1/2018 2:02	81	7.98	282.65	900.83	24.15	68
6/1/2018 2:12	80	7.98	282.21	803.67	24.15	68
6/1/2018 2:22	80	7.98	278.98	776.81	24.15	68
6/1/2018 2:32	80	7.98	285.74	824.14	24.15	68
6/1/2018 2:42	80	7.98	273.43	756.48	24.15	68
6/1/2018 2:52	79	7.95	289.22	783.11	24.15	68
6/1/2018 3:03	79	7.98	277.41	852.86	24.15	68
6/1/2018 3:13	79	7.98	286.31	1,012.82	24.15	68
6/1/2018 3:23	79	7.98	280.75	1,011.53	24.15	68
6/1/2018 3:33	79	7.95	276.46	886.94	24.15	68
6/1/2018 3:43	79	7.95	281.26	958.62	24.15	68
6/1/2018 3:53	79	7.95	275.57	991.63	24.15	68
6/1/2018 4:03	79	7.95	277.78	1,058.29	24.15	68
6/1/2018 4:13	79	7.98	282.65	979.6	24.15	68
6/1/2018 4:23	79	7.95	278.23	953.89	24.15	68
6/1/2018 4:33	79	7.95	282.4	995.28	24.15	68
6/1/2018 4:43	78	7.95	277.34	876.85	24.15	68
6/1/2018 4:53	78	7.95	278.98	973.87	24.15	68
6/1/2018 5:03	78	7.95	278.61	1,086.07	24.15	68
6/1/2018 5:13	78	7.95	276.27	1,053.42	24.15	65
6/1/2018 5:23	78	7.95	279.3	1,045.55	24.15	65
6/1/2018 5:33	78	7.95	279.62	1,075.19	24.15	65
6/1/2018 5:43	78	7.95	281.45	1,039.53	24.15	65
6/1/2018 5:53	77	7.95	279.87	1,103.04	24.15	65
6/1/2018 6:03	78	7.95	279.24	1,121.10	24.15	65
6/1/2018 6:13	78	7.95	279.11	1,095.38	24.15	71
6/1/2018 6:23	78	7.95	281.64	1,060.15	24.15	71
6/1/2018 6:33	78	7.95	281.51	1,104.83	24.15	71
6/1/2018 6:43	81	7.95	283.6	1,113.70	24.15	68
6/1/2018 6:53	84	7.95	282.02	1,163.08	24.15	68
6/1/2018 7:03	87	7.95	285.11	1,094.74	24.15	68
6/1/2018 7:13	90	7.95	288.15	1,137.82	24.15	68
6/1/2018 7:23	92	7.95	286.5	1,054.64	24.15	68
6/1/2018 7:33	94	7.95	286.88	1,041.25	24.18	71
6/1/2018 7:43	97	7.95	291.05	1,114.06	24.18	68
6/1/2018 7:53	99	7.95	292.38	1,050.84	24.18	68
6/1/2018 8:03	101	7.95	290.48	1,156.74	24.18	65
6/1/2018 8:13	103	7.95	301.85	1,108.13	24.18	68
6/1/2018 8:23	105	7.95	294.84	1,023.85	24.18	68
6/1/2018 8:33	107	7.95	293.96	1,075.98	24.18	68

6/1/2018 8:43	109	7.98	304.32	1,077.77	24.18	68
6/1/2018 8:53	111	7.95	298.25	1,086.93	24.18	68
6/1/2018 9:03	112	7.95	302.8	1,096.60	24.18	68
6/1/2018 9:13	114	7.95	297.37	974.94	24.21	68
			299.055714			
6/1/2018 9:23	116	7.95	311.96	999.79	24.21	61
6/1/2018 9:34	118	7.95	312.22	1,066.53	24.21	68
6/1/2018 9:44	120	7.95	299.52	1,058.15	24.21	68
6/1/2018 9:54	121	7.95	312.53	1,049.84	24.21	68
6/1/2018 10:04	122	7.95	317.4	1,075.62	24.21	68
6/1/2018 10:14	123	7.95	322.77	1,027.29	24.21	68
6/1/2018 10:24	124	7.95	306.78	997.86	24.21	68
6/1/2018 10:34	124	7.95	319.1	1,091.73	24.21	68
6/1/2018 10:44	125	7.95	307.1	1,049.77	24.21	68
6/1/2018 10:54	126	7.95	324.97	946.37	24.21	68
6/1/2018 11:04	126	7.95	315.75	999.5	24.21	68
6/1/2018 11:14	126	7.95	323.33	1,172.25	24.21	68
6/1/2018 11:24	127	7.95	315.12	1,034.88	24.21	68
6/1/2018 11:34	127	7.95	331.07	1,147.42	24.21	68
6/1/2018 11:44	127	7.95	323.84	1,017.19	24.21	68
6/1/2018 11:54	127	7.95	323.97	1,035.81	24.21	68
6/1/2018 12:04	123	7.95	317.02	1,004.09	24.21	68
6/1/2018 12:14	118	7.95	325.1	899.97	24.21	68
6/1/2018 12:24	114	7.95	311.96	1,043.25	24.21	68
6/1/2018 12:34	111	7.95	312.85	952.46	24.21	68
6/1/2018 12:44	108	7.95	313.54	935.49	24.18	68
6/1/2018 12:54	109	7.95	315.31	1,035.81	24.21	68
6/1/2018 13:04	110	7.95	326.04	975.37	24.21	68
6/1/2018 13:14	116	7.95	328.43	1,015.83	24.21	68
6/1/2018 13:24	120	7.95	329.94	1,154.68	24.21	68
6/1/2018 13:34	121	7.95	320.18	1,151.19	24.21	68
6/1/2018 13:44	117	7.95	322.77	1,104.26	24.21	68
6/1/2018 13:54	118	7.95	331.01	1,047.05	24.21	68
6/1/2018 14:04	120	7.95	327.36	1,149.13	24.21	68
6/1/2018 14:14	120	7.95	329.69	994.63	24.21	65
6/1/2018 14:24	121	7.95	332.33	957.47	24.21	65
6/1/2018 14:34	121	7.95	328.62	999.86	24.21	65
6/1/2018 14:44	121	7.91	335.91	1,043.54	24.21	65
6/1/2018 14:54	121	7.91	333.4	1,021.06	24.21	65
6/1/2018 15:04	121	7.91	347.48	990.12	24.21	65
6/1/2018 15:14	120	7.91	323.84	1,175.31	24.21	65
6/1/2018 15:24	119	7.91	334.59	1,044.26	24.21	65
6/1/2018 15:34	117	7.91	322.39	1,011.53	24.21	65
6/1/2018 15:44	114	7.91	320.55	1,003.37	24.21	65
6/1/2018 15:54	112	7.91	299.83	941.36	24.21	65
6/1/2018 16:05	112	7.91	334.53	1,021.63	24.21	65
6/1/2018 16:15	114	7.91	325.41	1,015.90	24.21	65
6/1/2018 16:25	116	7.91	331.95	1,007.81	24.21	65
6/1/2018 16:35	117	7.91	335.22	1,104.55	24.21	65
6/1/2018 16:45	118	7.91	325.35	1,071.75	24.21	65
6/1/2018 16:55	117	7.91	342.77	1,174.89	24.21	65
6/1/2018 17:05	118	7.91	329.25	1,105.48	24.21	65
6/1/2018 17:15	117	7.91	339.06	1,039.96	24.21	65
6/1/2018 17:25	116	7.91	327.55	1,078.34	24.21	65
6/1/2018 17:35	116	7.91	335.41	1,013.25	24.21	65
6/1/2018 17:45	116	7.91	329.75	1,168.84	24.21	65
6/1/2018 17:55	115	7.91	329.44	1,017.91	24.21	65
6/1/2018 18:05	113	7.91	313.29	1,143.94	24.21	65
6/1/2018 18:15	110	7.91	318.15	1,034.66	24.21	65
6/1/2018 18:25	109	7.91	321.75	1,150.98	24.21	65
6/1/2018 18:35	109	7.91	319.54	1,209.75	24.18	65
6/1/2018 18:45	108	7.91	318.72	1,042.04	24.18	65
6/1/2018 18:55	108	7.91	320.74	1,008.17	24.18	65
6/1/2018 19:05	108	7.91	317.65	1,091.52	24.18	65

6/1/2018 19:15	108	7.91	318.6	1,044.40	24.18	65
6/1/2018 19:25	108	7.91	318.09	1,013.40	24.18	65
6/1/2018 19:35	107	7.91	316.01	1,064.95	24.18	65
6/1/2018 19:45	106	7.91	313.16	982.96	24.18	65
6/1/2018 19:55	105	7.91	309.06	1,054.21	24.18	65
6/1/2018 20:05	103	7.91	305.77	1,207.83	24.18	65
6/1/2018 20:15	102	7.91	302.17	1,113.98	24.18	65
6/1/2018 20:25	100	7.91	301.48	1,225.83	24.18	65
6/1/2018 20:35	99	7.91	305.01	1,201.07	24.18	65
6/1/2018 20:45	97	7.91	303.62	1,252.30	24.18	65
6/1/2018 20:55	96	7.91	300.59	1,008.60	24.18	65
6/1/2018 21:05	95	7.91	296.36	969.07	24.18	65
6/1/2018 21:15	94	7.91	298.89	948.88	24.18	65
6/1/2018 21:25	93	7.91	295.35	1,184.56	24.18	65
6/1/2018 21:35	92	7.88	293.77	969.86	24.18	65
6/1/2018 21:45	91	7.88	291.68	1,123.73	24.18	65
6/1/2018 21:55	91	7.88	294.53	938.14	24.18	65
6/1/2018 22:05	90	7.88	292.95	923.67	24.18	65
6/1/2018 22:15	90	7.88	290.93	840.76	24.18	65
6/1/2018 22:25	90	7.88	287.83	861.45	24.18	65
6/1/2018 22:35	89	7.88	289.91	892.03	24.18	65
6/1/2018 22:46	89	7.88	289.91	893.82	24.18	65
6/1/2018 22:56	89	7.88	289.98	836.46	24.18	65
6/1/2018 23:06	88	7.88	287.39	792.85	24.15	65
6/1/2018 23:16	88	7.88	291.3	815.77	24.18	65
6/1/2018 23:26	88	7.88	290.17	795.72	24.15	65
6/1/2018 23:36	87	7.88	289.03	953.96	24.18	65
6/1/2018 23:46	87	7.88	291.05	909.64	24.18	65
6/1/2018 23:56	87	7.88	291.05	1,109.99	24.18	65



June 7, 2018

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



LA Cert #04140
EPA Methods TO3, TO14A, TO15, 25C/3C,
RSK-175

TX Cert T104704450-14-6
EPA Methods TO14A, TO15

UT Cert CA013332015-3
EPA Methods TO3, TO14A, TO15, RSK-175

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,

A handwritten signature in blue ink, appearing to read "Mark Johnson", is written over a horizontal line.

Mark Johnson
Operations Manager
MJohnson@AirTechLabs.com

Enclosures

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

AIR TECHNOLOGY Laboratories, Inc.		CHAIN OF CUSTODY RECORD																																																																	
		TURNAROUND TIME Standard ☐ 48 hours ☒ 72 hours ☐ 96 hours Same Day ☐ 24 hours ☐ Other: _____ Condition upon receipt: Sealed ☐ Yes ☐ No ☐ Intact ☐ Yes ☐ No ☐ Chilled _____ deg C					DELIVERABLES EDD ☒ EDF ☐ Level 3 ☐ Level 4 ☐					PAGE: 1 OF 1																																																							
Project No.: _____ Project Name: _____ Report To: _____ Company: _____ Street: _____ City/State/Zip: _____ Phone & Fax: _____ e-mail: _____																																																																			
Billing Information: P.O. No.: 6605567 Bill to: Republic Services Attn: Mike Lambrich 13570 St. Charles Rock Rd. Bridgeton, MO 63044																																																																			
ANALYSIS REQUEST																																																																			
LAB USE ONLY J060402-01 02 03 04		Canister Pressures ("hg) <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>Canister ID</th> <th>Sample Start</th> <th>Sample End</th> <th>Lab Receive</th> </tr> <tr> <td>7131</td> <td>-19.61</td> <td>-3.96</td> <td>-5</td> </tr> <tr> <td>5947</td> <td>-19.67</td> <td>-3.98</td> <td>-5</td> </tr> <tr> <td>1302</td> <td>-19.68</td> <td>-3.99</td> <td>-5</td> </tr> <tr> <td>1297</td> <td>-19.65</td> <td>-4.01</td> <td>-6</td> </tr> </table>		Canister ID	Sample Start	Sample End	Lab Receive	7131	-19.61	-3.96	-5	5947	-19.67	-3.98	-5	1302	-19.68	-3.99	-5	1297	-19.65	-4.01	-6	SAMPLE IDENTIFICATION <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th>SAMPLE DATE</th> <th>SAMPLE TIME</th> <th>CONTAINER QTY/TYPE</th> <th>MATRIX</th> <th>PRESERVATION</th> </tr> <tr> <td>6/1/2018</td> <td>8:17</td> <td>C-6L</td> <td>LFG</td> <td>He</td> </tr> <tr> <td>6/1/2018</td> <td>8:45</td> <td>C-6L</td> <td>LFG</td> <td>He</td> </tr> <tr> <td>6/1/2018</td> <td>8:31</td> <td>C-6L</td> <td>LFG</td> <td>He</td> </tr> <tr> <td>6/1/2018</td> <td>8:55</td> <td>C-6L</td> <td>LFG</td> <td>He</td> </tr> </table>		SAMPLE DATE	SAMPLE TIME	CONTAINER QTY/TYPE	MATRIX	PRESERVATION	6/1/2018	8:17	C-6L	LFG	He	6/1/2018	8:45	C-6L	LFG	He	6/1/2018	8:31	C-6L	LFG	He	6/1/2018	8:55	C-6L	LFG	He	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>ASTM D5504-12</td> <td>ASTM 1946 + H2 + CO & Btu/SCF</td> <td>ASTM 1946 + H2 + CO & Btu/SCF (by CH4 only)</td> </tr> <tr> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>X</td> <td>X</td> <td>X</td> </tr> <tr> <td>X</td> <td>X</td> <td>X</td> </tr> </table>		ASTM D5504-12	ASTM 1946 + H2 + CO & Btu/SCF	ASTM 1946 + H2 + CO & Btu/SCF (by CH4 only)	X	X	X	X	X	X	X	X	X	X	X	X
				Canister ID	Sample Start	Sample End	Lab Receive																																																												
7131	-19.61	-3.96	-5																																																																
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6/1/2018	8:17	C-6L	LFG	He																																																															
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6/1/2018	8:55	C-6L	LFG	He																																																															
ASTM D5504-12	ASTM 1946 + H2 + CO & Btu/SCF	ASTM 1946 + H2 + CO & Btu/SCF (by CH4 only)																																																																	
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COMMENTS	
AUTHORIZATION TO PERFORM WORK: Dave Penoyer COMPANY: Republic Services DATE/TIME: 6/6/18	
SAMPLED BY: AK/DAR DATE/TIME: 6/6/18	
RELINQUISHED BY: [Signature] DATE/TIME: 6/6/18	
RELINQUISHED BY: [Signature] DATE/TIME: 6/6/18	
RELINQUISHED BY: [Signature] DATE/TIME: 6/6/18	
METHOD OF TRANSPORT (circle one): Walk-in ☒ FedEx ☐ UPS ☐ Courier ☐ ATLI ☐ Other _____	

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: _____


 Mark Johnson
 Operations Manager

Date _____

6/6/18

The cover letter is an integral part of this analytical report

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: _____

Mark J. Johnson
Operations Manager

Date: _____

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

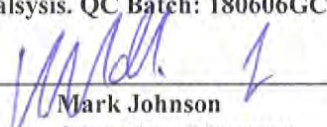
BTU values based on D1946 analysis methane only

ND = Not Detected (below RL)

RL = Reporting Limit

d = Reported from a secondary analysis. QC Batch: 180606GC8A1

Reviewed/Approved By: _____


 Mark Johnson
 Operations Manager

Date 6/6/18

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.:	J060402-03	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

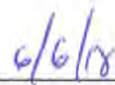
ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: _____


Mark Johnson
Operations Manager

Date _____



The cover letter is an integral part of this analytical report



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					
ANALYTE	Result % v/v	RL % v/v	SPIKE AMT. % v/v	Result % v/v	% Rec.	Result % v/v	% Rec.	RPD %	Limits		
									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: Mark Johnson
 Operations Manager

Date: 6/6/18

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 # 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

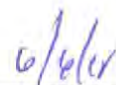
ND = Not Detected (Below RL)

RL = PQL X Dilution Factor

Reviewed/Approved By:


Mark Johnson
Operations Manager

Date:



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



SQ GCCS Blower Outlet (pre diversion chamber)

Flare FM Flow Average = **992** scfm

Blower Outlet KURZ FM Average = **997** scfm

$\Delta = 0.5\%$

PARAMETER		Blower Outlet A	Blower Outlet B
SOUTH QUARRY GCCS LFG - BLOWER OUTLET (EP-012/FL120 Operating Solo)			
Date	Test Date	5/15/18	5/15/18
Time	Start	8:45	9:12
*%CH ₄	Methane, %	14.9	16.1
*%CO ₂	Carbon Dioxide, %	40.8	40.0
*%O ₂	Oxygen, %	5.3	5.5
*%Balance	Assumed as Nitrogen, %	39.0	38.4
P _{br}	Ambient, Atmospheric Pressure, inches of Hg	29.51	29.51
P _g	Flue Gas Static Pressure, inches of H ₂ O	14.21	14.39
P _s	Flue Gas Static Absolute Pressure, inches of Hg	30.55	30.57
t _d	Blower Outlet LFG Temperature, °F	87.6	92.5
t _w	Blower Outlet LFG Wet Bulb Temperature, °F	77.7	84.6
%H ₂ O	LFG Moisture Content (calculated wet bulb-dry bulb), %	3.20	
Q _s	Kurz Blower Outlet, Standard Volumetric Flow Rate, scfm	997	
Q _{sd}	Dry Volumetric Flow Rate, dscfm	965	
LFG _{CH4}	Methane, lb/hr	371.2	401.1
	Methane, grains/dscf	43.44	46.94
LFG _{CO2}	Carbon Dioxide, lb/hr	2,788.5	2,733.8
	Carbon Dioxide, grains/dscf	326.32	319.92
LFG _{O2}	Oxygen, lb/hr	263.4	273.3
	Oxygen, grains/dscf	30.82	31.98
LFG _{N2}	Balance gas as Nitrogen, lb/hr	1,696.7	1,670.6
	Balance gas as Nitrogen, grains/dscf	198.55	195.49
<i>* Fixed gas results based on field parameter data collection at the time of sampling, via Envirovision Landfill Gas Analyzer</i>			
		Blower Outlet A	Blower Outlet B
① E _{TRS-SO2}	TRS-->SO2 Emission Concentration, ppmv	1,900	1,900
	TRS-->SO2 Emission Rate, lb/hr	18.90	18.90
	TRS-->SO2 Emission Rate, grains/dscf	2.212	2.212
TPY =		82.80	82.80
① TRS assumed molecular mass = SO ₂ , 64.06 gram/mole, i.e. 1 TRS in LFG assumed to = 1 SO ₂ emitted from the stack			

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

Flare FM Flow Average = 287 scfm

PARAMETER		NQ EP14A	NQ EP14B
EP14 NORTH QUARRY FLARE (OPERATING SOLO, NQ LFG Only)			
Date	Test Date	5/15/18	5/15/18
Time	Start	8:20	8:50
*%CH ₄	Methane, %	51.5	49.7
*%CO ₂	Carbon Dioxide, %	36.1	38.2
*%O ₂	Oxygen, %	0.9	0.8
*%Balance	Assumed as Nitrogen, %	11.3	11.3
P _{br}	Ambient, Atmospheric Pressure, inches of Hg	29.51	29.54
P _g	Flue Gas Static Pressure, inches of H ₂ O	0.93	0.94
P _s	Flue Gas Static Absolute Pressure, inches of Hg	29.58	29.61
t _d	Blower Outlet LFG Temperature, °F	74.9	93.1
t _w	Blower Outlet LFG Wet Bulb Temperature, °F	66.7	74.3
%H ₂ O	LFG Moisture Content (calculated wet bulb-dry bulb), %	2.09	
Q _s	Flare Flow Meter, Standard Volumetric Flow Rate, scfm	287	
Q _{sd}	Dry Volumetric Flow Rate, dscfm	281	
LFG _{CH4}	Methane, lb/hr	369.2	356.3
	Methane, grains/dscf	150.15	144.90
LFG _{CO2}	Carbon Dioxide, lb/hr	709.9	751.2
	Carbon Dioxide, grains/dscf	288.73	305.52
LFG _{O2}	Oxygen, lb/hr	12.9	11.4
	Oxygen, grains/dscf	5.23	4.65
LFG _{N2}	Balance gas as Nitrogen, lb/hr	141.5	141.5
	Balance gas as Nitrogen, grains/dscf	57.53	57.53
* Fixed gas results based on field parameter data collection at the time of sampling, via Envirovision Landfill Gas Analyzer			
		NQ EP14A	NQ EP14B
① E _{TRS-SO2}	TRS-->SO2 Emission Concentration, ppmv	67	63
	TRS-->SO2 Emission Rate, lb/hr	0.19	0.18
	TRS-->SO2 Emission Rate, grains/dscf	0.078	0.073
TPY =		0.84	0.79
① TRS assumed molecular mass = SO2, 64.06 gram/mole, i.e. 1 TRS in LFG assumed to = 1 SO2 emitted from the stack			



May 22, 2018

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



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

LABORATORY TEST RESULTS

Project Reference: Bridgeton Landfill
Lab Number: J051602-01/04

Enclosed are results for sample(s) received 5/16/18 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 5/21/18.

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,

A handwritten signature in blue ink, appearing to read "Mark Johnson".

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 ☐					Condition upon receipt: Sealed Yes ☐ No ☐ Intact Yes ☐ No ☐ Chilled ☐ deg C ☐																						
Project No.: Project Name: Report To: Company: Street: City/State/Zip: Phone& Fax: e-mail:		BILLING																																
		P.O. No.: 6605567-7292902 90 Bill to: Republic Services 57604 Attn: Mike Lambrich 13570 St. Charles Rock Rd. Bridgeton, MO 63044																																
LAB USE ONLY J051602-01 -02 -03 -04		SAMPLE IDENTIFICATION																																
		<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Canister ID</th> <th>Sample Start</th> <th>Sample End</th> <th>Lab Receive</th> </tr> </thead> <tbody> <tr> <td>5987</td> <td>-20.01</td> <td>-3.96</td> <td>-5</td> </tr> <tr> <td>6058</td> <td>-19.81</td> <td>-3.92</td> <td>-5</td> </tr> <tr> <td>1304</td> <td>-20.05</td> <td>-3.99</td> <td>-5</td> </tr> <tr> <td>6048</td> <td>-19.91</td> <td>-3.99</td> <td>-5</td> </tr> </tbody> </table>										Canister ID	Sample Start	Sample End	Lab Receive	5987	-20.01	-3.96	-5	6058	-19.81	-3.92	-5	1304	-20.05	-3.99	-5	6048	-19.91	-3.99	-5			
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LAB USE ONLY		COMMENTS																																
		AUTHORIZATION TO PERFORM WORK: Dave Penoyer SAMPLED BY: AK/DAR RELINQUISHED BY: [Signature] RELINQUISHED BY: [Signature] RELINQUISHED BY: [Signature]																																
METHOD OF TRANSPORT (circle one): Walk-in / FedEx / UPS / Courier / ATLI / Other		COMPANY: Republic Services DATE/TIME: 5/15/18 DATE/RECEIVED BY: 5/15/18 DATE/RECEIVED BY: 5/16/18 1108 DATE/RECEIVED BY: 5/16/18 1108																																
		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: 05/16/18
 Matrix: Air
 Reporting Units: ppmv

ASTM D5504

Lab No.:	J051602-01		J051602-02		J051602-03		J051602-04	
Client Sample I.D.:	EP-14 NQ A		EP-14 NQ B		Blower Outlet A		Blower Outlet B	
Date/Time Sampled:	5/15/18 8:20		5/15/18 8:50		5/15/18 8:45		5/15/18 9:12	
Date/Time Analyzed:	5/16/18 15:09		5/16/18 15:22		5/16/18 15:36		5/16/18 15:50	
QC Batch No.:	180516GC3A1		180516GC3A1		180516GC3A1		180516GC3A1	
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	45 d	6.3	44 d	6.3	32	0.63	25	0.63
Carbonyl Sulfide	ND	0.63	ND	0.63	ND	0.63	ND	0.63
Methyl Mercaptan	4.7	0.63	4.7	0.63	270 d	63	250 d	63
Ethyl Mercaptan	ND	0.63	ND	0.63	2.8	0.63	2.7	0.63
Dimethyl Sulfide	15	0.63	14	0.63	1,300 d	63	1,300 d	63
Carbon Disulfide	ND	0.63	ND	0.63	0.89	0.63	0.91	0.63
Isopropyl Mercaptan	ND	0.63	ND	0.63	1.3	0.63	1.3	0.63
t-Butylmercaptan	ND	0.63	ND	0.63	ND	0.63	ND	0.63
n-Propyl Mercaptan	ND	0.63	ND	0.63	ND	0.63	ND	0.63
Ethyl Methyl Sulfide	ND	0.63	ND	0.63	7.3	0.63	7.6	0.63
Thiophene	ND	0.63	ND	0.63	15	0.63	16	0.63
Isobutyl Mercaptan	ND	0.63	ND	0.63	ND	0.63	ND	0.63
Diethyl Sulfide	ND	0.63	ND	0.63	0.88	0.63	1.0	0.63
n-Butyl Mercaptan	ND	0.63	ND	0.63	2.7	0.63	2.8	0.63
Dimethyl Disulfide	ND	0.63	ND	0.63	100 d	63	110 d	63
3-Methylthiophene	ND	0.63	ND	0.63	ND	0.63	ND	0.63
Tetrahydrothiophene	ND	0.63	ND	0.63	10	0.63	11	0.63
2-Ethylthiophene	ND	0.63	ND	0.63	2.2	0.63	2.5	0.63
2,5-Dimethylthiophene	ND	0.63	ND	0.63	1.9	0.63	2.1	0.63
Diethyl Disulfide	ND	0.63	ND	0.63	ND	0.63	ND	0.63
Dimethyl Trisulfide	ND	0.63	ND	0.63	69 d	63	56 E	0.63
Total Reduced Sulfur	67	0.63	63	0.63	1,900	0.63	1,900	0.63

ND = Not Detected (below RL)

RL = Reporting Limit

d = Result obtained from a secondary dilution

E = Estimated. Analyte concentration exceeds upper calibration range.

Reviewed/Approved By: _____


 Mark Johnson
 Operations Manager

Date: 5/21/18

The cover letter is an integral part of this analytical report



AirTECHNOLOGY Laboratories, Inc.

page 1 of 1

QC Batch No.: 180516GC3A1
Matrix: Air
Units: ppmv

QC for Sulfur Compounds by ASTM D5504

Lab No.:	Method Blank		LCS		LCSD			
Date/Time Analyzed:	5/16/18 12:03		5/16/18 11:35		5/16/18 11:49			
Analyst Initials:	AS		AS		AS			
Datafile:	16may003		16may001		16may002			
Dilution Factor:	1.0		1.0		1.0			
ANALYTE	Results	RL	% Rec.	Criteria	% Rec.	Criteria	%RPD	Criteria
Hydrogen Sulfide	ND	0.20	80	70-130%	79	70-130%	1.6	<30
Carbonyl Sulfide	ND	0.20	103	70-130%	103	70-130%	0.1	<30
Methyl Mercaptan	ND	0.20	103	70-130%	101	70-130%	1.7	<30
Ethyl Mercaptan	ND	0.20	105	70-130%	105	70-130%	0.5	<30
Dimethyl Sulfide	ND	0.20	90	70-130%	88	70-130%	2.4	<30
Carbon Disulfide	ND	0.20	86	70-130%	86	70-130%	0.9	<30
Dimethyl Disulfide	ND	0.20	91	70-130%	92	70-130%	0.2	<30

ND = Not Detected (Below RL)

RL = Reporting Limit

Reviewed/Approved By: _____

Mark J. Johnson
Operations Manager

Date: _____

5/21/18

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: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051602-01	J051602-02	J051602-03	J051602-04					
Client Sample I.D.:	EP-14 NQ A	EP-14 NQ B	Blower Outlet A	Blower Outlet B					
Date/Time Sampled:	5/15/18 8:20	5/15/18 8:50	5/15/18 8:45	5/15/18 9:12					
Date/Time Analyzed:	5/16/18 15:22	5/16/18 15:37	5/16/18 15:51	5/16/18 16:06					
QC Batch No.:	180516GC8A2	180516GC8A2	180516GC8A2	180516GC8A2					
Analyst Initials:	AS	AS	AS	AS					
Dilution Factor:	3.2	3.2	3.2	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	ND	1.6	ND	1.6	5.9	1.6	5.9	1.6
	Nitrogen	11	3.2	11	3.2	31	3.2	31	3.2

Results normalized including non-methane hydrocarbons

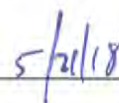
ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: _____


Mark Johnson
Operations Manager

Date _____


5/21/18

The cover letter is an integral part of this analytical report



QC Batch No: 180516GC8A2
Matrix: Air
Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	5/16/18 15:07			5/16/18 14:23		5/16/18 14:38					
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	15.9	107	15.8	106	0.6	70	130	30
Nitrogen	ND	1.0	70	71.3	102	70.8	101	0.7	70	130	30

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: _____

Mark Johnson
Operations Manager

Date _____

5/16/18

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

PARAMETER		Blower Out
SOUTH QUARRY LFG - BLOWER OUTLET		
The below based on final QA/QC lab fixed gas results		
Date	Test Date	5/1/18
Start	Run Start Time	9:36
	Run Finish Time	11:04
	Net Traversing Points	8 (2 x 4)
⊖	Net Run Time, minutes	1:28:21
C _p	Pitot Tube Coeficient	0.99
P _{Br}	Barometric Pressure, inches of Mercury	29.59
% H ₂ O	Moisture Content of LFG, %	3.63
% RH	Relative Humidity, %	46.30
M _{fd}	Dry Mole Fraction	0.964
%CH ₄	Methane, %	12.3
%CO ₂	Carbon Dioxide, %	32.8
%O ₂	Oxygen, %	7.4
%Balance	Assumed as Nitrogen, %	36.3
%H ₂	Hydrogen, %	10.0
%CO	Carbon Monoxide, %	0.050
M _d	Dry Molecular Weight, lb/lb-Mole	29.14
M _s	Wet Molecular weight, lb/lb-Mole	28.73
P _g	Flue Gas Static Pressure, inches of H ₂ O	13.54
P _s	Absolute Flue Gas Pressure, inches of Mercury	30.70
t _s	Average Stack Gas Temperature, °F	92
ΔP _{avg}	Average Velocity Head, inches of H ₂ O	0.040
v _s	Average LFG Velocity, feet/second	13.44
A _s	Stack Crossectional Area, square feet	1.35
Q _{sd}	Dry Volumetric Flow Rate, dry scfm	1,033
Q _s	Standard Volumetric Flow Rate, scfm	1,070
Q _{aw}	Actual Wet Volumetric Flue Gas Flow Rate, acfm	1,091
Q _{lb/hr}	Dry Air Flow Rate at Standard Conditions, lb/hr	4,685
NHV	Net Heating Value, Btu/scf (not determined in the field)	167.5
LFG _{CH4}	Methane, lb/hr	316.1
	Methane, grains/dscf	35.71
LFG _{CO2}	Carbon Dioxide, lb/hr	2,321.7
	Carbon Dioxide, grains/dscf	262.34
LFG _{O2}	Oxygen, lb/hr	378.3
	Oxygen, grains/dscf	42.74
LFG _{N2}	Balance gas as Nitrogen, lb/hr	1,635.5
	Balance gas as Nitrogen, grains/dscf	184.80
LFG _{H2}	Hydrogen, lb/hr	32.4
	Hydrogen, grains/dscf	3.66
LFG _{CO}	Carbon Monoxide, lb/hr	2.2
	Carbon Monoxide, grains/dscf	0.25

		Outlet A	Outlet B
①E _{TRS-SO2}	TRS-->SO2 Emission Concentration, ppmd	1,400	1,400
	TRS-->SO2 Emission Rate, lb/hr	14.43	14.43
	TRS-->SO2 Emission Rate, grains/dscf	1.630	1.630
This lb/hr result based on Method 2 velocity/flow determined results - not the respective flow meters.			
①	TRS assumed moelcular mass = SO2, 64.06 gram/mole, i.e. 1 TRS in LFG assumed to = 1 SO2 emitted from the stack		

SQ Blower Outlet (pre diversion chamber)

5/1/2018

FleetZoom Flow Average = 1,169 scfm

KURZ FM Average = 1,060 scfm

The below based on final QA/QC lab fixed gas results

CALCULATED RESULTS		
$V_s =$	13.44	ft/sec
$Q_{dscfm} =$	1,033	ft ³ /min
$Q_{scfm} =$	1,070	ft ³ /min
$Q_{acfm} =$	1,091	ft ³ /min
$Q_{lb} =$	4,685	dry air flow rate lb/hr

CALCULATED VALUES

$A_s =$	1.35	ft ²
$P_s =$	30.70	in. Hg
%H ₂ O =	3.63	%
$M_d =$	29.14	lb/lb-mole
$M_s =$	28.73	lb/lb-mole

TEST VARIABLES

$C_p =$	0.99	[unitless]
$P_{br} =$	29.59	in Hg
$T_A =$	81.3	°F
Point ID =	15.75	inches
RH% ambient =	30.6	%

SOURCE GAS PARAMETERS

BWS	3.63	%
$P_g =$	13.5	in H ₂ O
$T_d =$	91.9	°F
$T_w =$	84.4	°F
$T_g =$	91.9	°F
RH% =	46.3	%

FIXED GAS RESULTS*

CH ₄ =	12.3	%
CO ₂ =	32.80	%
O ₂ =	7.35	%
N ₂ =	36.30	%
H ₂ =	10.0	%
CO =	0.0495	%

FIELD DATA

*based on final QA/QC lab results

Duration = 9:36 to 11:04

Average DP= 0.040 in H₂O

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

$$V_s = 85.49 \times C_p \times \sqrt{\frac{(460 + t_s) \times \Delta P_{AVG}}{(P_s \times M_s)}}$$

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

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

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

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

- 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: CO₂ lb/hr determination from CO₂% measurement (for "dry" sample collection)

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

- 10) %H₂O - Moisture Content via wet-bulb-dry-bulb determination

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

t_{std} = standard temperature; 68 °F
t_s = stack temperature; in units of °F
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
ΔP_{avg} = stack average differential pressure; in inches of H ₂ O from pitot tube & manometer
P_{Br} = barometric pressure, inches of Hg
P_g = stack, static pressure, inches of H ₂ O
t_d = temperature, dry bulb; °F
t_{wet} = temperature, wet-bulb; °F
$\%H_2O$ = moisture content, % by volume

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
NO _x =	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		
1 lb =	453.5924	grams
1 Liter =	0.0353	ft ³
1 minute =	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 Atomic 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: NO_x 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 ₂ S	34.08088	grams/mole
Carboynl Sulfide	COS	60.0751	grams/mole
Methyl Mercaptan	CH ₃ S	48.10746	grams/mole
Ethyl Mercaptan	C ₂ H ₆ S	62.13404	grams/mole
Dimethyl Sulfide	(CH ₃) ₂ S	62.13404	grams/mole
Carbon Disulfide	CS ₂	76.1407	grams/mole
Dimethyl Disulfide	C ₂ H ₆ S ₂	94.19904	grams/mole

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

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

If pollutant/gas measured as a:

	%	ppm _{vd}
SO ₂ =	0.1663	1.663E-07 lb/ft ³ _{sd}
NO _x =	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 ³ _{sd}

		ppmvd
Hydrogen Sulfide	H ₂ S	8.84808E-08
Carboynl Sulfide	COS	1.55967E-07
Methyl Mercaptan	CH ₃ S	1.24897E-07
Ethyl Mercaptan	C ₂ H ₆ S	1.61312E-07
Dimethyl Sulfide	(CH ₃) ₂ S	1.61312E-07
Carbon Disulfide	CS ₂	1.97676E-07
Dimethyl Disulfide	C ₂ H ₆ S ₂	2.4456E-07

Gas Emission Rate [lb/hr] = (C%)(Q_{sd})(Gas Density)

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

$$Gas \ E \ x = \frac{X \text{ compound } (ppmvd)}{1,000,000} \times Q_{SD} \left[\frac{ft^3, \text{ dry \& standard}}{min} \right] \times \frac{60 \text{ minutes}}{hour} \times X \text{ gas density} \left[\frac{lbs}{ft^3} \right]$$

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	5/1/18
Start	Run Start Time	9:36
	Run Finish Time	11:04
	Net Traversing Points	8 (2 x 4)
Θ	Net Run Time, minutes	1:28:21
C_p	Pitot Tube Coefficient	0.99
P_{Br}	Barometric Pressure, inches of Mercury	29.59
% H_2O	Moisture Content of LFG, %	3.63
% RH	Relative Humidity, %	46.30
M_{fd}	Dry Mole Fraction	0.964
% CH_4	Methane, %	12.9
% CO_2	Carbon Dioxide, %	37.1
% O_2	Oxygen, %	6.3
% Balance	Assumed as Nitrogen, %	33.3
% H_2	Hydrogen, %	10.5
% CO	Carbon Monoxide, %	0.003
M_d	Dry Molecular Weight, lb/lb-Mole	29.92
M_s	Wet Molecular weight, lb/lb-Mole	29.49
P_g	Flue Gas Static Pressure, inches of H_2O	13.54
P_s	Absolute Flue Gas Pressure, inches of Mercury	30.59
t_s	Average Stack Gas Temperature, °F	92
ΔP_{avg}	Average Velocity Head, inches of H_2O	0.040
v_s	Average LFG Velocity, feet/second	13.30
A_s	Stack Crosssectional Area, square feet	1.35
Q_{sd}	Dry Volumetric Flow Rate, dry scfm	1,017
Q_s	Standard Volumetric Flow Rate, scfm	1,054
Q_{aw}	Actual Wet Volumetric Flue Gas Flow Rate, acfm	1,079
$Q_{lb/hr}$	Dry Air Flow Rate at Standard Conditions, lb/hr	4,740
LFG_{CH_4}	Methane, lb/hr	327.9
	Methane, grains/dscf	37.61
LFG_{CO_2}	Carbon Dioxide, lb/hr	2,587.2
	Carbon Dioxide, grains/dscf	296.73
LFG_{O_2}	Oxygen, lb/hr	316.9
	Oxygen, grains/dscf	36.35
LFG_{N_2}	Balance gas as Nitrogen, lb/hr	1,475.9
	Balance gas as Nitrogen, grains/dscf	169.28
LFG_{H_2}	Hydrogen, lb/hr	33.5
	Hydrogen, grains/dscf	3.85
LFG_{CO}	Carbon Monoxide, lb/hr	0.1
	Carbon Monoxide, grains/dscf	0.02

Tuesday, May 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	9:36	11:04	1,054	1,169	1,060	-10.9%	-0.5%	-10.3%

**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; EP-012/FL120 TSI FM adjusted 10% (-0.4 mA) down to match flow of Method 2 and Kurz FM results. This was done after the subject sampling & Method 2 event. Recheck Method 2 and correlation with EP-012/FL120 TSI FM was monitoring <5% from the references.*

SQ GCCS Blower Outlet (pre diversion chamber)

5/1/2018

Flare FM Flow Average = 1,169 scfm

Blower Outlet KURZ FM Average = 1,060 scfm

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

CALCULATED RESULTS		
$V_s =$	13.30	ft/sec
$Q_{dscfm} =$	1,017	ft ³ /min
$Q_{scfm} =$	1,054	ft ³ /min
$Q_{acfm} =$	1,079	ft ³ /min
$Q_{lb} =$	4,740	dry air flow rate lb/hr

CALCULATED VALUES

$A_s =$	1.35	ft ²
$P_s =$	30.59	in. Hg
%H ₂ O =	3.63	%
$M_d =$	29.92	lb/lb-mole
$M_s =$	29.49	lb/lb-mole

TEST VARIABLES

$C_p =$	0.99	[unitless]
$P_{br} =$	29.59	in Hg
$T_A =$	81.3	°F
Point ID =	15.75	inches
RH% ambient =	30.60	%

SOURCE LFG PARAMETERS

Bws	3.63	%
$P_g =$	13.5	in H ₂ O
$T_d =$	91.9	°F
$T_w =$	84.4	°F
$T_g =$	91.9	°F
RH% =	46.3	%

FIXED GAS RESULTS*

CH ₄ =	12.9	%
CO ₂ =	37.10	%
O ₂ =	6.25	%
N ₂ =	33.25	% field balance subtracting H ₂ %
H ₂ =	10.5	% assumed based on historical
CO =	0.0030	% assumed based on historical

FIELD DATA

* based on field notes

Duration = 9:36 to 11:04

Average DP= 0.040 in H₂O

PARAMETER		Blower Out
EP-014 NORTH QUARRY GCCS FLARE LFG		
The below based on final QA/QC lab fixed gas results		
Date	Test Date	5/1/18
Start	Run Start Time	7:41
	Run Finish Time	9:11
	Net Traversing Points	8 (2 x 4)
Θ	Net Run Time, minutes	1:29:55
C_p	Pitot Tube Coefficient	0.99
P_{Br}	Barometric Pressure, inches of Mercury	29.59
% H ₂ O	Moisture Content of LFG, %	1.79
% RH	Relative Humidity, %	46.30
M_{fd}	Dry Mole Fraction	0.982
%CH ₄	Methane, %	51.4
%CO ₂	Carbon Dioxide, %	34.5
%O ₂	Oxygen, %	1.6
%Balance	Assumed as Nitrogen, %	12.0
%H ₂	Hydrogen, %	0.54
%CO	Carbon Monoxide, %	0.0032
M_d	Dry Molecular Weight, lb/lb-Mole	27.31
M_s	Wet Molecular weight, lb/lb-Mole	27.15
P_g	Flue Gas Static Pressure, inches of H ₂ O	1.04
P_s	Absolute Flue Gas Pressure, inches of Mercury	29.67
t_s	Average Stack Gas Temperature, °F	83
ΔP_{avg}	Average Velocity Head, inches of H ₂ O	0.021
v_s	Average LFG Velocity, feet/second	9.95
A_s	Stack Crossectional Area, square feet	0.51
Q_{sd}	Dry Volumetric Flow Rate, dry scfm	290
Q_s	Standard Volumetric Flow Rate, scfm	295
Q_{aw}	Actual Wet Volumetric Flue Gas Flow Rate, acfm	307
$Q_{lb/hr}$	Dry Air Flow Rate at Standard Conditions, lb/hr	1,233
NHV	Net Heating Value, Btu/scf	467.4
LFG _{CH4}	Methane, lb/hr	372.5
	Methane, grains/dscf	149.85
LFG _{CO2}	Carbon Dioxide, lb/hr	685.8
	Carbon Dioxide, grains/dscf	275.93
LFG _{O2}	Oxygen, lb/hr	23.1
	Oxygen, grains/dscf	9.30
LFG _{N2}	Balance gas as Nitrogen, lb/hr	151.8
	Balance gas as Nitrogen, grains/dscf	61.09
LFG _{H2}	Hydrogen, lb/hr	0.5
	Hydrogen, grains/dscf	0.20
LFG _{CO}	Carbon Monoxide, lb/hr	0.0
	Carbon Monoxide, grains/dscf	0.02

		EP-14 NQ A	EP-14 NQ B
① E _{TRS-SO2}	TRS-->SO2 Emission Concentration, ppmvd	48	48
	TRS-->SO2 Emission Rate, lb/hr	0.14	0.14
	TRS-->SO2 Emission Rate, grains/dscf	0.056	0.056

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

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

EP14 NQ Blower Outlet (pre flame arrestor - header)

FleetZoom Data Flow Average = scfm

5/1/2018

The below based on final QA/QC lab fixed gas results

CALCULATED RESULTS		
$V_s =$	9.95	ft/sec
$Q_{dscfm} =$	290	ft ³ /min
$Q_{scfm} =$	295	ft ³ /min
$Q_{acfm} =$	307	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 ₂ O =	1.79	%
$M_d =$	27.31	lb/lb-mole
$M_s =$	27.15	lb/lb-mole

TEST VARIABLES

$C_p =$	0.99	[unitless]
$P_{br} =$	29.59	in Hg
$T_A =$	69.6	°F
Point ID =	9.70	inches
RH% ambient =	37.2	%

SOURCE LFG PARAMETERS

BWS	1.79	%
$P_g =$	1.0	in H ₂ O
$T_d =$	83.5	°F
$T_w =$	67.8	°F
$T_g =$	83.5	°F
RH% =	46.3	%

FIXED GAS RESULTS*

CH ₄ =	51.4	%
CO ₂ =	34.50	%
O ₂ =	1.60	%
N ₂ =	12.00	%
H ₂ =	0.54	%
CO =	0.0032	%

FIELD DATA

**based on final QA/QC lab results*

Duration = to

Average DP = in H₂O

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	5/1/18
Start	Run Start Time	7:41
	Run Finish Time	9:11
	Net Traversing Points	8 (2 x 4)
Θ	Net Run Time, minutes	1:29:55
C_p	Pitot Tube Coeficient	0.99
P_{Br}	Barometric Pressure, inches of Mercury	29.59
% H_2O	Moisture Content of LFG, %	1.79
% RH	Relative Humidity, %	46.30
M_{fd}	Dry Mole Fraction	0.982
% CH_4	Methane, %	48.9
% CO_2	Carbon Dioxide, %	37.7
% O_2	Oxygen, %	0.6
% Balance	Assumed as Nitrogen, %	12.9
% H_2	Hydrogen, %	0.0
% CO	Carbon Monoxide, %	0.000
M_d	Dry Molecular Weight, lb/lb-Mole	28.22
M_s	Wet Molecular weight, lb/lb-Mole	28.04
P_g	Flue Gas Static Pressure, inches of H_2O	1.04
P_s	Absolute Flue Gas Pressure, inches of Mercury	29.67
t_s	Average Stack Gas Temperature, °F	83
ΔP_{avg}	Average Velocity Head, inches of H_2O	0.021
v_s	Average LFG Velocity, feet/second	9.80
A_s	Stack Crossectional Area, square feet	0.51
Q_{sd}	Dry Volumetric Flow Rate, dry scfm	285
Q_s	Standard Volumetric Flow Rate, scfm	290
Q_{aw}	Actual Wet Volumetric Flue Gas Flow Rate, acfm	302
$Q_{lb/hr}$	Dry Air Flow Rate at Standard Conditions, lb/hr	1,254
LFG_{CH_4}	Methane, lb/hr	348.3
	Methane, grains/dscf	142.42
LFG_{CO_2}	Carbon Dioxide, lb/hr	737.5
	Carbon Dioxide, grains/dscf	301.53
LFG_{O_2}	Oxygen, lb/hr	8.5
	Oxygen, grains/dscf	3.49
LFG_{N_2}	Balance gas as Nitrogen, lb/hr	160.0
	Balance gas as Nitrogen, grains/dscf	65.42
LFG_{H_2}	Hydrogen, lb/hr	0.0
	Hydrogen, grains/dscf	0.00
LFG_{CO}	Carbon Monoxide, lb/hr	0.0
	Carbon Monoxide, grains/dscf	0.00

Tuesday, May 01, 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	7:41	9:11	290	287	1.2%

**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.*

EP14 NQ Blower Outlet (pre flame arrestor - header)

FleetZoom Data Flow Average = **287** scfm

5/1/2018

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

CALCULATED RESULTS		
$V_s =$	9.80	ft/sec
$Q_{dscfm} =$	285	ft ³ /min
$Q_{scfm} =$	290	ft ³ /min
$Q_{acfm} =$	302	ft ³ /min
$Q_{lb} =$	1,254	dry air flow rate lb/hr

CALCULATED VALUES

$A_s =$	0.51	ft ²
$P_s =$	29.67	in. Hg
%H ₂ O =	1.79	%
$M_d =$	28.22	lb/lb-mole
$M_s =$	28.04	lb/lb-mole

TEST VARIABLES

$C_p =$	0.99	[unitless]
$P_{br} =$	29.59	in Hg
$T_A =$	69.6	°F
Point ID =	9.70	inches
RH% ambient =	37.2	%

SOURCE LFG PARAMETERS

BWS	1.79	%
$P_g =$	1.0	in H ₂ O
$T_d =$	83.5	°F
$T_w =$	67.8	°F
$T_g =$	83.5	°F
RH% =	46.3	%

FIXED GAS RESULTS*

CH ₄ =	48.9	%
CO ₂ =	37.70	%
O ₂ =	0.60	%
N ₂ =	12.85	% field balance subtracting H ₂ %
H ₂ =	0.0	% assumed based on historical
CO =	0.000	% assumed based on historical

FIELD DATA

* based on field notes

Duration = **7:41** to **9:11**

Average DP = **0.021** in H₂O

May 7, 2018

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



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

LABORATORY TEST RESULTS

Project Reference: Bridgeton Landfill
Lab Number: J050202-01/04

Enclosed are results for sample(s) received 5/02/18 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 5/04/18.

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,

A handwritten signature in blue ink, appearing to read "Mark Johnson".

Mark Johnson
Operations Manager
MJohnson@AirTechLabs.com

Enclosures

Note: 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: 05/02/18
 Matrix: Air
 Reporting Units: ppmv

ASTM D5504

Lab No.:	J050202-01		J050202-02		J050202-03		J050202-04	
Client Sample I.D.:	EP-14 NQ A		EP-14 NQ B		Blower Outlet A		Blower Outlet B	
Date/Time Sampled:	5/1/18 8:13		5/1/18 8:40		5/1/18 9:42		5/1/18 10:09	
Date/Time Analyzed:	5/2/18 13:28		5/2/18 13:41		5/2/18 13:55		5/2/18 14:09	
QC Batch No.:	180502GC3A1		180502GC3A1		180502GC3A1		180502GC3A1	
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	32	0.63	33	0.63	16	0.63	20	0.63
Carbonyl Sulfide	ND	0.63	ND	0.63	ND	0.63	ND	0.63
Methyl Mercaptan	3.4	0.63	3.2	0.63	170 d	63	170 d	63
Ethyl Mercaptan	ND	0.63	ND	0.63	1.9	0.63	1.9	0.63
Dimethyl Sulfide	12	0.63	10	0.63	940 d	63	950 d	63
Carbon Disulfide	ND	0.63	ND	0.63	ND	0.63	ND	0.63
Isopropyl Mercaptan	ND	0.63	ND	0.63	0.93	0.63	0.93	0.63
t-Butylmercaptan	ND	0.63	ND	0.63	ND	0.63	ND	0.63
n-Propyl Mercaptan	ND	0.63	ND	0.63	ND	0.63	ND	0.63
Ethyl Methyl Sulfide	ND	0.63	ND	0.63	5.4	0.63	5.5	0.63
Thiophene	ND	0.63	ND	0.63	11	0.63	12	0.63
Isobutyl Mercaptan	ND	0.63	ND	0.63	ND	0.63	ND	0.63
Diethyl Sulfide	ND	0.63	ND	0.63	ND	0.63	0.79	0.63
n-Butyl Mercaptan	ND	0.63	ND	0.63	2.0	0.63	2.0	0.63
Dimethyl Disulfide	ND	0.63	ND	0.63	96 d	63	94 d	63
3-Methylthiophene	ND	0.63	ND	0.63	ND	0.63	ND	0.63
Tetrahydrothiophene	ND	0.63	ND	0.63	7.4	0.63	7.9	0.63
2-Ethylthiophene	ND	0.63	ND	0.63	1.7	0.63	1.8	0.63
2,5-Dimethylthiophene	ND	0.63	ND	0.63	1.2	0.63	1.4	0.63
Diethyl Disulfide	ND	0.63	ND	0.63	ND	0.63	ND	0.63
Dimethyl Trisulfide	ND	0.63	ND	0.63	78 d	63	68 d	63
Total Reduced Sulfur	48	0.63	48	0.63	1,400	0.63	1,400	0.63

ND = Not Detected (below RL)

RL = Reporting Limit

d = Result obtained from a secondary dilution

Reviewed/Approved By:


 Mark Johnson
 Operations Manager

Date

5/4/18

The cover letter is an integral part of this analytical report



AirTECHNOLOGY Laboratories, Inc.

page 1 of 1

QC Batch No.: 180502GC3A1
Matrix: Air
Units: ppmv

QC for Sulfur Compounds by ASTM D5504

Lab No.:	Method Blank		LCS		LCSD			
Date/Time Analyzed:	5/2/18 11:36		5/2/18 14:50		5/2/18 15:03			
Analyst Initials:	AS		AS		AS			
Datafile:	02may004		02may014		02may015			
Dilution Factor:	1.0		1.0		1.0			
ANALYTE	Results	RL	% Rec.	Criteria	% Rec.	Criteria	%RPD	Criteria
Hydrogen Sulfide	ND	0.20	89	70-130%	90	70-130%	0.7	<30
Carbonyl Sulfide	ND	0.20	98	70-130%	98	70-130%	0.3	<30
Methyl Mercaptan	ND	0.20	94	70-130%	94	70-130%	0.0	<30
Ethyl Mercaptan	ND	0.20	94	70-130%	94	70-130%	0.0	<30
Dimethyl Sulfide	ND	0.20	79	70-130%	80	70-130%	0.9	<30
Carbon Disulfide	ND	0.20	79	70-130%	78	70-130%	0.2	<30
Dimethyl Disulfide	ND	0.20	87	70-130%	87	70-130%	0.3	<30

ND = Not Detected (Below RL)

RL = Reporting Limit

Reviewed/Approved By:


Mark J. Johnson
Operations Manager

Date:

5/4/18

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 Inc.
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/02/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J050202-01	J050202-02		
Client Sample I.D.:	EP-14 NQ A	EP-14 NQ B		
Date/Time Sampled:	5/1/18 8:13	5/1/18 8:40		
Date/Time Analyzed:	5/2/18 15:14	5/2/18 15:28		
QC Batch No.:	180502GC8A1	180502GC8A1		
Analyst Initials:	AS	AS		
Dilution Factor:	3.2	3.2		
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v
Hydrogen	0.56 d	0.032	0.51 d	0.032
Carbon Dioxide	34.6	0.032	34.4	0.032
Oxygen/Argon	ND	1.6	ND	1.6
Nitrogen	11.8	3.2	12.2	3.2
Methane	51.5	0.0032	51.3	0.0032
Carbon Monoxide	ND	0.0032	ND	0.0032
Net Heating Value (BTU/ft3) methane only	468.6	3.2	466.2	3.2
Gross Heating Value (BTU/ft3) methane only	520.4	3.2	517.8	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 analysis. QC Batch: 180503GC8A2

Reviewed/Approved By: _____


Mark Johnson
Operations Manager

Date _____

5/4/18

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: 05/02/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J050202-03	J050202-04		
Client Sample I.D.:	Blower Outlet A	Blower Outlet B		
Date/Time Sampled:	5/1/18 9:42	5/1/18 10:09		
Date/Time Analyzed:	5/2/18 15:43	5/2/18 15:57		
QC Batch No.:	180502GC8A1	180502GC8A1		
Analyst Initials:	AS	AS		
Dilution Factor:	3.2	3.2		
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v
Hydrogen	9.9	3.2	10.1	3.2
Carbon Dioxide	32.5	0.032	33.1	0.032
Oxygen/Argon	7.5	1.6	7.2	1.6
Nitrogen	36.7	3.2	35.9	3.2
Methane	12.2	0.0032	12.3	0.0032
Carbon Monoxide	0.049	0.0032	0.050	0.0032
Net Heating Value (BTU/ft3)	165.2	3.2	169.8	3.2
Gross Heating Value (BTU/ft3)	186.5	3.2	191.7	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: _____


 Mark Johnson
 Operations Manager

Date 5/4/18

The cover letter is an integral part of this analytical report



QC Batch No: 180502GC8A1

Matrix: Air

Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	5/2/18 10:21			5/2/18 9:33		5/2/18 9:49					
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	5.77	115	5.49	110	4.9	70	130	30
Carbon Dioxide	ND	0.010	10	9.07	90	8.74	87	3.6	70	130	30
Oxygen/Argon	ND	0.50	15	15.7	106	15.1	102	3.9	70	130	30
Nitrogen	ND	1.0	70	71.0	101	68.4	98	3.7	70	130	30
Methane	ND	0.0010	0.10	0.110	110	0.110	110	0.2	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: _____

Mark Johnson
Operations Manager

Date _____

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 # 180503GC8A2
Matrix: Air
Units: % v/v

QC for Low Level Hydrogen Analysis

Lab No.:	Blank		LCS		LCSD			
Date Analyzed:	5/3/2018 12:24		5/3/2018 12:15		5/3/2018 12:19			
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	0.1	<20

ND = Not Detected (Below RL)

RL = PQL X Dilution Factor

Reviewed/Approved By:


Mark Johnson
Operations Manager

Date:

5/4/18

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

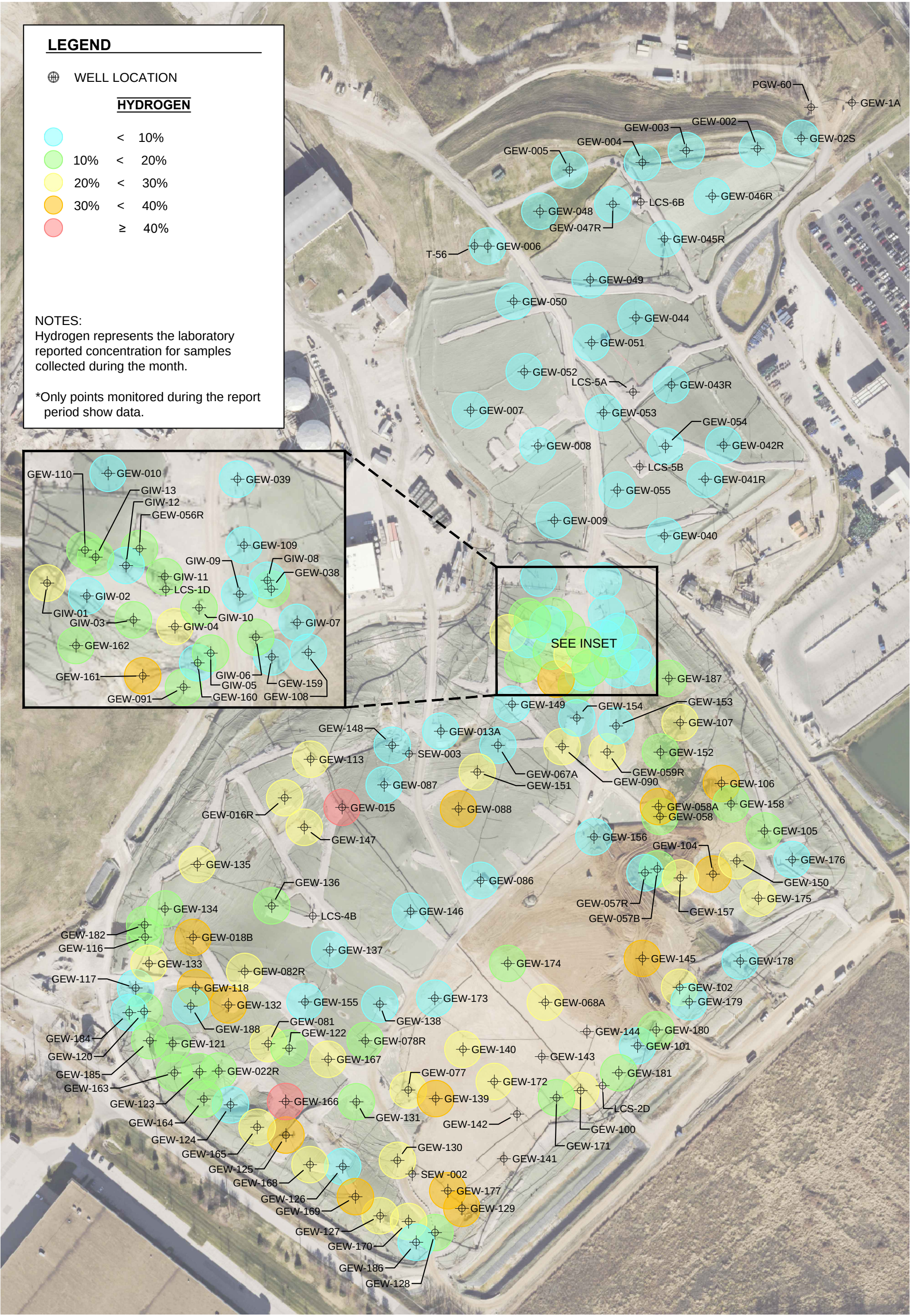


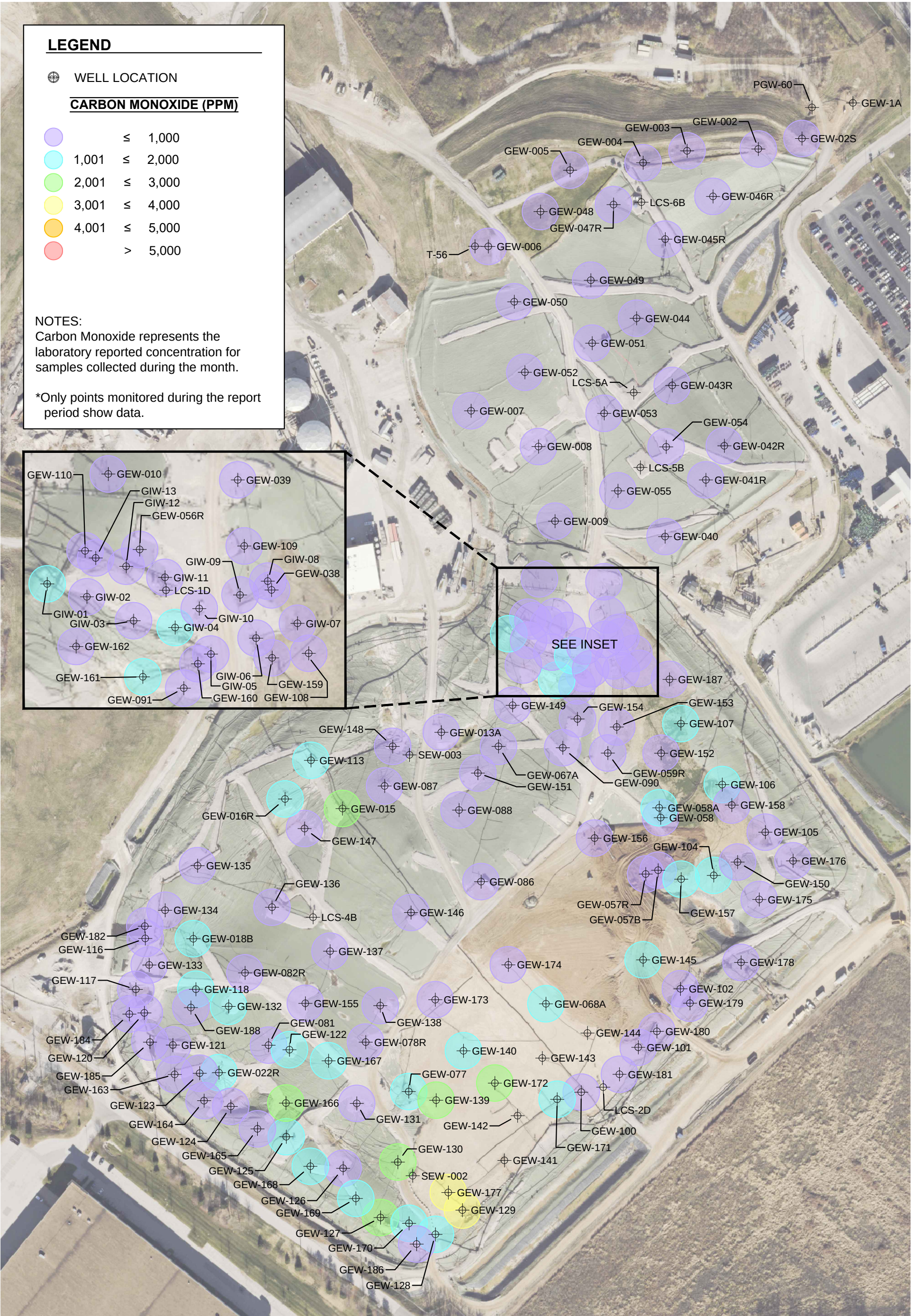
AirTECHNOLOGY Laboratories, Inc.

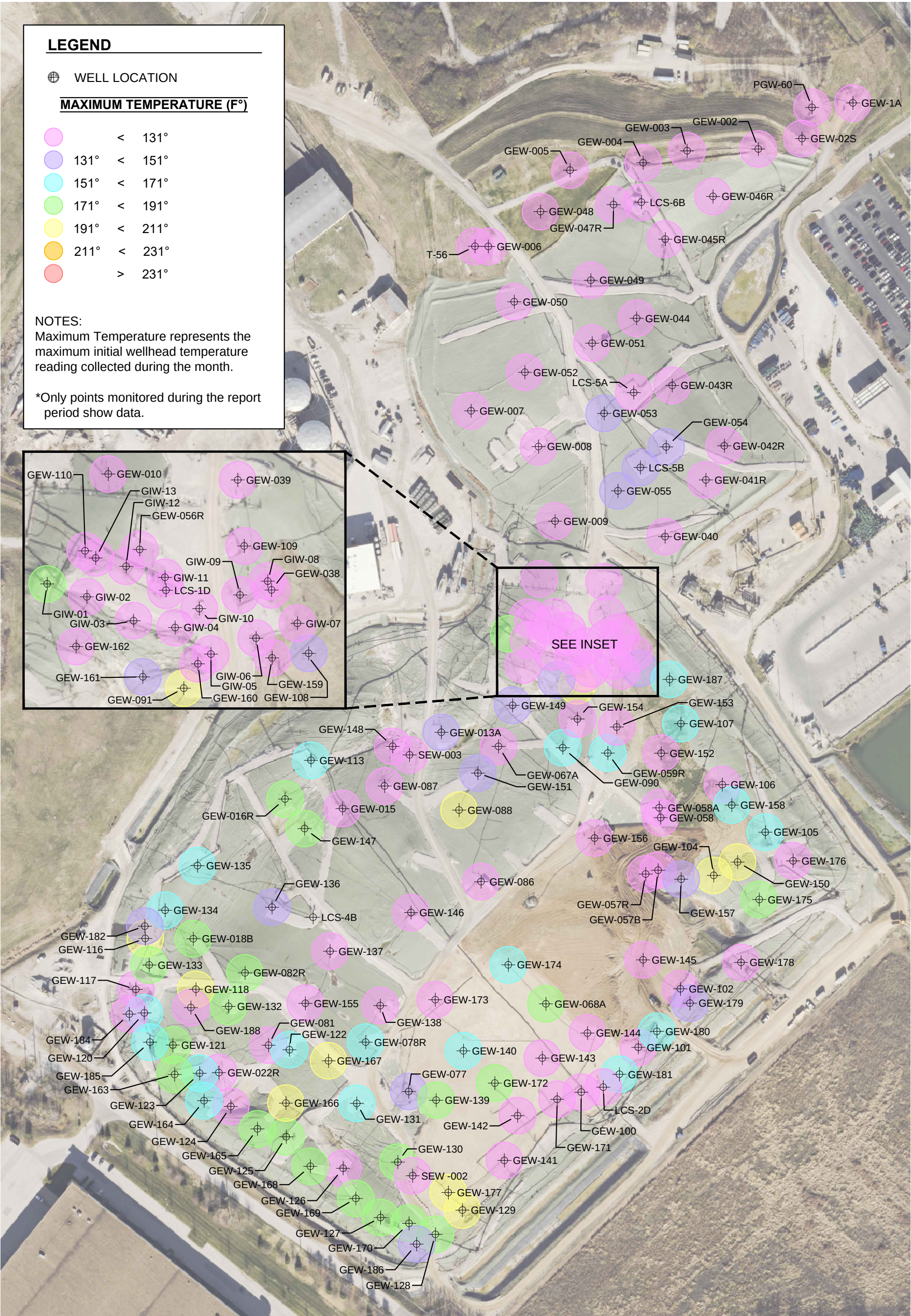
18501 E. Gale Avenue, Suite 130 ♦ City of Industry, CA 91748 ♦ Ph: (626) 964-4032 ♦ Fx: (626) 964-5832

ATTACHMENT C

GAS WELL ANALYSIS MAPS







ATTACHMENT D

LABORATORY DATA

ATTACHMENT D-1

LAB ANALYSIS SUMMARY

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO ₂	O ₂ /Argon	Nitrogen	Hydrogen	Carbon Monoxide	Comments
		(%)					(ppm)	
North Quarry								
GEW-002	1/8/2018	52	36	ND	11	ND	ND	
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-02S	1/23/2018	57	36	1.6	5.2	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	1/8/2018	43	34	ND	21	0.098	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-004	1/8/2018	50	37	ND	13	0.084	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-005	1/8/2018	43	33	ND	23	ND	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-006	1/8/2018	50	33	ND	16	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	1/9/2018	58	38	ND	ND	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	1/9/2018	54	42	ND	ND	1.7	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-009	1/9/2018	53	39	ND	6.7	0.60	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-040	1/9/2018	57	38	ND	4.2	ND	ND	
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-041R	1/9/2018	53	35	ND	12	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	1/8/2018	58	39	ND	3.1	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

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO ₂	O ₂ /Argon	Nitrogen	Hydrogen	Carbon Monoxide (ppm)	Comments
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-043R	1/8/2018	56	39	ND	3.9	0.29	ND	
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	1/8/2018	48	35	ND	16	ND	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	1/8/2018	53	37	2.4	8.2	ND	ND	See Note 3
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-046R	1/8/2018	47	36	ND	17	0.081	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-047R	1/8/2018	37	31	1.5	30	0.041	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-048	1/8/2018	50	35	ND	13	0.032	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-049	1/8/2018	47	34	ND	17	0.036	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-050	1/8/2018	46	32	2.3	19	0.035	ND	See Note 4
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	1/8/2018	55	39	ND	4.1	0.90	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	1/8/2018	34	30	ND	35	ND	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	1/8/2018	49	38	ND	7.7	4.7	57	
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-054	1/9/2018	55	39	ND	3.5	1.5	ND	

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO ₂	O ₂ /Argon	Nitrogen	Hydrogen	Carbon Monoxide	Comments
				(%)			(ppm)	
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-055	1/8/2018	50	40	ND	ND	6.5	46	
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	
GEW-055	5/7/2018	52	39	ND	5.8	1.9	ND	
Flare Station ²	1/3/2018	41.9	31.5	3.2	22.4	ND	ND	See Note 5
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

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	1/8/2018	56	41	ND	ND	ND	ND	
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-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	1/15/2018	2.8	58	ND	2.9	35	2,100	
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	1/8/2018	12	39	5.2	21	22	1,000	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-039	1/8/2018	30	37	2.2	30	0.050	37	
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-056R	1/8/2018	26	45	ND	6.5	21	630	
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-057R	1/16/2018	5.4	38	4.6	16	36	1,000	
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	1/15/2018	2.5	34	4.4	27	32	1,200	
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	1/15/2018	1.4	31	5.5	28	34	1,300	See Note 4
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	1/10/2018	15	40	ND	5.5	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

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO ₂	O ₂ /Argon	Nitrogen	Hydrogen	Carbon Monoxide (ppm)	Comments
GEW-082R	1/12/2018	14	37	ND	22	26	910	
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	1/15/2018	15	32	5.3	38	10	250	See Note 3
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	
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	1/5/2018	20	42	ND	5.3	31	1,000	
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	1/5/2018	40	51	ND	3.7	4.7	240	
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	1/8/2018	20	32	4.5	33	10	310	
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-110	1/8/2018	6.5	18	14	52	9.1	340	See Note 4
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-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	1/11/2018	5.4	55	2.2	7.4	29	1,400	
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	1/11/2018	44	50	ND	4.2	0.49	140	
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	1/12/2018	1.5	47	3.2	12	37	1,100	
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	1/11/2018	14	44	2.2	29	9.4	450	
GEW-120	3/15/2018	15	49	ND	23	12	500	
GEW-120	5/11/2018	17	52	ND	19	10	450	

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Well Name	Date Sampled	Methane	CO ₂	O ₂ /Argon	Nitrogen	Hydrogen	Carbon Monoxide (ppm)	Comments
GEW-121	1/15/2018	5.6	36	2.5	39	17	990	
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	1/15/2018	12	42	ND	19	27	1,500	
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	1/15/2018	13	40	ND	35	11	570	
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	1/11/2018	4.0	37	5.1	31	22	1,400	See Note 3
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	1/11/2018	22	45	ND	26	6.3	430	
GEW-126	3/15/2018	15	46	ND	28	8.2	570	
GEW-126	5/14/2018	17	53	ND	18	8.8	630	
GEW-127	1/11/2018	5.8	37	7.4	36	13	1,200	See Note 4
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	1/11/2018	13	55	ND	17	14	1,400	
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	1/15/2018	15	59	ND	6.2	18	1,900	
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	1/11/2018	4.9	45	4.3	16	29	2,100	
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	1/11/2018	21	42	ND	16	19	1,300	
GEW-131	3/15/2018	21	43	ND	19	16	950	
GEW-131	5/14/2018	20	40	ND	25	14	940	
GEW-132	1/12/2018	2.7	25	8.8	47	16	870	See Note 4
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	1/11/2018	0.75	47	ND	ND	49	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	1/11/2018	12	41	2.0	29	16	700	
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	1/11/2018	9.2	42	2.6	23	23	1,000	
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	1/11/2018	5.0	21	9.6	50	14	370	See Note 4
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	1/12/2018	35	33	1.6	30	ND	ND	
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	1/12/2018	9.0	33	ND	45	11	650	
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	1/15/2018	2.3	52	ND	ND	42	2,700	
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	

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Well Name	Date Sampled	Methane	CO ₂	O ₂ /Argon	Nitrogen	Hydrogen	Carbon Monoxide (ppm)	Comments
GEW-140	1/10/2018	13	50	ND	ND	34	1,300	
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	1/11/2018	2.9	6.4	18	72	0.70	ND	
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	1/11/2018	10	39	ND	28	21	810	
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	1/11/2018	3.2	48	2.9	9.8	36	2,500	
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	1/11/2018	12	27	6.9	48	6.5	240	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	1/10/2018	16	31	8.6	32	12	310	See Note 3
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	1/11/2018	12	38	4.4	25	20	650	
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	1/5/2018	26	42	1.6	6.0	24	1200	
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	1/5/2018	34	30	1.4	32	1.7	99	
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	1/10/2018	1.5	6.4	18	70	4.2	200	See Note 4
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	1/12/2018	6.3	27	2.3	60	4.3	97	
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	1/16/2018	11	14	14	58	2.2	70	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	
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	1/10/2018	22	49	ND	ND	26	970	
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	1/5/2018	38	40	ND	19	1.5	42	
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	1/5/2018	12	53	ND	ND	31	1,400	
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	1/5/2018	0.40	28	9.1	31	31	1,400	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	1/5/2018	21	68	ND	4.2	6.1	230	

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO ₂	O ₂ /Argon	Nitrogen	Hydrogen	Carbon Monoxide (ppm)	Comments
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	1/9/2018	2.9	23	13	48	12	500	See Note 4
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	1/9/2018	20	50	3.5	15	11	640	
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	1/9/2018	11	63	ND	ND	23	1,200	
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	1/9/2018	1.2	51	ND	5.0	41	2,600	
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	1/9/2018	0.43	30	9.1	33	27	1,600	See Note 3
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	1/10/2018	11	54	ND	4.2	29	1,700	
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	1/10/2018	2.4	52	3.0	13	29	2,100	
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	1/11/2018	8.0	39	7.2	31	14	1,000	See Note 4
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	1/16/2018	0.45	49	3.0	11	36	2,800	
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	1/16/2018	24	34	1.6	39	0.27	29	
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	1/10/2018	20	44	ND	16	19	960	
GEW-174	3/14/2018	20	43	ND	20	15	760	
GEW-174	5/10/2018	21	43	ND	20	14	720	
GEW-175	1/10/2018	21	44	3.7	19	12	430	
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	1/10/2018	23	34	7.2	30	5.9	180	See Note 4
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	1/15/2018	3.5	59	ND	4.7	31	3,600	
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	1/23/2018	9.9	61	2.7	9.4	16	1,200	
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	1/23/2018	7.1	51	2.2	7.5	32	1,400	

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO ₂	O ₂ /Argon	Nitrogen	Hydrogen	Carbon Monoxide (ppm)	Comments
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	1/23/2018	22	40	8.1	30	0.38	96	
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	1/23/2018	17	59	ND	4.1	18	940	
GEW-185	3/7/2018	16	62	ND	ND	19	870	
GEW-185	5/4/2018	16	59	ND	5.8	17	770	
GEW-186	1/23/2018	12	59	1.7	7.2	19	1,900	
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	1/23/2018	10	39	5.8	22	22	1,100	See Note 4
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	1/23/2018	0.79	22	12	46	18	800	See Note 4
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	1/8/2018	11	53	2.8	12	20	940	
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-02	1/8/2018	13	50	3.4	17	16	690	
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-03	1/8/2018	1.5	54	ND	ND	41	1,700	
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-04	1/8/2018	0.53	46	1.5	5.1	46	1,700	
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-05	1/8/2018	0.92	28	10	36	25	350	See Note 3
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-06	1/8/2018	12	48	ND	9.5	29	560	
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-07	1/9/2018	30	56	ND	7.1	6.1	350	
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-08	1/9/2018	29	54	ND	15	0.49	68	
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	

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO ₂	O ₂ /Argon	Nitrogen	Hydrogen	Carbon Monoxide (ppm)	Comments
GIW-08	5/3/2018	37	53	ND	9.0	0.054	ND	
GIW-09	1/9/2018	4.9	14	14	65	2.1	120	See Note 4
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-10	1/9/2018	4.9	41	1.8	17	36	650	
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-11	1/9/2018	9.2	47	ND	20	22	910	
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-12	1/9/2018	9.9	33	6.0	38	13	730	See Note 4
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-13	1/9/2018	18	58	ND	3.2	20	560	
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	
Flare Station ²	1/3/2018	12.4	33.7	8.1	34.6	10.7	545	See Note 6
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

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 Envirovision meter, it was determined there is a sample train leak. (4) Based on the oxygen verification readings taken with an Envirovision 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 D-2
LAB ANALYSIS REPORTS



May 24, 2018

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



LA Cert #04140
EPA Methods TO3, TO14A, TO15, 25C/3C,
RSK-175

TX Cert T104704450-14-6
EPA Methods TO14A, TO15

UT Cert CA013332015-3
EPA Methods TO3, TO14A, TO15, RSK-175

LABORATORY TEST RESULTS

Project Reference: Bridgeton Landfill
Lab Number: J051604-01/141

Enclosed are results for sample(s) received 5/16/18 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 5/23/18.

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,

A handwritten signature in blue ink, appearing to read "Mark Johnson".

Mark Johnson
Operations Manager
MJohnson@AirTechLabs.com

Enclosures

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

		CHAIN OF CUSTODY RECORD									
		TURNAROUND TIME Standard ☐ 48 hours Same Day ☐ 72 hours 24 hours ☐ 96 hours Other: <u>5 DAY</u>	DELIVERABLES EDD ☒ EDF ☐ Level 3 ☐ Level 4 ☐	Condition upon receipt: Sealed Yes ☐ No ☐ Intact Yes ☐ No ☐ Chilled ☐ deg C	PAGE: 1 OF 15						
18501 E. Gale Ave., Suite 130 City of Industry, CA 91748 Ph: 626-964-4032 Fx: 626-964-5832		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									
LAB USE ONLY		SAMPLE IDENTIFICATION		BILLING		ANALYSIS REQUEST					
		Cannister ID 5822 3838 A7814 3828 A7795 5931 5308 A7764 A8063 A7646	Sample Start -19.7 -19.8 -18.7 -19 -19.1 -19.9 -20 -19.9 -19.8 -19.6	Sample End -5 -5 -5 -5 -5 -5 -5 -5 -5 -5	SAMPLE DATE 5/2/2018 5/2/2018 5/2/2018 5/2/2018 5/2/2018 5/2/2018 5/2/2018 5/2/2018 5/2/2018 5/2/2018	SAMPLE TIME 13:28 13:39 13:51 14:10 14:47 14:57 15:08 15:18 15:29 15:38	CONTAINER QTY/TYP C C C C C C C C C C	MATRIX LFG LFG LFG LFG LFG LFG LFG LFG LFG LFG	PRESERVA-TION NA NA NA NA NA NA NA NA NA NA	D1946 + CO ₂ H ₂ X X X X X X X X X X	INITIAL PRESS -6 -6 -6 -6 -6 -6 -6 -6 -6 -6
Comments:											
Method of Transport (circle one): Walk-In ☒ FedEx ☐ UPS ☐ Courier ☐ ATL ☐ Other ☐											
Distribution: White & Yellow - Lab Copies / Pink - Customer Copy											

		CHAIN OF CUSTODY RECORD																			
		TURNAROUND TIME	DELIVERABLES			PAGE: 2 OF 15															
Project No.: Project Name: Report To: Company: Street: City/State/Zip: Phone & Fax: e-mail:		18501 E. Gale Ave., Suite 130 City of Industry, CA 91748 Ph: 626-964-4032 Fx: 626-964-5832		Standard ☐ 48 hours ☐		EDD ☒		Condition upon receipt: Sealed ☐ Yes ☐ No ☐ Intact ☐ Yes ☐ No ☐ Chilled ☐ _____ deg C													
				Same Day ☐ 72 hours ☐		EDF ☐															
				24 hours ☐ 96 hours ☐		Level 3 ☐															
				Other: <u>5 DAY</u>		Level 4 ☐															
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		SAMPLE IDENTIFICATION		SAMPLE DATE		SAMPLE TIME		CONTAINER QTY/TYPE		MATRIX		PRESERVATION									
Canister Pressure ("hg) 5097604-11 -12 -13 -14 -15 -16 -17 -18 -19 -20		Canister ID 5306		Sample Start -19.7		Sample End -5		GIW 10		5/3/2018		8:56		C LFG NA		X		D1946 + CO, H2		INITIAL	
		A8065		-19.9		-5		GIW 6		5/3/2018		9:13		C LFG NA		X					
		A7793		-19.8		-5		GIW 7		5/3/2018		9:23		C LFG NA		X					
		A7663		-19.8		-5		GIW 8		5/3/2018		9:56		C LFG NA		X					
		A7803		-19.8		-5		GEW 38		5/3/2018		10:05		C LFG NA		X					
		3834		-20.1		-5		GIW 9		5/3/2018		10:14		C LFG NA		X					
		3124		-19.8		-5		GEW 109		5/3/2018		10:23		C LFG NA		X					
		5324		-20		-5		GEW 39		5/3/2018		10:32		C LFG NA		X					
		4656		-19.9		-5		GEW 163		5/3/2018		13:27		C LFG NA		X					
		A8103		-19.9		-5		GEW 164		5/3/2018		13:36		C LFG NA		X					
COMMENTS																					
AUTHORIZATION TO PERFORM WORK: Dave Penoyer																					
COMPANY: Republic Services																					
SAMPLED BY: Anthony Kimutis																					
DATE/TIME: 5/3/18																					
RECEIVED BY:																					
DATE/TIME: 5/15/18																					
RECEIVED BY:																					
DATE/TIME: 5/10/18																					
RECEIVED BY:																					
DATE/TIME: 11:54																					
METHOD OF TRANSPORT (circle one): Walk-In ☒ UPS ☐ Courier ☐ ATLI ☐ Other ☐																					
DISTRIBUTION: White & Yellow - Lab Copies / Pink - Customer Copy																					
Preservation: H=HCl N=None / Container: B=Bag C=Can V=VOA O=Other																					

		CHAIN OF CUSTODY RECORD																																																																																									
		TURNAROUND TIME					DELIVERABLES					PAGE: 3 OF 15																																																																															
Project No.: Project Name: Report To: Company: Street: City/State/Zip: Phone & Fax: e-mail:		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Standard ☐</td> <td style="width: 33%;">48 hours ☐</td> <td style="width: 33%;">EDD ☐</td> <td colspan="2" rowspan="4"> Condition upon receipt: Sealed Yes ☐ No ☐ Intact Yes ☐ No ☐ Chilled _____ dag C </td> </tr> <tr> <td>Same Day ☐</td> <td>72 hours ☐</td> <td>EDF ☐</td> </tr> <tr> <td>24 hours ☐</td> <td>96 hours ☐</td> <td>Level 3 ☐</td> </tr> <tr> <td>Other: <u>5 DAY</u></td> <td></td> <td>Level 4 ☐</td> </tr> </table>										Standard ☐	48 hours ☐	EDD ☐	Condition upon receipt: Sealed Yes ☐ No ☐ Intact Yes ☐ No ☐ Chilled _____ dag C		Same Day ☐	72 hours ☐	EDF ☐	24 hours ☐	96 hours ☐	Level 3 ☐	Other: <u>5 DAY</u>		Level 4 ☐																																																																		
		Standard ☐	48 hours ☐	EDD ☐	Condition upon receipt: Sealed Yes ☐ No ☐ Intact Yes ☐ No ☐ Chilled _____ dag C																																																																																						
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Project Name: Report To: Company: Street: City/State/Zip: Phone & Fax: e-mail:		<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td colspan="2">P.O. No.: PO7112802</td> <td colspan="2">Republic Services</td> <td colspan="2" rowspan="4"> ANALYSIS REQUEST </td> </tr> <tr> <td colspan="2">Bill to: Republic Services</td> <td colspan="2">Attn: Mike Lambrich</td> </tr> <tr> <td colspan="2">13570 St. Charles Rock Rd.</td> <td colspan="2">13570 St. Charles Rock Rd.</td> </tr> <tr> <td colspan="2">Bridgeton, MO 63044</td> <td colspan="2">Bridgeton, MO 63044</td> </tr> </table>										P.O. No.: PO7112802		Republic Services		ANALYSIS REQUEST		Bill to: Republic Services		Attn: Mike Lambrich		13570 St. Charles Rock Rd.		13570 St. Charles Rock Rd.		Bridgeton, MO 63044		Bridgeton, MO 63044																																																															
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		CHAIN OF CUSTODY RECORD															
		TURNAROUND TIME					DELIVERABLES					PAGE: 4 OF 15					
18501 E. Gale Ave., Suite 130 City of Industry, CA 91748 Ph: 626-964-4032 Fx: 626-964-5832		Condition upon receipt: Sealed ☐ Yes ☐ No ☐ Intact ☐ Yes ☐ No ☐ Chilled ☐ _____ deg C															
		Standard ☐ 48 hours ☐ Same Day ☐ 72 hours ☐ 24 hours ☐ 96 hours ☐ Other: <u>5 DAY</u>										EDD ☐ EDF ☐ Level 3 ☐ 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		SAMPLE IDENTIFICATION		SAMPLE DATE		SAMPLE TIME		CONTAINER QTY/TPE		MATRIX		PRESERVATION		ANALYSIS REQUEST			
Cannister Pressure ("hg) 305/604-31 -32- -33- -34- -35- -36- -37- -38- -39- -40-		Cannister ID		Sample Start		Sample End		SAMPLE DATE		SAMPLE TIME		CONTAINER QTY/TPE		MATRIX		PRESERVATION	
		5813		-19.6		-5		5/4/2018		9:03		C		LFG		NA	
		A7671		-19.8		-5		5/4/2018		9:17		C		LFG		NA	
		A8090		-19.6		-5		5/4/2018		9:30		C		LFG		NA	
		3436		-19.8		-5		5/4/2018		9:41		C		LFG		NA	
		5816		-19.9		-5		5/4/2018		14:32		C		LFG		NA	
		A8087		-19.9		-5		5/4/2018		14:44		C		LFG		NA	
		A7816		-19.3		-5		5/4/2018		14:54		C		LFG		NA	
		A7780		-19.7		-5		5/4/2018		15:05		C		LFG		NA	
		6158		-19.9		-5		5/4/2018		15:16		C		LFG		NA	
A7759		-19.7		-5		5/4/2018		15:24		C		LFG		NA			
COMMENTS														Preservation: H=HCl N=None / Container: B=Bag C=Can V=VOA O=Other Rev. 03 - 5/7/09			
AUTHORIZATION TO PERFORM WORK: Dave Penoyer COMPANY: Republic Services																	
SAMPLED BY: Anthony Kimutis COMPANY: Republic Services																	
RELINQUISHED BY: <i>[Signature]</i> DATE/TIME: 5/15/18 RECEIVED BY: <i>[Signature]</i> DATE/TIME: 5/14/18																	
RELINQUISHED BY: <i>[Signature]</i> DATE/TIME: 5/15/18 RECEIVED BY: <i>[Signature]</i> DATE/TIME: 5/16/18																	
RELINQUISHED BY: <i>[Signature]</i> DATE/TIME: 5/15/18 RECEIVED BY: <i>[Signature]</i> DATE/TIME: 5/16/18																	
METHOD OF TRANSPORT (circle one): Walk-In ☒ UPS ☐ Courier ☐ ATLI ☐ Other ☐																	
DISTRIBUTION: White & Yellow - Lab Copies / Pink - Customer Copy																	

 AIR TECHNOLOGY Laboratories, Inc.		18501 E. Gale Ave., Suite 130 City of Industry, CA 91748 Ph: 626-964-4032 FX: 626-964-5832	
Project No.: Bridgeton Landfill		Project Name: Mike Lambrich	
Report To: Republic Services		Report To: Republic Services	
Street: 13570 St. Charles Rock Rd.		Street: 13570 St. Charles Rock Rd.	
City/State/Zip: Bridgeton, MO 63044		City/State/Zip: Bridgeton, MO 63044	
Phone & Fax: 314-683-3921		Phone & Fax: 314-683-3921	
e-mail: Mlambrich@republicservices.com		e-mail: Mlambrich@republicservices.com	

LAB USE ONLY				SAMPLE IDENTIFICATION		SAMPLE DATE	SAMPLE TIME	CONTAINER QTY/TYPE	MATRIX	PRESERVATION
Cannister ID	Sample Start	Sample End	Cannister Pressure (mg)	Sample ID	Sample Description					
5833	-20	-5		GEW 47R		5/7/2018	15:09	C	LFG	NA
A7807	-19.9	-5		GEW 5		5/7/2018	15:23	C	LFG	NA
A8073	-20	-5		GEW 48		5/7/2018	15:33	C	LFG	NA
A7776	-20	-5		GEW 6		5/8/2018	8:31	C	LFG	NA
5304	-19.9	-5		GEW 49		5/8/2018	8:45	C	LFG	NA
A7763	-19.8	-5		GEW 13A		5/8/2018	9:44	C	LFG	NA
A7799	-20	-5		GEW 177		5/8/2018	10:02	C	LFG	NA
A8080	-20.1	-5		GEW 128		5/8/2018	10:12	C	LFG	NA
5271	-19.7	-5		GIW 5		5/10/2018	8:38	C	LFG	NA
5274	-19.9	-5		GEW 188		5/10/2018	8:54	C	LFG	NA

LABORATORY USE ONLY Project No.: 30516004-61 Report To: REP EX Date: 5/15/18 Time: 11:04		ANALYSIS REQUEST Condition upon receipt: Sealed Yes ☐ No ☐ Intact Yes ☐ No ☐ Chilled ☐ deg C	
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 ☐	

COMMENTS AUTHORIZATION TO PERFORM WORK: Dave Penoyer COMPANY: Republic Services SAMPLED BY: Anthony Kimutis RELINQUISHED BY: REP EX RELINQUISHED BY: REP EX RELINQUISHED BY: REP EX		DATE/TIME 5/7/18 - 5/10/18 5/15/18 5/16/18 1104	
METHOD OF TRANSPORT (circle one): Walk-In ☒ UPS ☐ Courier ☐ ATLI ☐ Other ☐		DATE/TIME 5/15/18	

DISTRIBUTION: White & Yellow - Lab Copies / Pink - Customer Copy
 Preservation: H=HCl N=None / Container: B=Bag C=Can V=VOA Q=Other
 Rev. 03 - 5/7/09

		CHAIN OF CUSTODY RECORD																	
		TURNAROUND TIME	DELIVERABLES			PAGE: 8 OF 15													
Project No.: Project Name: Report To: Company: Street: City/State/Zip: Phone & Fax: e-mail:		18501 E. Gale Ave., Suite 130 City of Industry, CA 91748 Ph: 626-964-4032 Fx: 626-964-5832		☐ Standard ☐ Same Day ☐ 24 hours Other: <u>5 DAY</u>		☐ 48 hours ☐ 72 hours ☐ 96 hours		☐ EDD ☐ EDF ☐ Level 3 ☐ Level 4		Condition upon receipt: Sealed Yes ☐ No ☐ Intact Yes ☐ No ☐ Chilled _____ deg C									
				BILLING				ANALYSIS REQUEST											
				P.O. No.: PO7112802 Bill to: Republic Services Attn: Mike Lambrich 13570 St. Charles Rock Rd. Bridgeton, MO 63044															
LAB USE ONLY		SAMPLE IDENTIFICATION		SAMPLE DATE		SAMPLE TIME		CONTAINER QTY/TYPE		MATRIX		PRESERVATION		D1946 + CO, H2		INITIALS			

LABORATORY PRESSURE (mmHg)		SAMPLE START		SAMPLE END	
5821		-19.5		-5	
3435		-19.7		-5	
A8056		-19.5		-5	
6149		-18.5		-5	
6146		-19.8		-5	
A7794		-19.7		-5	
5268		-19.6		-5	
4657		-19.6		-5	
A8068		-19.8		-5	
A7815		-19.6		-5	

AUTHORIZATION TO PERFORM WORK:		COMPANY: Republic Services	
SAMPLED BY: Anthony Kimutis		DATE/TIME: <u>5/10/18</u>	
RELINQUISHED BY: <u>[Signature]</u>		RECEIVED BY: <u>[Signature]</u>	
DATE/TIME: <u>5/15/18</u>		DATE/TIME: <u>5/16/18</u>	
RELINQUISHED BY: <u>[Signature]</u>		RECEIVED BY: <u>[Signature]</u>	
DATE/TIME: <u>5/15/18</u>		DATE/TIME: <u>5/16/18</u>	
RELINQUISHED BY: <u>[Signature]</u>		RECEIVED BY: <u>[Signature]</u>	
DATE/TIME: <u>5/15/18</u>		DATE/TIME: <u>5/16/18</u>	
METHOD OF TRANSPORT (circle one): Walk-In ☒ UPS ☐ Courier ☐ ATL ☐ Other ☐			
DISTRIBUTION: White & Yellow - Lab Copies / Pink - Customer Copy			

COMMENTS:

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

		CHAIN OF CUSTODY RECORD																																					
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		Standard	☐	48 hours	☐	EDD	☒	Condition upon receipt: Sealed Yes ☐ No ☐ Intact Yes ☐ No ☐ Chilled _____ deg C																															
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COMMENTS

AUTHORIZATION TO PERFORM WORK:		COMPANY: Republic Services	
SAMPLED BY: Anthony Kimutis		DATE/TIME: 5/14/18 5:14/18	
RELINQUISHED BY: [Signature]		RECEIVED BY: [Signature]	
DATE/TIME: 5/15/18		DATE/TIME: 5/16/18	
RELINQUISHED BY: [Signature]		RECEIVED BY: [Signature]	
DATE/TIME: 5/16/18		DATE/TIME: 5/16/18	
RELINQUISHED BY: [Signature]		RECEIVED BY: [Signature]	
DATE/TIME: 5/16/18		DATE/TIME: 5/16/18	
METHOD OF TRANSPORT (circle one): Walk-In ☒ UPS ☐ Courier ☐ ATLI ☐ Other ☐			
DISTRIBUTION: White & Yellow - Lab Copies / Pink - Customer Copy			

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: 11 OF 15					
Project No.: Project Name: Report To: Company: Street: City/State/Zip: Phone & Fax: e-mail:				Standard ☐ 48 hours Same Day ☐ 72 hours 24 hours ☐ 96 hours Other: <u>5 DAY</u> EDD ☐ EDF ☐ Level 3 ☐ Level 4 ☐ Chilled _____ deg C															
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3851604-100 -102 -103 -104 -105 -106 -107 -108 -109 -110				A7800		GEW 160		5/10/2018		9:16		C		LFG		NA		X	
				A7804		GEW 161		5/10/2018		9:27		C		LFG		NA		X	
				5929		GEW 91		5/10/2018		9:41		C		LFG		NA		X	
				6148		GEW 154		5/10/2018		9:53		C		LFG		NA		X	
				A7744		GEW 90		5/10/2018		10:05		C		LFG		NA		X	
				A7658		GEW 162		5/10/2018		10:30		C		LFG		NA		X	
				5307		GEW 149		5/10/2018		10:42		C		LFG		NA		X	
				6155		GEW 67A		5/10/2018		10:55		C		LFG		NA		X	
				A7666		GEW 86		5/10/2018		11:23		C		LFG		NA		X	
				A7667		GEW 87		5/10/2018		13:10		C		LFG		NA		X	
COMMENTS																			
AUTHORIZATION TO PERFORM WORK: Dave Penoyer COMPANY: Republic Services																			
SAMPLED BY: Tim Ahrens DATE/TIME: 5/10/18																			
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 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: 12 OF 15								
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Bridgeton, MO 63044													
LAB USE ONLY Cannister Pressure ("hg)		SAMPLE IDENTIFICATION		PRESERVATION									
		CANNISTER ID	SAMPLE START	SAMPLE END	SAMPLE DATE	SAMPLE TIME	CONTAINER QTY/TYP	MATRIX	PRESERVATION				
J051604-110 -112 -118 -118 -118 -118 -118 -118 -118 -118 -118		A7812	-18.5	-5	GEW 148	5/10/2018	13:23	C	LFG	NA	X	D1946 + CO, H2	-6
		3162	-19.3	-5	GEW 15	5/10/2018	13:37	C	LFG	NA	X	-7	
		5906	-19.4	-5	GEW 113	5/10/2018	13:49	C	LFG	NA	X	-6	
		5936	-19.4	-5	GEW 16R	5/10/2018	14:00	C	LFG	NA	X	-7	
		A8082	-19.6	-5	GEW 146	5/10/2018	14:27	C	LFG	NA	X	-6.9	
		3131	-19.2	-5	GEW 138	5/10/2018	14:38	C	LFG	NA	X	-6.9	
		5922	-19.6	-5	GEW 147	5/11/2018	8:18	C	LFG	NA	X	-5	
		5316	-19.5	-5	GEW 136	5/11/2018	8:31	C	LFG	NA	X	-6	
		5305	-19.5	-5	GEW 135	5/11/2018	8:44	C	LFG	NA	X	-6	
		A7818	-19.6	-5	GEW 134	5/11/2018	8:55	C	LFG	NA	X	-6	
AUTHORIZATION TO PERFORM WORK: Dave Penoyer COMPANY: Republic Services		COMMENTS											
SAMPLED BY: Tim Ahrens RELINQUISHED BY: RELINQUISHED BY: RELINQUISHED BY:		DATE/TIME: 5/10/18-5/11/18 RECEIVED BY: RECEIVED BY: RECEIVED BY:											
METHOD OF TRANSPORT (circle one): Walk-In ☒ UPS ☐ Courier ☐ ATLI ☐ Other ☐		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													
		TURNAROUND TIME	DELIVERABLES		PAGE: 13 OF 15										
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		Standard ☐ 48 hours ☐ Same Day ☐ 72 hours ☐ 24 hours ☐ 96 hours ☐ Other: <u>5 DAY</u>		EDD ☐ EDF ☐ Level 3 ☐ Level 4 ☐		Condition upon receipt: Sealed Yes ☐ No ☐ Intact Yes ☐ No ☐ Chilled _____ deg C									
		BILLING				ANALYSIS REQUEST									
		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	
J851604-120 -122 -123 -124 -125 -126 -127 -128 -129 -130		A7798		GEW 137		5/11/2018		9:09		C		LFG		NA	
		A7643		GEW 78R		5/11/2018		9:24		C		LFG		NA	
		4655		GEW 155		5/11/2018		9:39		C		LFG		NA	
		A7649		GEW 82R		5/11/2018		9:50		C		LFG		NA	
		5837		GEW 18B		5/11/2018		10:29		C		LFG		NA	
		A7820		GEW 116		5/11/2018		10:42		C		LFG		NA	
		5823		GEW 117		5/11/2018		10:54		C		LFG		NA	
		5323		GEW 120		5/11/2018		11:08		C		LFG		NA	
		5907		GEW 118		5/11/2018		13:35		C		LFG		NA	
		3164		GEW 132		5/11/2018		13:49		C		LFG		NA	
AUTHORIZATION TO PERFORM WORK: Dave Penoyer COMPANY: Republic Services		COMPANY: Cornerstone		DATE/TIME 5/11/18		DATE/TIME 5/11/18		COMMENTS							
				RECEIVED BY [Signature]		DATE/TIME 5/11/18									
				RECEIVED BY [Signature]		DATE/TIME 5/16/18									
				RECEIVED BY [Signature]		DATE/TIME 11:04									
METHOD OF TRANSPORT (circle one): Walk-In ☒ FedEx ☐ UPS ☐ Courier ☐ ATLI ☐ Other ☐		DISTRIBUTION: White & Yellow - Lab Copies / Pink - Customer Copy													
		Preservation: H=HCl N=None / Container: B=Bag C=Can V=VOA O=Other													

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

[illegible]

Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-01	J051604-02	J051604-03	J051604-04				
Client Sample I.D.:	GEW 10	GEW 110	GIW 13	GIW 12				
Date/Time Sampled:	5/2/18 13:28	5/2/18 13:39	5/2/18 13:51	5/2/18 14:10				
Date/Time Analyzed:	5/17/18 7:20	5/17/18 7:35	5/17/18 7:49	5/17/18 8:04				
QC Batch No.:	180516GC8A2	180516GC8A2	180516GC8A2	180516GC8A2				
Analyst Initials:	AS	AS	AS	AS				
Dilution Factor:	3.4	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	ND d 0.034	15 3.4	12 3.4	9.3 3.4			
	Carbon Dioxide	40 0.034	31 0.034	50 0.034	25 0.034			
	Oxygen/Argon	2.3 1.7	8.2 1.7	3.1 1.7	10 1.7			
	Nitrogen	7.2 3.4	29 3.4	12 3.4	45 3.4			
	Methane	51 0.0034	17 0.0034	23 0.0034	10 0.0034			
	Carbon Monoxide	ND 0.0034	0.047 0.0034	0.037 0.0034	0.049 0.0034			

Results normalized including non-methane hydrocarbons

ND = Not Detected (below RL)

RL = Reporting Limit

d = Reported from a secondary analysis. QC Batch: 180522GC8A1

Reviewed/Approved By: _____


 Mark Johnson
 Operations Manager

Date _____

5/23/18

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: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-05	J051604-06	J051604-07	J051604-08				
Client Sample I.D.:	GEW 56R	GIW 11	GIW 1	GIW 2				
Date/Time Sampled:	5/2/18 14:47	5/2/18 14:57	5/2/18 15:08	5/2/18 15:18				
Date/Time Analyzed:	5/17/18 8:18	5/17/18 8:33	5/17/18 8:47	5/17/18 9:02				
QC Batch No.:	180516GC8A2	180516GC8A2	180516GC8A2	180516GC8A2				
Analyst Initials:	AS	AS	AS	AS				
Dilution Factor:	3.4	3.5	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	17	3.4	13	3.5	25	3.4	8.5	3.4
Carbon Dioxide	40	0.034	34	0.035	59	0.034	17	0.034
Oxygen/Argon	2.4	1.7	2.3	1.7	ND	1.7	15	1.7
Nitrogen	12	3.4	39	3.5	6.9	3.4	58	3.4
Methane	28	0.0034	12	0.0035	6.3	0.0034	0.65	0.0034
Carbon Monoxide	0.048	0.0034	0.060	0.0035	0.11	0.0034	0.053	0.0034

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 Mark Johnson
 Operations Manager

Date _____

5/23/18

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Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-09	J051604-10	J051604-11	J051604-12					
Client Sample I.D.:	GIW 3	GIW 4	GIW 10	GIW 6					
Date/Time Sampled:	5/2/18 15:29	5/2/18 15:38	5/3/18 8:56	5/3/18 9:13					
Date/Time Analyzed:	5/17/18 9:18	5/17/18 9:33	5/17/18 9:47	5/17/18 10:02					
QC Batch No.:	180516GC8A2	180516GC8A2	180516GC8A2	180516GC8A2					
Analyst Initials:	AS	AS	AS	AS					
Dilution Factor:	3.4	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	15	3.4	26	3.4	11	3.4	11	3.4
	Carbon Dioxide	40	0.034	38	0.034	28	0.034	43	0.034
	Oxygen/Argon	3.2	1.7	6.2	1.7	1.8	1.7	ND	1.7
	Nitrogen	31	3.4	25	3.4	50	3.4	25	3.4
	Methane	9.4	0.0034	4.6	0.0034	8.5	0.0034	20	0.0034
	Carbon Monoxide	0.074	0.0034	0.11	0.0034	0.031	0.0034	0.017	0.0034

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 Mark Johnson
 Operations Manager

Date _____

5/23/18

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Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-13	J051604-14	J051604-15	J051604-16				
Client Sample I.D.:	GIW 7	GIW 8	GEW 38	GIW 9				
Date/Time Sampled:	5/3/18 9:23	5/3/18 9:56	5/3/18 10:05	5/3/18 10:14				
Date/Time Analyzed:	5/17/18 10:16	5/18/18 8:37	5/18/18 8:51	5/18/18 9:06				
QC Batch No.:	180516GC8A2	180517GC8A2	180517GC8A2	180517GC8A2				
Analyst Initials:	AS	AS	AS	AS				
Dilution Factor:	3.2	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	7.2	3.2	0.054 d	0.034	17	3.4	2.6 d	0.034
Carbon Dioxide	58	0.032	53	0.034	23	0.034	24	0.034
Oxygen/Argon	ND	1.6	ND	1.7	12	1.7	5.6	1.7
Nitrogen	4.9	3.2	9.0	3.4	43	3.4	64	3.4
Methane	28	0.0032	37	0.0034	5.0	0.0034	3.4	0.0034
Carbon Monoxide	0.036	0.0032	ND	0.0034	0.071	0.0034	0.012	0.0034

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Reviewed/Approved By: _____


 Mark Johnson
 Operations Manager

Date _____

5/23/18

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Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-17	J051604-18	J051604-19	J051604-20				
Client Sample I.D.:	GEW 109	GEW 39	GEW 163	GEW 164				
Date/Time Sampled:	5/3/18 10:23	5/3/18 10:32	5/3/18 13:27	5/3/18 13:36				
Date/Time Analyzed:	5/18/18 9:21	5/18/18 9:35	5/18/18 9:50	5/18/18 10:04				
QC Batch No.:	180517GC8A2	180517GC8A2	180517GC8A2	180517GC8A2				
Analyst Initials:	AS	AS	AS	AS				
Dilution Factor:	3.4	3.4	3.4	3.4				
ANALYTE	Result	RL	Result	RL	Result	RL	Result	RL
	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v
Hydrogen	9.3	3.4	ND	0.034	14	3.4	10	3.4
Carbon Dioxide	36	0.034	38	0.034	48	0.034	56	0.034
Oxygen/Argon	ND	1.7	2.3	1.7	2.6	1.7	ND	1.7
Nitrogen	27	3.4	31	3.4	23	3.4	7.6	3.4
Methane	26	0.0034	29	0.0034	12	0.0034	24	0.0034
Carbon Monoxide	0.034	0.0034	ND	0.0034	0.052	0.0034	0.064	0.0034

Results normalized including non-methane hydrocarbons

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Reviewed/Approved By: _____


 Mark Johnson
 Operations Manager

Date 5/23/18

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Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-22	J051604-23	J051604-24	J051604-25				
Client Sample I.D.:	GEW 166	GEW 167	GEW 168	GEW 169				
Date/Time Sampled:	5/3/18 13:57	5/3/18 14:07	5/3/18 14:23	5/3/18 14:33				
Date/Time Analyzed:	5/18/18 10:33	5/18/18 10:48	5/18/18 13:09	5/18/18 13:24				
QC Batch No.:	180517GC8A2	180517GC8A2	180518GC8A1	180518GC8A1				
Analyst Initials:	AS	AS	AS	AS				
Dilution Factor:	3.4	3.2	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	41	3.4	25	3.2	25	3.4	30	3.4
Carbon Dioxide	54	0.034	30	0.032	54	0.034	61	0.034
Oxygen/Argon	ND	1.7	9.4	1.6	ND	1.7	ND	1.7
Nitrogen	ND	3.4	34	3.2	8.4	3.4	ND	3.4
Methane	0.93	0.0034	0.44	0.0032	10	0.0034	5.5	0.0034
Carbon Monoxide	0.26	0.0034	0.15	0.0032	0.14	0.0034	0.19	0.0034

Results normalized including non-methane hydrocarbons

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 Mark Johnson
 Operations Manager

Date 5/23/18

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: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

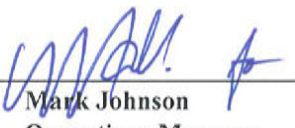
Lab No.:	J051604-26	J051604-27	J051604-28	J051604-29				
Client Sample I.D.:	GEW 187	GEW 178	GEW 179	GEW 180				
Date/Time Sampled:	5/3/18 14:48	5/3/18 15:11	5/3/18 15:22	5/4/18 8:36				
Date/Time Analyzed:	5/18/18 13:38	5/18/18 13:53	5/18/18 14:08	5/18/18 14:22				
QC Batch No.:	180518GC8A1	180518GC8A1	180518GC8A1	180518GC8A1				
Analyst Initials:	AS	AS	AS	AS				
Dilution Factor:	3.2	3.4	3.4	3.4				
ANALYTE	Result	RL	Result	RL	Result	RL	Result	RL
	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v
Hydrogen	18	3.2	7.8	3.4	5.2	3.4	11	3.4
Carbon Dioxide	52	0.032	53	0.034	68	0.034	64	0.034
Oxygen/Argon	2.7	1.6	4.0	1.7	ND	1.7	ND	1.7
Nitrogen	9.2	3.2	18	3.4	3.9	3.4	9.4	3.4
Methane	16	0.0032	16	0.0034	22	0.0034	14	0.0034
Carbon Monoxide	0.081	0.0032	0.027	0.0034	0.014	0.0034	0.042	0.0034

Results normalized including non-methane hydrocarbons

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Reviewed/Approved By: _____


Mark Johnson
Operations Manager

Date

5/23/18

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: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-30	J051604-31	J051604-32	J051604-33				
Client Sample I.D.:	GEW 181	GEW 186	GEW 182	GEW 184				
Date/Time Sampled:	5/4/18 8:46	5/4/18 9:03	5/4/18 9:17	5/4/18 9:30				
Date/Time Analyzed:	5/18/18 14:37	5/18/18 14:51	5/18/18 15:06	5/18/18 15:20				
QC Batch No.:	180518GC8A1	180518GC8A1	180518GC8A1	180518GC8A1				
Analyst Initials:	AS	AS	AS	AS				
Dilution Factor:	3.4	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	13	3.4	8.5	3.4	13	3.4	1.2 d	0.034
Carbon Dioxide	68	0.034	52	0.034	44	0.034	33	0.034
Oxygen/Argon	ND	1.7	2.5	1.7	4.3	1.7	10.0	1.7
Nitrogen	ND	3.4	11	3.4	19	3.4	40	3.4
Methane	15	0.0034	25	0.0034	18	0.0034	16	0.0034
Carbon Monoxide	0.085	0.0034	0.063	0.0034	0.044	0.0034	0.010	0.0034

Results normalized including non-methane hydrocarbons

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d = Reported from a secondary analysis. QC Batch: 180522GC8A2

Reviewed/Approved By: _____


 Mark Johnson
 Operations Manager

Date _____

5/23/18

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: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-34	J051604-35	J051604-36	J051604-37				
Client Sample I.D.:	GEW 185	GEW 108	GEW 153	GEW 59R				
Date/Time Sampled:	5/4/18 9:41	5/4/18 14:32	5/4/18 14:44	5/4/18 14:54				
Date/Time Analyzed:	5/18/18 15:35	5/18/18 15:49	5/18/18 16:04	5/18/18 16:18				
QC Batch No.:	180518GC8A1	180518GC8A1	180518GC8A1	180518GC8A1				
Analyst Initials:	AS	AS	AS	AS				
Dilution Factor:	3.4	3.4	3.4	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
Hydrogen	17	3.4	0.94 d	0.034	1.6 d	0.034	28	3.2
Carbon Dioxide	59	0.034	48	0.034	29	0.034	36	0.032
Oxygen/Argon	ND	1.7	ND	1.7	1.8	1.7	2.6	1.6
Nitrogen	5.8	3.4	14	3.4	35	3.4	18	3.2
Methane	16	0.0034	35	0.0034	32	0.0034	15	0.0032
Carbon Monoxide	0.077	0.0034	0.0052	0.0034	ND	0.0034	0.093	0.0032

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Reviewed/Approved By: _____


 Mark Johnson
 Operations Manager

Date _____

5/23/18

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Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-38	J051604-39	J051604-40	J051604-41				
Client Sample I.D.:	GEW 159	GEW 107	GEW 152	GEW 50				
Date/Time Sampled:	5/4/18 15:05	5/4/18 15:16	5/4/18 15:24	5/7/18 8:54				
Date/Time Analyzed:	5/18/18 16:33	5/18/18 16:48	5/18/18 17:02	5/18/18 17:17				
QC Batch No.:	180518GC8A1	180518GC8A1	180518GC8A1	180518GC8A1				
Analyst Initials:	AS	AS	AS	AS				
Dilution Factor:	3.4	3.4	3.4	3.2				
ANALYTE	Result	RL	Result	RL	Result	RL	Result	RL
	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v
Hydrogen	5.1	3.4	28	3.4	19	3.4	ND	d 0.032
Carbon Dioxide	29	0.034	56	0.034	40	0.034	35	0.032
Oxygen/Argon	1.7	1.7	ND	1.7	2.5	1.7	ND	1.6
Nitrogen	32	3.4	ND	3.4	12	3.4	8.5	3.2
Methane	31	0.0034	12	0.0034	25	0.0034	55	0.0032
Carbon Monoxide	0.020	0.0034	0.16	0.0034	0.095	0.0034	ND	0.0032

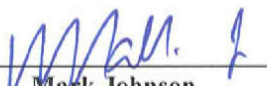
Results normalized including non-methane hydrocarbons

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Reviewed/Approved By: _____


 Mark Johnson
 Operations Manager

Date _____

5/23/18

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: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-42		J051604-43		J051604-44		J051604-45	
Client Sample I.D.:	GEW 52		GEW 7		GEW 8		GEW 9	
Date/Time Sampled:	5/7/18 9:13		5/7/18 9:25		5/7/18 9:35		5/7/18 9:47	
Date/Time Analyzed:	5/18/18 17:31		5/18/18 17:46		5/18/18 19:42		5/18/18 19:57	
QC Batch No.:	180518GC8A1		180518GC8A1		180518GC8A2		180518GC8A2	
Analyst Initials:	AS		AS		VM		VM	
Dilution Factor:	3.0		3.2		3.2		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
Hydrogen	ND d	0.030	ND d	0.032	1.5 d	0.032	0.45 d	0.032
Carbon Dioxide	30	0.030	39	0.032	42	0.032	37	0.032
Oxygen/Argon	2.3	1.5	ND	1.6	ND	1.6	ND	1.6
Nitrogen	26	3.0	ND	3.2	ND	3.2	14	3.2
Methane	42	0.0030	59	0.0032	54	0.0032	48	0.0032
Carbon Monoxide	ND	0.0030	ND	0.0032	ND	0.0032	ND	0.0032

Results normalized including non-methane hydrocarbons

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Reviewed/Approved By: Mark Johnson
Mark Johnson
Operations Manager

Date 5/23/18

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: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-46		J051604-47		J051604-48		J051604-49	
Client Sample I.D.:	GEW 51		GEW 53		GEW 54		GEW 55	
Date/Time Sampled:	5/7/18 10:04		5/7/18 10:20		5/7/18 10:31		5/7/18 10:45	
Date/Time Analyzed:	5/18/18 20:11		5/18/18 20:26		5/18/18 20:40		5/18/18 20:55	
QC Batch No.:	180518GC8A2		180518GC8A2		180518GC8A2		180518GC8A2	
Analyst Initials:	VM		VM		VM		VM	
Dilution Factor:	3.2		3.4		3.2		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
Hydrogen	0.92 d	0.032	3.0 d	0.034	2.3 d	0.032	1.9 d	0.032
Carbon Dioxide	39	0.032	41	0.034	41	0.032	39	0.032
Oxygen/Argon	ND	1.6	ND	1.7	ND	1.6	ND	1.6
Nitrogen	ND	3.2	ND	3.4	ND	3.2	5.8	3.2
Methane	56	0.0032	52	0.0034	54	0.0032	52	0.0032
Carbon Monoxide	ND	0.0032	0.0065	0.0034	ND	0.0032	ND	0.0032

Results normalized including non-methane hydrocarbons

ND = Not Detected (below RL)

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d = Reported from a secondary analysis. QC Batch: 180522GC8A2

Reviewed/Approved By: _____


 Mark Johnson
 Operations Manager

Date _____

5/23/18

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Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-50		J051604-51		J051604-52		J051604-53	
Client Sample I.D.:	GEW 40		GEW 41R		GEW 42R		GEW 43R	
Date/Time Sampled:	5/7/18 10:55		5/7/18 11:05		5/7/18 11:14		5/7/18 11:29	
Date/Time Analyzed:	5/18/18 21:10		5/18/18 21:24		5/18/18 21:39		5/18/18 21:53	
QC Batch No.:	180518GC8A2		180518GC8A2		180518GC8A2		180518GC8A2	
Analyst Initials:	VM		VM		VM		VM	
Dilution Factor:	3.2		3.2		3.2		3.2	
ANALYTE	Result	RL	Result	RL	Result	RL	Result	RL
	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v
Hydrogen	ND d	0.032	ND d	0.032	ND d	0.032	0.23 d	0.032
Carbon Dioxide	34	0.032	35	0.032	39	0.032	37	0.032
Oxygen/Argon	1.6	1.6	ND	1.6	ND	1.6	2.3	1.6
Nitrogen	9.3	3.2	6.0	3.2	ND	3.2	8.5	3.2
Methane	55	0.0032	58	0.0032	57	0.0032	52	0.0032
Carbon Monoxide	ND	0.0032	ND	0.0032	ND	0.0032	ND	0.0032

Results normalized including non-methane hydrocarbons

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 Mark Johnson
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Project No.: NA
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Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-54		J051604-55		J051604-56		J051604-57	
Client Sample I.D.:	GEW 44		GEW 45R		GEW 46R		GEW 2S	
Date/Time Sampled:	5/7/18 13:29		5/7/18 13:40		5/7/18 13:51		5/7/18 14:17	
Date/Time Analyzed:	5/18/18 22:56		5/18/18 23:11		5/18/18 23:25		5/18/18 23:40	
QC Batch No.:	180518GC8A2		180518GC8A2		180518GC8A2		180518GC8A2	
Analyst Initials:	VM		VM		VM		VM	
Dilution Factor:	3.4		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	ND d	0.034	ND d	0.034	ND d	0.034	ND d	0.034
Carbon Dioxide	37	0.034	40	0.034	35	0.034	35	0.034
Oxygen/Argon	ND	1.7	ND	1.7	ND	1.7	ND	1.7
Nitrogen	7.5	3.4	ND	3.4	11	3.4	4.5	3.4
Methane	55	0.0034	58	0.0034	53	0.0034	59	0.0034
Carbon Monoxide	ND	0.0034	ND	0.0034	ND	0.0034	ND	0.0034

Results normalized including non-methane hydrocarbons

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Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-59		J051604-60		J051604-61		J051604-62	
Client Sample I.D.:	GEW 3		GEW 4		GEW 47R		GEW 5	
Date/Time Sampled:	5/7/18 14:44		5/7/18 14:54		5/7/18 15:09		5/7/18 15:23	
Date/Time Analyzed:	5/18/18 23:54		5/19/18 0:09		5/19/18 0:23		5/19/18 0:38	
QC Batch No.:	180518GC8A2		180518GC8A2		180518GC8A2		180518GC8A2	
Analyst Initials:	VM		VM		VM		VM	
Dilution Factor:	3.4		3.2		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	0.072 d	0.034	0.067 d	0.032	0.068 d	0.034	ND d	0.034
Carbon Dioxide	36	0.034	37	0.032	37	0.034	34	0.034
Oxygen/Argon	ND	1.7	ND	1.6	ND	1.7	ND	1.7
Nitrogen	9.8	3.4	7.7	3.2	7.2	3.4	11	3.4
Methane	53	0.0034	54	0.0032	55	0.0034	54	0.0034
Carbon Monoxide	ND	0.0034	ND	0.0032	ND	0.0034	ND	0.0034

Results normalized including non-methane hydrocarbons

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Reviewed/Approved By: _____


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5/23/18

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Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-63	J051604-64	J051604-65	J051604-66				
Client Sample I.D.:	GEW 48	GEW 6	GEW 49	GEW 13A				
Date/Time Sampled:	5/7/18 15:33	5/8/18 8:31	5/8/18 8:45	5/8/18 9:44				
Date/Time Analyzed:	5/19/18 0:52	5/19/18 1:07	5/19/18 3:03	5/19/18 9:13				
QC Batch No.:	180518GC8A2	180518GC8A2	180519GC8A1	180519GC8A1				
Analyst Initials:	VM	VM	AS	AS				
Dilution Factor:	3.4	3.2	3.2	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	ND d 0.034	ND d 0.032	ND d 0.032	8.0	3.4		
	Carbon Dioxide	40 0.034	35 0.032	36 0.032	35	0.034		
	Oxygen/Argon	ND 1.7	ND 1.6	ND 1.6	5.0	1.7		
	Nitrogen	ND 3.4	7.8 3.2	10 3.2	44	3.4		
	Methane	58 0.0034	56 0.0032	53 0.0032	7.0	0.0034		
	Carbon Monoxide	ND 0.0034	ND 0.0032	ND 0.0032	0.033	0.0034		

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Project No.: NA
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Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-67	J051604-68	J051604-69	J051604-70				
Client Sample I.D.:	GEW 177	GEW 128	GIW 5	GEW 188				
Date/Time Sampled:	5/8/18 10:02	5/8/18 10:12	5/10/18 8:38	5/10/18 8:54				
Date/Time Analyzed:	5/19/18 9:28	5/19/18 9:42	5/19/18 9:57	5/19/18 10:12				
QC Batch No.:	180519GC8A1	180519GC8A1	180519GC8A1	180519GC8A1				
Analyst Initials:	AS	AS	AS	AS				
Dilution Factor:	3.4	3.4	3.4	3.4				
ANALYTE	Result	RL	Result	RL	Result	RL	Result	RL
	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v
Hydrogen	33	3.4	12	3.4	14	3.4	3.1 d	0.034
Carbon Dioxide	62	0.034	45	0.034	11	0.034	12	0.034
Oxygen/Argon	ND	1.7	6.3	1.7	16	1.7	15	1.7
Nitrogen	ND	3.4	24	3.4	58	3.4	68	3.4
Methane	2.1	0.0034	12	0.0034	0.42	0.0034	1.8	0.0034
Carbon Monoxide	0.36	0.0034	0.11	0.0034	0.013	0.0034	0.016	0.0034

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Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-71	J051604-72	J051604-73	J051604-74				
Client Sample I.D.:	GEW 58A	GEW 58	GEW 106	GEW 158				
Date/Time Sampled:	5/10/18 9:12	5/10/18 9:20	5/10/18 9:55	5/10/18 10:04				
Date/Time Analyzed:	5/19/18 10:26	5/19/18 10:41	5/19/18 10:55	5/19/18 11:10				
QC Batch No.:	180519GC8A1	180519GC8A1	180519GC8A1	180519GC8A1				
Analyst Initials:	AS	AS	AS	AS				
Dilution Factor:	3.4	3.4	3.4	3.2				
ANALYTE	Result	RL	Result	RL	Result	RL	Result	RL
	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v
Hydrogen	38	3.4	13	3.4	34	3.4	18	3.2
Carbon Dioxide	39	0.034	29	0.034	45	0.034	46	0.032
Oxygen/Argon	4.3	1.7	2.8	1.7	2.0	1.7	2.8	1.6
Nitrogen	17	3.4	47	3.4	13	3.4	17	3.2
Methane	0.62	0.0034	6.8	0.0034	3.6	0.0034	15	0.0032
Carbon Monoxide	0.13	0.0034	0.058	0.0034	0.12	0.0034	0.044	0.0032

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Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-75	J051604-76	J051604-77	J051604-78				
Client Sample I.D.:	GEW 105	GEW 176	GEW 175	GEW 157				
Date/Time Sampled:	5/10/18 10:31	5/10/18 10:43	5/10/18 11:00	5/10/18 11:18				
Date/Time Analyzed:	5/19/18 11:24	5/19/18 11:39	5/19/18 11:54	5/19/18 12:08				
QC Batch No.:	180519GC8A1	180519GC8A1	180519GC8A1	180519GC8A1				
Analyst Initials:	AS	AS	AS	AS				
Dilution Factor:	3.4	3.4	3.4	3.4				
ANALYTE	Result	RL	Result	RL	Result	RL	Result	RL
	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v
Hydrogen	14	3.4	4.9	3.4	20	3.4	29	3.4
Carbon Dioxide	36	0.034	31	0.034	50	0.034	47	0.034
Oxygen/Argon	6.3	1.7	7.2	1.7	2.4	1.7	1.9	1.7
Nitrogen	28	3.4	31	3.4	13	3.4	6.7	3.4
Methane	16	0.0034	25	0.0034	14	0.0034	15	0.0034
Carbon Monoxide	0.060	0.0034	0.020	0.0034	0.071	0.0034	0.11	0.0034

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Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-79	J051604-80	J051604-81	J051604-82					
Client Sample I.D.:	GEW 57B	GEW 57R	GEW 156	GEW 145					
Date/Time Sampled:	5/10/18 11:28	5/10/18 11:37	5/10/18 13:44	5/10/18 13:58					
Date/Time Analyzed:	5/19/18 12:23	5/19/18 13:56	5/19/18 14:11	5/19/18 14:26					
QC Batch No.:	180519GC8A1	180519GC8A1	180519GC8A1	180519GC8A1					
Analyst Initials:	AS	AS	AS	AS					
Dilution Factor:	3.4	3.4	3.5	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	11	3.4	3.2 d	0.034	5.8	3.5	36	3.4
	Carbon Dioxide	11	0.034	28	0.034	48	0.035	42	0.034
	Oxygen/Argon	17	1.7	12	1.7	ND	1.7	3.6	1.7
	Nitrogen	60	3.4	44	3.4	6.5	3.5	13	3.4
	Methane	0.50	0.0034	12	0.0034	39	0.0035	5.6	0.0034
	Carbon Monoxide	0.027	0.0034	0.013	0.0034	0.016	0.0035	0.14	0.0034

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Project No.: NA
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Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-83	J051604-84	J051604-85	J051604-86					
Client Sample I.D.:	GEW 102	GEW 101	GEW 68A	GEW 174					
Date/Time Sampled:	5/10/18 14:07	5/10/18 14:21	5/10/18 14:36	5/10/18 14:47					
Date/Time Analyzed:	5/19/18 14:40	5/19/18 14:55	5/19/18 16:51	5/19/18 17:06					
QC Batch No.:	180519GC8A1	180519GC8A1	180519GC8A2	180519GC8A2					
Analyst Initials:	AS	AS	MJ	MJ					
Dilution Factor:	3.4	3.4	3.5	3.6					
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	24	3.4	2.8	0.034	29	3.5	14	3.6
	Carbon Dioxide	35	0.034	50	0.034	52	0.035	43	0.036
	Oxygen/Argon	6.7	1.7	4.6	1.7	ND	1.7	ND	1.8
	Nitrogen	23	3.4	20	3.4	4.6	3.5	20	3.6
	Methane	9.8	0.0034	22	0.0034	12	0.0035	21	0.0036
	Carbon Monoxide	0.037	0.0034	0.031	0.0034	0.19	0.0035	0.072	0.0036

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Project No.: NA
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Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-87	J051604-88	J051604-89	J051604-90				
Client Sample I.D.:	GEW 100	GEW 171	GEW 172	GEW 140				
Date/Time Sampled:	5/10/18 15:29	5/10/18 15:39	5/10/18 15:56	5/11/18 9:00				
Date/Time Analyzed:	5/19/18 17:21	5/19/18 17:35	5/19/18 17:50	5/19/18 18:04				
QC Batch No.:	180519GC8A2	180519GC8A2	180519GC8A2	180519GC8A2				
Analyst Initials:	MJ	MJ	MJ	MJ				
Dilution Factor:	3.6	3.5	3.5	3.4				
ANALYTE	Result	RL	Result	RL	Result	RL	Result	RL
	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v
Hydrogen	23	3.6	15	3.5	29	3.5	24	3.4
Carbon Dioxide	43	0.036	34	0.035	55	0.035	49	0.034
Oxygen/Argon	6.8	1.8	9.9	1.7	ND	1.7	ND	1.7
Nitrogen	24	3.6	36	3.5	ND	3.5	5.7	3.4
Methane	1.0	0.0036	4.7	0.0035	12	0.0035	20	0.0034
Carbon Monoxide	0.064	0.0036	0.11	0.0035	0.22	0.0035	0.11	0.0034

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Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-91	J051604-92	J051604-93	J051604-94				
Client Sample I.D.:	GEW 173	GEW 139	GEW 77	GEW 129				
Date/Time Sampled:	5/11/18 9:10	5/11/18 9:39	5/11/18 9:48	5/11/18 10:04				
Date/Time Analyzed:	5/19/18 18:19	5/19/18 18:34	5/19/18 18:48	5/19/18 19:03				
QC Batch No.:	180519GC8A2	180519GC8A2	180519GC8A2	180519GC8A2				
Analyst Initials:	MJ	MJ	MJ	MJ				
Dilution Factor:	3.4	3.2	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	0.50 d 0.034	31 3.2	23 3.4	31 3.4			
	Carbon Dioxide	13 0.034	50 0.032	30 0.034	64 0.034			
	Oxygen/Argon	11 1.7	ND 1.6	10.0 1.7	ND 1.7			
	Nitrogen	71 3.4	12 3.2	35 3.4	ND 3.4			
	Methane	3.8 0.0034	6.1 0.0032	0.36 0.0034	1.00 0.0034			
	Carbon Monoxide	0.0053 0.0034	0.21 0.0032	0.12 0.0034	0.36 0.0034			

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Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-95	J051604-96	J051604-97	J051604-98				
Client Sample I.D.:	GEW 170	GEW 127	GEW 130	GEW 126				
Date/Time Sampled:	5/14/18 9:03	5/14/18 9:13	5/14/18 9:24	5/14/18 9:35				
Date/Time Analyzed:	5/19/18 19:17	5/20/18 10:25	5/20/18 10:40	5/20/18 10:54				
QC Batch No.:	180519GC8A2	180519GC8A2	180519GC8A2	180519GC8A2				
Analyst Initials:	MJ	MJ	MJ	MJ				
Dilution Factor:	3.4	3.4	3.4	3.4				
ANALYTE	Result	RL	Result	RL	Result	RL	Result	RL
	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v
Hydrogen	25	3.4	27	3.4	29	3.4	8.8	3.4
Carbon Dioxide	60	0.034	62	0.034	53	0.034	53	0.034
Oxygen/Argon	ND	1.7	ND	1.7	2.0	1.7	ND	1.7
Nitrogen	4.2	3.4	4.3	3.4	9.3	3.4	18	3.4
Methane	8.6	0.0034	4.9	0.0034	5.9	0.0034	17	0.0034
Carbon Monoxide	0.20	0.0034	0.23	0.0034	0.24	0.0034	0.063	0.0034

Results normalized including non-methane hydrocarbons

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: _____


 Mark Johnson
 Operations Manager

Date 5/23/18

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: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

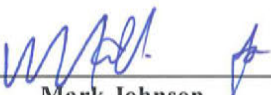
Lab No.:	J051604-99	J051604-100	J051604-101	J051604-102				
Client Sample I.D.:	GEW 131	GEW 160	GEW 161	GEW 91				
Date/Time Sampled:	5/14/18 9:46	5/10/18 9:16	5/10/18 9:27	5/10/18 9:41				
Date/Time Analyzed:	5/20/18 11:09	5/20/18 11:23	5/21/18 14:16	5/21/18 14:31				
QC Batch No.:	180519GC8A2	180519GC8A2	180521GC8A1	180521GC8A1				
Analyst Initials:	MJ	MJ	MJ	MJ				
Dilution Factor:	3.4	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	14	3.4	9.2	3.4	31	3.4	10	3.4
Carbon Dioxide	40	0.034	17	0.034	46	0.034	14	0.034
Oxygen/Argon	ND	1.7	12	1.7	1.8	1.7	14	1.7
Nitrogen	25	3.4	56	3.4	16	3.4	59	3.4
Methane	20	0.0034	6.1	0.0034	3.6	0.0034	0.97	0.0034
Carbon Monoxide	0.094	0.0034	0.036	0.0034	0.16	0.0034	0.015	0.0034

Results normalized including non-methane hydrocarbons

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 Operations Manager

Date _____

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Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-103	J051604-104	J051604-105	J051604-106				
Client Sample I.D.:	GEW 154	GEW 90	GEW 162	GEW 149				
Date/Time Sampled:	5/10/18 9:53	5/10/18 10:05	5/10/18 10:30	5/10/18 10:42				
Date/Time Analyzed:	5/20/18 12:07	5/20/18 12:22	5/20/18 14:48	5/20/18 15:02				
QC Batch No.:	180519GC8A2	180519GC8A2	180520GC8A1	180520GC8A1				
Analyst Initials:	MJ	MJ	MJ	MJ				
Dilution Factor:	3.4	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	0.47 d	0.034	22	3.4	14	3.4	7.7	3.4
Carbon Dioxide	2.4	0.034	33	0.034	59	0.034	37	0.034
Oxygen/Argon	20	1.7	5.7	1.7	ND	1.7	ND	1.7
Nitrogen	77	3.4	24	3.4	16	3.4	43	3.4
Methane	0.015	0.0034	14	0.0034	9.4	0.0034	9.7	0.0034
Carbon Monoxide	0.0074	0.0034	0.064	0.0034	0.073	0.0034	0.029	0.0034

Results normalized including non-methane hydrocarbons

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d = Reported from a secondary analysis. QC Batch: 180522GC8A3

Reviewed/Approved By: _____


 Mark Johnson
 Operations Manager

Date _____

5/23/18

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Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-107	J051604-108	J051604-109	J051604-110						
Client Sample I.D.:	GEW 67A	GEW 86	GEW 87	GEW 148						
Date/Time Sampled:	5/10/18 10:55	5/10/18 11:23	5/10/18 13:10	5/10/18 13:23						
Date/Time Analyzed:	5/20/18 15:17	5/20/18 15:31	5/20/18 15:46	5/20/18 16:01						
QC Batch No.:	180520GC8A1	180520GC8A1	180520GC8A1	180520GC8A1						
Analyst Initials:	MJ	MJ	MJ	MJ						
Dilution Factor:	3.4	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	9.4	3.4	5.3	3.4	2.5	d	0.034	0.25	d	0.034
Carbon Dioxide	21	0.034	34	0.034	17		0.034	0.84		0.034
Oxygen/Argon	8.6	1.7	2.3	1.7	12		1.7	22		1.7
Nitrogen	58	3.4	48	3.4	63		3.4	77		3.4
Methane	2.4	0.0034	10.0	0.0034	5.7		0.0034	0.052		0.0034
Carbon Monoxide	0.014	0.0034	0.013	0.0034	0.013		0.0034	ND		0.0034

Results normalized including non-methane hydrocarbons

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Reviewed/Approved By: _____


 Mark Johnson
 Operations Manager

Date 5/23/18

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Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-111	J051604-112	J051604-113	J051604-114				
Client Sample I.D.:	GEW 15	GEW 113	GEW 16R	GEW 146				
Date/Time Sampled:	5/10/18 13:37	5/10/18 13:49	5/10/18 14:00	5/10/18 14:27				
Date/Time Analyzed:	5/20/18 16:15	5/20/18 16:30	5/20/18 16:44	5/20/18 16:59				
QC Batch No.:	180520GC8A1	180520GC8A1	180520GC8A1	180520GC8A1				
Analyst Initials:	MJ	MJ	MJ	MJ				
Dilution Factor:	3.6	3.4	3.6	3.5				
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	49	3.6	23	3.4	26	3.6	0.40 d	0.035
Carbon Dioxide	46	0.036	46	0.034	42	0.036	4.9	0.035
Oxygen/Argon	ND	1.8	3.6	1.7	ND	1.8	18	1.7
Nitrogen	ND	3.6	19	3.4	25	3.6	75	3.5
Methane	0.41	0.0036	7.4	0.0034	5.3	0.0036	1.9	0.0035
Carbon Monoxide	0.24	0.0036	0.12	0.0034	0.11	0.0036	ND	0.0035

Results normalized including non-methane hydrocarbons

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 Mark Johnson
 Operations Manager

Date _____

5/23/18

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Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-115	J051604-116	J051604-117	J051604-118				
Client Sample I.D.:	GEW 138	GEW 147	GEW 136	GEW 135				
Date/Time Sampled:	5/10/18 14:38	5/11/18 8:18	5/11/18 8:31	5/11/18 8:44				
Date/Time Analyzed:	5/20/18 17:13	5/20/18 17:28	5/20/18 17:43	5/20/18 17:57				
QC Batch No.:	180520GC8A1	180520GC8A1	180520GC8A1	180520GC8A1				
Analyst Initials:	MJ	MJ	MJ	MJ				
Dilution Factor:	3.5	3.2	3.4	3.4				
ANALYTE	Result	RL	Result	RL	Result	RL	Result	RL
	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v
Hydrogen	8.1	3.5	23	3.2	11	3.4	22	3.4
Carbon Dioxide	22	0.035	40	0.032	15	0.034	39	0.034
Oxygen/Argon	4.7	1.7	ND	1.6	14	1.7	3.7	1.7
Nitrogen	60	3.5	26	3.2	57	3.4	30	3.4
Methane	4.4	0.0035	9.0	0.0032	3.4	0.0034	5.4	0.0034
Carbon Monoxide	0.042	0.0035	0.081	0.0032	0.031	0.0034	0.090	0.0034

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 Operations Manager

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Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-119	J051604-120	J051604-121	J051604-122				
Client Sample I.D.:	GEW 134	GEW 137	GEW 78R	GEW 155				
Date/Time Sampled:	5/11/18 8:55	5/11/18 9:09	5/11/18 9:24	5/11/18 9:39				
Date/Time Analyzed:	5/20/18 18:12	5/20/18 18:26	5/20/18 18:41	5/20/18 18:56				
QC Batch No.:	180520GC8A1	180520GC8A1	180520GC8A1	180520GC8A1				
Analyst Initials:	MJ	MJ	MJ	MJ				
Dilution Factor:	3.4	3.4	3.4	3.4				
ANALYTE	Result	RL	Result	RL	Result	RL	Result	RL
	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v
Hydrogen	17	3.4	0.25 d	0.034	15	3.4	5.0	3.4
Carbon Dioxide	42	0.034	29	0.034	30	0.034	17	0.034
Oxygen/Argon	ND	1.7	4.2	1.7	ND	1.7	7.6	1.7
Nitrogen	28	3.4	43	3.4	50	3.4	70	3.4
Methane	11	0.0034	24	0.0034	3.6	0.0034	0.41	0.0034
Carbon Monoxide	0.071	0.0034	0.0039	0.0034	0.055	0.0034	0.017	0.0034

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 Operations Manager

Date

5/23/18

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Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-123	J051604-124	J051604-125	J051604-126				
Client Sample I.D.:	GEW 82R	GEW 18B	GEW 116	GEW 117				
Date/Time Sampled:	5/11/18 9:50	5/11/18 10:29	5/11/18 10:42	5/11/18 10:54				
Date/Time Analyzed:	5/21/18 7:46	5/21/18 8:00	5/21/18 10:09	5/21/18 10:23				
QC Batch No.:	180520GC8A1	180520GC8A1	180521GC8A1	180521GC8A1				
Analyst Initials:	MJ	MJ	AS	AS				
Dilution Factor:	3.4	3.4	3.4	3.4				
ANALYTE	Result	RL	Result	RL	Result	RL	Result	RL
	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v
Hydrogen	21	3.4	36	3.4	19	3.4	0.087 d	0.034
Carbon Dioxide	33	0.034	37	0.034	66	0.034	51	0.034
Oxygen/Argon	ND	1.7	5.0	1.7	ND	1.7	ND	1.7
Nitrogen	37	3.4	21	3.4	ND	3.4	4.9	3.4
Methane	6.7	0.0034	0.53	0.0034	10	0.0034	43	0.0034
Carbon Monoxide	0.074	0.0034	0.14	0.0034	0.073	0.0034	0.0090	0.0034

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Reviewed/Approved By: _____


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Operations Manager

Date _____

5/23/18

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Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-127	J051604-128	J051604-129	J051604-130				
Client Sample I.D.:	GEW 120	GEW 118	GEW 132	GEW 121				
Date/Time Sampled:	5/11/18 11:08	5/11/18 13:35	5/11/18 13:49	5/11/18 14:06				
Date/Time Analyzed:	5/21/18 10:38	5/21/18 10:52	5/21/18 11:07	5/21/18 11:21				
QC Batch No.:	180521GC8A1	180521GC8A1	180521GC8A1	180521GC8A1				
Analyst Initials:	AS	AS	AS	AS				
Dilution Factor:	3.4	3.5	3.4	3.4				
ANALYTE	Result	RL	Result	RL	Result	RL	Result	RL
	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v
Hydrogen	10	3.4	39	3.5	34	3.4	15	3.4
Carbon Dioxide	52	0.034	53	0.035	43	0.034	44	0.034
Oxygen/Argon	ND	1.7	ND	1.7	3.7	1.7	2.1	1.7
Nitrogen	19	3.4	3.9	3.5	17	3.4	29	3.4
Methane	17	0.0034	1.3	0.0035	1.0	0.0034	9.5	0.0034
Carbon Monoxide	0.045	0.0034	0.13	0.0035	0.18	0.0034	0.077	0.0034

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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: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-131	J051604-132	J051604-133	J051604-134				
Client Sample I.D.:	GEW 123	GEW 22R	GEW 122	GEW 81				
Date/Time Sampled:	5/11/18 14:17	5/11/18 14:28	5/14/18 9:00	5/14/18 9:11				
Date/Time Analyzed:	5/21/18 11:36	5/21/18 11:51	5/21/18 12:05	5/21/18 12:20				
QC Batch No.:	180521GC8A1	180521GC8A1	180521GC8A1	180521GC8A1				
Analyst Initials:	AS	AS	AS	AS				
Dilution Factor:	3.5	3.5	3.4	3.4				
ANALYTE	Result	RL	Result	RL	Result	RL	Result	RL
	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v	% v/v
Hydrogen	12	3.5	16	3.5	15	3.4	22	3.4
Carbon Dioxide	52	0.035	29	0.035	33	0.034	25	0.034
Oxygen/Argon	ND	1.7	12	1.7	3.1	1.7	11	1.7
Nitrogen	18	3.5	41	3.5	39	3.4	40	3.4
Methane	17	0.0035	1.1	0.0035	10.0	0.0034	0.45	0.0034
Carbon Monoxide	0.061	0.0035	0.11	0.0035	0.11	0.0034	0.075	0.0034

Results normalized including non-methane hydrocarbons

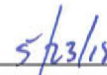
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Operations Manager

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Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-135	J051604-136	J051604-137	J051604-138				
Client Sample I.D.:	GEW 124	GEW 125	GEW 133	GEW 88				
Date/Time Sampled:	5/14/18 9:22	5/14/18 9:39	5/14/18 10:37	5/14/18 13:34				
Date/Time Analyzed:	5/21/18 12:34	5/21/18 12:49	5/21/18 13:03	5/21/18 13:18				
QC Batch No.:	180521GC8A1	180521GC8A1	180521GC8A1	180521GC8A1				
Analyst Initials:	AS	AS	AS	AS				
Dilution Factor:	3.4	3.4	3.6	3.6				
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 0.034	32 3.4	22 3.6	38 3.6			
	Carbon Dioxide	34 0.034	52 0.034	49 0.036	42 0.036			
	Oxygen/Argon	5.5 1.7	ND 1.7	ND 1.8	ND 1.8			
	Nitrogen	19 3.4	11 3.4	16 3.6	13 3.6			
	Methane	41 0.0034	3.4 0.0034	11 0.0036	4.1 0.0036			
	Carbon Monoxide	ND 0.0034	0.17 0.0034	0.10 0.0036	0.084 0.0036			

Results normalized including non-methane hydrocarbons

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Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/16/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J051604-139	J051604-140	J051604-141						
Client Sample I.D.:	GEW 151	GEW 150	GEW 104						
Date/Time Sampled:	5/14/18 13:46	5/15/18 7:57	5/15/18 8:08						
Date/Time Analyzed:	5/21/18 13:33	5/21/18 13:47	5/21/18 14:02						
QC Batch No.:	180521GC8A1	180521GC8A1	180521GC8A1						
Analyst Initials:	AS	AS	AS						
Dilution Factor:	3.6	3.4	3.4						
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v	Result % v/v	RL % v/v			
	Hydrogen	21	3.6	20	3.4	36	3.4		
	Carbon Dioxide	48	0.036	53	0.034	56	0.034		
	Oxygen/Argon	ND	1.8	ND	1.7	ND	1.7		
	Nitrogen	4.7	3.6	7.1	3.4	ND	3.4		
	Methane	25	0.0036	18	0.0034	3.7	0.0034		
	Carbon Monoxide	0.057	0.0036	0.094	0.0034	0.12	0.0034		

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 Operations Manager

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QC Batch No: 180516GC8A2
 Matrix: Air
 Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	5/16/18 15:07			5/16/18 14:23		5/16/18 14:38					
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	5.86	117	5.84	117	0.3	70	130	30
Carbon Dioxide	ND	0.010	10	9.67	96	9.64	96	0.3	70	130	30
Oxygen/Argon	ND	0.50	15	15.9	107	15.8	106	0.6	70	130	30
Nitrogen	ND	1.0	70	71.3	102	70.8	101	0.7	70	130	30
Methane	ND	0.0010	0.10	0.108	108	0.107	107	0.5	70	130	30
Carbon Monoxide	ND	0.0010	0.10	0.105	105	0.105	105	0.5	70	130	30

ND = Not Detected (below RL)

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 Operations Manager

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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: 180517GC8A2
 Matrix: Air
 Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	5/17/18 18:47			5/17/18 18:04		5/17/18 18:18					
Analyst Initials:	AS			AS		AS					
Dilution Factor:	1.0			1.0		1.0					
ANALYTE	Result % v/v	RL % v/v	SPIKE AMT. % v/v	Result % v/v	% Rec.	Result % v/v	% Rec.	RPD %	Limits		
									Low %Rec	High %Rec	Max. RPD
Hydrogen	ND	1.0	5.0	3.63	73	3.52	70	3.0	70	130	30
Carbon Dioxide	ND	0.010	10	8.43	84	8.23	82	2.5	70	130	30
Oxygen/Argon	ND	0.50	15	15.9	107	15.5	104	2.6	70	130	30
Nitrogen	ND	1.0	70	69.6	100	67.9	97	2.6	70	130	30
Methane	ND	0.0010	0.10	0.117	117	0.116	116	0.2	70	130	30
Carbon Monoxide	ND	0.0010	0.10	0.101	101	0.0998	100	0.9	70	130	30

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Mark Johnson
Operations Manager

Date _____

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: 180518GC8A1
 Matrix: Air
 Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	5/18/18 12:54			5/18/18 12:10		5/18/18 12:25					
Analyst Initials:	AS			AS		AS					
Dilution Factor:	1.0			1.0		1.0					
ANALYTE	Result % v/v	RL % v/v	SPIKE AMT. % v/v	Result % v/v	% Rec.	Result % v/v	% Rec.	RPD %	Limits		
									Low %Rec	High %Rec	Max. RPD
Hydrogen	ND	1.0	5.0	5.54	111	5.52	110	0.2	70	130	30
Carbon Dioxide	ND	0.010	10	9.36	93	9.28	93	0.9	70	130	30
Oxygen/Argon	ND	0.50	15	15.4	104	15.3	103	0.4	70	130	30
Nitrogen	ND	1.0	70	69.6	99	69.3	99	0.5	70	130	30
Methane	ND	0.0010	0.10	0.115	115	0.114	114	1.1	70	130	30
Carbon Monoxide	ND	0.0010	0.10	0.108	108	0.107	107	0.8	70	130	30

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: _____

Mark Johnson
 Mark Johnson
 Operations Manager

Date _____

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: 180518GC8A2
 Matrix: Air
 Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	5/18/18 19:28			5/18/18 18:44		5/18/18 18:59					
Analyst Initials:	VM			VM		VM					
Dilution Factor:	1.0			1.0		1.0					
ANALYTE	Result % v/v	RL % v/v	SPIKE AMT. % v/v	Result % v/v	% Rec.	Result % v/v	% Rec.	RPD %	Limits		
									Low %Rec	High %Rec	Max. RPD
Hydrogen	ND	1.0	5.0	5.23	105	5.26	105	0.7	70	130	30
Carbon Dioxide	ND	0.010	10	9.17	92	9.23	92	0.7	70	130	30
Oxygen/Argon	ND	0.50	15	15.3	103	15.4	104	0.9	70	130	30
Nitrogen	ND	1.0	70	69.1	99	69.7	100	0.8	70	130	30
Methane	ND	0.0010	0.10	0.114	114	0.114	114	0.2	70	130	30
Carbon Monoxide	ND	0.0010	0.10	0.107	107	0.107	107	0.0	70	130	30

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: _____

Mark Johnson
Operations Manager

Date _____

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: 180519GC8A1
 Matrix: Air
 Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	5/19/18 2:49			5/19/18 2:05		5/19/18 2:20					
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	4.58	92	4.59	92	0.1	70	130	30
Carbon Dioxide	ND	0.010	10	8.91	89	8.93	89	0.2	70	130	30
Oxygen/Argon	ND	0.50	15	15.5	104	15.6	105	0.6	70	130	30
Nitrogen	ND	1.0	70	69.3	99	69.6	100	0.4	70	130	30
Methane	ND	0.0010	0.10	0.110	110	0.109	109	0.4	70	130	30
Carbon Monoxide	ND	0.0010	0.10	0.102	102	0.102	102	0.5	70	130	30

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: _____

Mark Johnson
Operations Manager

Date _____

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: 180519GC8A2
 Matrix: Air
 Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	5/19/18 16:37			5/20/18 12:36		5/20/18 12:51					
Analyst Initials:	MJ			MJ		MJ					
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	5.80	116	5.74	115	1.1	70	130	30
Carbon Dioxide	ND	0.010	10	9.61	96	9.59	96	0.2	70	130	30
Oxygen/Argon	ND	0.50	15	15.6	105	15.5	105	0.2	70	130	30
Nitrogen	ND	1.0	70	70.9	101	70.6	101	0.3	70	130	30
Methane	ND	0.0010	0.10	0.112	112	0.112	112	0.1	70	130	30
Carbon Monoxide	ND	0.0010	0.10	0.111	111	0.110	110	0.8	70	130	30

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: _____

Mark Johnson
 Mark Johnson
 Operations Manager

Date _____

5/23/18

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: 180520GC8A1
 Matrix: Air
 Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	5/20/18 14:33			5/20/18 13:49		5/20/18 14:04					
Analyst Initials:	MJ			MJ		MJ					
Dilution Factor:	1.0			1.0		1.0					
ANALYTE	Result % v/v	RL % v/v	SPIKE AMT. % v/v	Result % v/v	% Rec.	Result % v/v	% Rec.	RPD %	Limits		
									Low %Rec	High %Rec	Max. RPD
Hydrogen	ND	1.0	5.0	5.67	113	5.67	113	0.0	70	130	30
Carbon Dioxide	ND	0.010	10	9.65	96	9.50	95	1.6	70	130	30
Oxygen/Argon	ND	0.50	15	15.5	105	15.6	105	0.6	70	130	30
Nitrogen	ND	1.0	70	70.4	101	70.8	101	0.5	70	130	30
Methane	ND	0.0010	0.10	0.111	111	0.110	110	0.4	70	130	30
Carbon Monoxide	ND	0.0010	0.10	0.110	110	0.109	109	0.6	70	130	30

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: _____

Mark Johnson
Operations Manager

Date _____

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: 180521GC8A1
 Matrix: Air
 Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	5/21/18 9:45			5/21/18 9:01		5/21/18 9:15					
Analyst Initials:	AS			AS		AS					
Dilution Factor:	1.0			1.0		1.0					
ANALYTE	Result % v/v	RL % v/v	SPIKE AMT. % v/v	Result % v/v	% Rec.	Result % v/v	% Rec.	RPD %	Limits		
									Low %Rec	High %Rec	Max. RPD
Hydrogen	ND	1.0	5.0	5.24	105	5.21	104	0.6	70	130	30
Carbon Dioxide	ND	0.010	10	9.18	92	9.14	91	0.5	70	130	30
Oxygen/Argon	ND	0.50	15	15.5	105	15.6	105	0.2	70	130	30
Nitrogen	ND	1.0	70	69.9	100	70.1	100	0.2	70	130	30
Methane	ND	0.0010	0.10	0.110	110	0.109	109	0.7	70	130	30
Carbon Monoxide	ND	0.0010	0.10	0.109	109	0.108	108	1.0	70	130	30

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: Mark Johnson
 Operations Manager

Date 5/23/18

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 # 180522GC8A1
Matrix: Air
Units: % v/v

QC for Low Level Hydrogen Analysis

Lab No.:	Blank		LCS		LCSD			
Date Analyzed:	5/22/2018 10:56		5/22/2018 10:31		5/22/2018 10:36			
Analyst Initials:	AS		AS		AS			
Dilution Factor:	1.0		1.0		1.0			
ANALYTE	Results	RL	%Rec	Criteria	%Rec	Criteria	RPD	Criteria
Hydrogen	ND	0.01	103	70-130	103	70-130	0.3	<20

ND = Not Detected (Below RL)

RL = PQL X Dilution Factor

Reviewed/Approved By:


Mark Johnson
Operations Manager

Date:

5/23/18

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



QC Batch # 180522GC8A2
Matrix: Air
Units: % v/v

QC for Low Level Hydrogen Analysis

Lab No.:	Blank		LCS		LCSD			
Date Analyzed:	5/22/2018 12:32		5/22/2018 12:23		5/22/2018 12:28			
Analyst Initials:	AS		AS		AS			
Dilution Factor:	1.0		1.0		1.0			
ANALYTE	Results	RL	%Rec	Criteria	%Rec	Criteria	RPD	Criteria
Hydrogen	ND	0.01	101	70-130	96	70-130	4.7	<20

ND = Not Detected (Below RL)

RL = PQL X Dilution Factor

Reviewed/Approved By:


Mark Johnson
Operations Manager

Date:

5/22/18

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



QC Batch # 180522GC8A3
Matrix: Air
Units: % v/v

QC for Low Level Hydrogen Analysis

Lab No.:	Blank		LCS		LCSD			
Date Analyzed:	5/22/2018 14:59		5/22/2018 14:49		5/22/2018 14:54			
Analyst Initials:	AS		AS		AS			
Dilution Factor:	1.0		1.0		1.0			
ANALYTE	Results	RL	%Rec	Criteria	%Rec	Criteria	RPD	Criteria
Hydrogen	ND	0.01	100	70-130	99	70-130	0.8	<20

ND = Not Detected (Below RL)

RL = PQL X Dilution Factor

Reviewed/Approved By:


Mark Johnson
Operations Manager

Date:

5/23/18

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





May 29, 2018

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



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

LABORATORY TEST RESULTS

Project Reference: Bridgeton Landfill
Lab Number: J052201-01/02

Enclosed are results for sample(s) received 5/21/18 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 5/25/18.

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,

A handwritten signature in blue ink, appearing to read "Mark Johnson".

Mark Johnson
Operations Manager
MJohnson@AirTechLabs.com

Enclosures

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



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

CHAIN OF CUSTODY RECORD

PAGE: 1 OF 1

Project No.:

Project Name:

Report To: Bridgeton Landfill

Company: 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

LAB USE ONLY

Cannister Pressure ("hg)

SAMPLE IDENTIFICATION

Cannister ID

Sample Start

Sample End

Sample DATE

SAMPLE TIME

CONTAINER QTY/TPE

MATRIX

PRESEVA-TION

EDD

EDF

Level 3

Level 4

Chilled

deg C

Sealed

Intact

Condition upon receipt:

Sealed Yes No

Intact Yes No

Chilled

deg C

Sealed

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Condition upon receipt:

Sealed Yes No

Intact Yes No

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Sealed Yes No

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Condition upon receipt:

Sealed Yes No

Intact Yes No

Ch

Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/22/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J052201-01	J052201-02						
Client Sample I.D.:	GEW 165	GEW 2						
Date/Time Sampled:	5/21/18 11:39	5/21/18 11:55						
Date/Time Analyzed:	5/24/18 10:59	5/24/18 11:13						
QC Batch No.:	180524GC8A1	180524GC8A1						
Analyst Initials:	AS	AS						
Dilution Factor:	3.4	3.4						
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v				
Hydrogen	20	3.4	0.058	d 0.034				
Carbon Dioxide	54	0.034	37	0.034				
Oxygen/Argon	3.3	1.7	2.3	1.7				
Nitrogen	12	3.4	7.9	3.4				
Methane	9.5	0.0034	53	0.0034				
Carbon Monoxide	0.093	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:180522GC8A3

Reviewed/Approved By: 

Mark Johnson
Operations Manager

Date 5-25-18

The cover letter is an integral part of this analytical report



QC Batch No: 180524GC8A1
Matrix: Air
Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	5/24/18 8:48			5/23/18 19:25		5/23/18 19:40					
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	4.82	96	4.81	96	0.2	70	130	30
Carbon Dioxide	ND	0.010	10	8.98	90	8.99	90	0.2	70	130	30
Oxygen/Argon	ND	0.50	15	15.4	104	15.4	104	0.0	70	130	30
Nitrogen	ND	1.0	70	69.6	100	69.7	100	0.0	70	130	30
Methane	ND	0.0010	0.10	0.113	113	0.112	112	0.5	70	130	30
Carbon Monoxide	ND	0.0010	0.10	0.109	109	0.109	109	0.4	70	130	30

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By:



Mark Johnson
Operations Manager

Date

5-25-18

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 # 180522GC8A3
Matrix: Air
Units: % v/v

QC for Low Level Hydrogen Analysis

Lab No.:	Blank		LCS		LCSD			
Date Analyzed:	5/22/2018 14:59		5/22/2018 14:49		5/22/2018 14:54			
Analyst Initials:	AS		AS		AS			
Dilution Factor:	1.0		1.0		1.0			
ANALYTE	Results	RL	%Rec	Criteria	%Rec	Criteria	RPD	Criteria
Hydrogen	ND	0.01	100	70-130	99	70-130	0.8	<20

ND = Not Detected (Below RL)

RL = PQL X Dilution Factor

Reviewed/Approved By:



Mark Johnson
Operations Manager

Date:

5-25-18

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





June 4, 2018

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



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

LABORATORY TEST RESULTS

Project Reference: Bridgeton Landfill
Lab Number: J053004-01/03

Enclosed are results for sample(s) received 5/30/18 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 6/01/18.

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,

A handwritten signature in blue ink that appears to read "Mark Johnson".

Mark Johnson
Operations Manager
MJohnson@AirTechLabs.com

Enclosures

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

		CHAIN OF CUSTODY RECORD															
		TURNAROUND TIME	DELIVERABLES				PAGE: 1 OF 1										
Project No.: Project Name: Report To: Company: Street: City/State/Zip: Phone & Fax: e-mail:		18501 E. Gale Ave., Suite 130 City of Industry, CA 91748 Ph: 626-964-4032 Fx: 626-964-5832		☐ Standard ☐ Same Day ☐ 24 hours Other:		☐ 48 hours ☐ 72 hours ☐ 96 hours		☐ EDD ☐ EDF ☐ Level 3 ☐ Level 4		Condition upon receipt: Sealed Yes ☐ No ☐ Intact Yes ☐ No ☐ Chilled _____ deg C							
				BILLING				ANALYSIS REQUEST									
				P.O. No.: PO7112802													
				Bill to: Republic Services Attn: Mike Lambrich 13570 St. Charles Rock Rd. Bridgeton, MO 63044													
LAB USE ONLY		SAMPLE IDENTIFICATION		Cannister Pressure ("hg)		SAMPLE DATE		SAMPLE TIME		CONTAINER QTY/TYP		MATRIX		PRESERVATION			
J053004-01 -02 -03		A7810		-19.3		-5		5/29/2018		11:09		C		LFG		NA	
		5909		-19.6		-5		5/29/2018		11:20		C		LFG		NA	
		5814		-19.5		-5		5/29/2018		11:32		C		LFG		NA	
AUTHORIZATION TO PERFORM WORK:		Dave Penoyer		COMPANY: Republic Services		COMMENTS											
SAMPLED BY: Anthony Kimutis		DATE/TIME		RECEIVED BY		DATE/TIME		RECEIVED BY		DATE/TIME		RECEIVED BY		DATE/TIME			
METHOD OF TRANSPORT (circle one):		Walk-In		FedEx		UPS		Courier		ATLI		Other					

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

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

Client: Republic Services Inc.
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 05/30/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J053004-01		J053004-02		J053004-03			
Client Sample I.D.:	GEW 52		GEW 40		GEW 43R			
Date/Time Sampled:	5/29/18 11:09		5/29/18 11:20		5/29/18 11:32			
Date/Time Analyzed:	5/30/18 15:35		5/30/18 15:49		5/30/18 16:04			
QC Batch No.:	180530GC8A1		180530GC8A1		180530GC8A1			
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	ND d	0.034	ND d	0.034	0.22 d	0.034		
Carbon Dioxide	33	0.034	36	0.034	41	0.034		
Oxygen/Argon	2.4	1.7	ND	1.7	ND	1.7		
Nitrogen	16	3.4	5.0	3.4	ND	3.4		
Methane	49	0.0034	58	0.0034	55	0.0034		
Carbon Monoxide	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: 180601GC8A1

Reviewed/Approved By:



Mark Johnson
Operations Manager

Date

6-1-18

The cover letter is an integral part of this analytical report



QC Batch No: 180530GC8A1
Matrix: Air
Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	5/30/18 15:06			5/30/18 14:22		5/30/18 14:37					
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	3.82	76	3.81	76	0.3	70	130	30
Carbon Dioxide	ND	0.010	10	8.93	89	8.92	89	0.1	70	130	30
Oxygen/Argon	ND	0.50	15	16.5	112	16.7	112	0.7	70	130	30
Nitrogen	ND	1.0	70	72.2	103	72.6	104	0.5	70	130	30
Methane	ND	0.0010	0.10	0.0994	99	0.0995	99	0.1	70	130	30
Carbon Monoxide	ND	0.0010	0.10	0.0963	96	0.0963	96	0.1	70	130	30

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: _____

Mark Johnson
Operations Manager

Date _____

6-1-18

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 # 180601GC8A1
Matrix: Air
Units: % v/v

QC for Low Level Hydrogen Analysis

Lab No.:	Blank		LCS		LCSD			
Date Analyzed:	6/1/18 8:49		6/1/18 8:39		6/1/18 8:44			
Analyst Initials:	AS		AS		AS			
Dilution Factor:	1.0		1.0		1.0			
ANALYTE	Results	RL	%Rec	Criteria	%Rec	Criteria	RPD	Criteria
Hydrogen	ND	0.01	99	70-130	99	70-130	0.4	<20

ND = Not Detected (Below RL)

RL = PQL X Dilution Factor

Reviewed/Approved By:



Mark Johnson
Operations Manager

Date:

6-1-18

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





June 5, 2018

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



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

LABORATORY TEST RESULTS

Project Reference: Bridgeton Landfill
Lab Number: J060101-01

Enclosed are results for sample(s) received 6/01/18 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 6/04/18.

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,

A handwritten signature in blue ink, appearing to read "Mark Johnson".

Mark Johnson
Operations Manager
MJohnson@AirTechLabs.com

Enclosures

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

		CHAIN OF CUSTODY RECORD											
		TURNAROUND TIME	DELIVERABLES			PAGE: 1 OF 1							
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		Standard ☐ 48 hours ☐ EDD ☒		Sealed Yes ☐ No ☐		Condition upon receipt: Sealed Yes ☐ No ☐ Intact Yes ☐ No ☐ Chilled _____ deg C							
		Same Day ☐ 72 hours ☐ EDF ☐		Level 3 ☐									
		24 hours ☒ 96 hours ☐		Level 4 ☐									
		Other:											
LAB USE ONLY J060101-01		SAMPLE IDENTIFICATION		SAMPLE DATE		SAMPLE TIME		CONTAINER QTY/TYPE		MATRIX		PRESERVATION	
		Cannister ID		Sample Start		Sample End							
LAB USE ONLY J060101-01													
LAB USE ONLY J060101-01													
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LAB USE ONLY J060101-01													
LAB USE ONLY J060101-01													

Client: Republic Services Inc.
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 06/01/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J060101-01								
Client Sample I.D.:	GEW 2								
Date/Time Sampled:	5/31/18 14:49								
Date/Time Analyzed:	6/1/18 12:51								
QC Batch No.:	180601GC8A2								
Analyst Initials:	AS								
Dilution Factor:	3.6								
ANALYTE	Result % v/v	RL % v/v							
Hydrogen	ND d	0.036							
Carbon Dioxide	41	0.036							
Oxygen/Argon	ND	1.8							
Nitrogen	ND	3.6							
Methane	55	0.0036							
Carbon Monoxide	ND	0.0036							

Results normalized including non-methane hydrocarbons

ND = Not Detected (below RL)

RL = Reporting Limit

d = Reported from a secondary analysis. QC Batch: 180601GC8A1

Reviewed/Approved By: _____


Mark Johnson
Operations Manager

Date _____

6/4/18

The cover letter is an integral part of this analytical report



QC Batch No: 180601GC8A2
Matrix: Air
Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK			LCS		LCSD					
Date Analyzed:	6/1/18 12:12			6/1/18 11:28		6/1/18 11:43					
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	4.53	91	4.48	90	1.0	70	130	30
Carbon Dioxide	ND	0.010	10	8.73	87	9.09	91	4.0	70	130	30
Oxygen/Argon	ND	0.50	15	15.7	106	16.4	110	4.2	70	130	30
Nitrogen	ND	1.0	70	69.1	99	72.1	103	4.2	70	130	30
Methane	ND	0.0010	0.10	0.109	109	0.108	108	0.5	70	130	30
Carbon Monoxide	ND	0.0010	0.10	0.0997	100	0.0994	99	0.3	70	130	30

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: Mark Johnson
Mark Johnson
Operations Manager

Date 6/4/18

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 # 180601GC8A1
Matrix: Air
Units: % v/v

QC for Low Level Hydrogen Analysis

Lab No.:	Blank		LCS		LCSD			
Date Analyzed:	6/1/18 8:49		6/1/18 8:39		6/1/18 8:44			
Analyst Initials:	AS		AS		AS			
Dilution Factor:	1.0		1.0		1.0			
ANALYTE	Results	RL	%Rec	Criteria	%Rec	Criteria	RPD	Criteria
Hydrogen	ND	0.01	99	70-130	99	70-130	0.4	<20

ND = Not Detected (Below RL)

RL = PQL X Dilution Factor

Reviewed/Approved By:


Mark Johnson
Operations Manager

Date:

6/4/18

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



ATTACHMENT E
GAS WELLFIELD DATA

ATTACHMENT E-1

WELLFIELD DATA TABLE

May 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 ₂ O		
GEW-002	5/1/2018 14:00	57.4	42.2	0.0	0.4	112.6	112.5	29.4	20.5	0.65	0.72	-12.7
GEW-002	5/1/2018 14:01	56.4	42.3	0.0	1.3	113.2	113.0	29.1	29.1	0.6	0.6	-12.9
GEW-002	5/2/2018 9:01	55.2	42.4	0.0	2.4	113.8	113.7	28.6	28.6	0.3	0.3	-13.6
GEW-002	5/2/2018 9:03	55.0	42.9	0.0	2.1	114.5	114.5	23.1	23.4	0.2	0.2	-13.8
GEW-002	5/3/2018 8:07	55.3	44.1	0.0	0.6	114.8	114.8	19.9	19.9	-0.1	-0.1	-14.2
GEW-002	5/3/2018 8:08	55.2	43.0	0.0	1.8	115.1	115.3	17.4	16.3	-0.1	-0.1	-13.5
GEW-002	5/7/2018 14:30	55.3	40.5	0.0	4.2	117.1	117.1	18.0	17.9	-0.02	-0.01	-12.6
GEW-002	5/7/2018 14:37	55.3	41.2	0.0	3.5	117.1	117.1	17.1	18.5	-0.1	-0.04	-13.7
GEW-002	5/16/2018 11:27	58.0	41.0	0.0	1.0	117.1	117.1	13.1	13.9	-0.2	-0.2	-13.4
GEW-002	5/16/2018 11:29	56.6	42.2	0.0	1.2	117.1	117.2	18.6	16.6	-0.2	-0.2	-13.1
GEW-002	5/21/2018 11:51	55.5	43.1	0.0	1.4	116.6	116.6	16.7	19.7	-0.2	-0.2	-13.2
GEW-002	5/21/2018 11:57	55.8	41.8	0.0	2.4	116.6	116.6	20.9	20.9	-0.2	-0.2	-13.7
GEW-002	5/30/2018 9:41	55.8	40.7	0.0	3.5	117.2	117.3	16.7	18.3	-0.4	-0.4	-12.9
GEW-002	5/31/2018 14:45	56.8	39.8	0.0	3.4	116.6	116.6	21.2	20.5	-0.4	-0.4	-13.6
GEW-002	5/31/2018 14:51	56.0	40.9	0.0	3.1	116.5	116.4	22.7	22.7	-0.4	-0.4	-13.7
GEW-003	5/1/2018 14:04	53.4	38.1	0.0	8.5	118.6	118.6	35.7	34.4	-0.5	-0.4	-12.7
GEW-003	5/1/2018 14:06	53.6	37.6	0.0	8.8	118.6	118.6	18.5	16.0	-0.5	-0.5	-12.5
GEW-003	5/2/2018 9:06	52.8	38.3	0.0	8.9	115.1	115.1	20.0	21.6	-0.9	-0.9	-13.1
GEW-003	5/2/2018 9:08	53.2	38.0	0.0	8.8	115.1	115.0	19.4	19.8	-0.8	-0.8	-13.0
GEW-003	5/7/2018 14:40	52.8	38.6	0.0	8.6	114.5	114.5	16.7	14.9	-0.6	-0.6	-12.6
GEW-003	5/7/2018 14:46	54.0	37.6	0.0	8.4	114.5	114.8	17.6	17.4	-0.6	-0.6	-13.1
GEW-003	5/16/2018 11:33	52.5	38.8	0.0	8.7	113.5	113.5	15.0	14.5	-0.7	-0.7	-12.8
GEW-003	5/16/2018 11:34	52.9	38.6	0.0	8.5	114.0	114.0	16.2	12.4	-0.7	-0.7	-12.5
GEW-003	5/21/2018 14:11	51.3	37.3	0.0	11.4	113.2	113.2	17.2	15.9	-0.5	-0.5	-13.2
GEW-003	5/21/2018 14:13	50.1	38.1	0.0	11.8	113.2	113.2	15.2	13.7	-0.5	-0.5	-13.0
GEW-003	5/30/2018 9:44	49.3	37.6	0.0	13.1	113.5	113.6	11.7	11.4	-0.6	-0.6	-12.5
GEW-003	5/30/2018 9:46	49.1	38.0	0.0	12.9	114.0	114.0	7.6	8.9	-0.6	-0.6	-13.1
GEW-004	5/2/2018 9:11	55.6	40.0	0.0	4.4	111.5	111.5	9.0	10.1	-0.5	-0.5	-12.9
GEW-004	5/7/2018 14:50	54.1	38.7	0.0	7.2	113.5	113.5	8.9	8.9	-0.2	-0.2	-12.3
GEW-004	5/7/2018 14:57	54.8	38.6	0.0	6.6	113.2	113.2	10.0	8.1	-0.2	-0.2	-12.7
GEW-004	5/16/2018 11:37	55.2	39.5	0.0	5.3	114.3	114.0	25.9	25.9	-0.4	-0.4	-12.5
GEW-004	5/21/2018 14:16	53.6	38.8	0.0	7.6	112.2	112.2	27.3	28.1	-0.2	-0.2	-12.9
GEW-004	5/30/2018 9:49	53.6	39.4	0.0	7.0	115.5	115.5	23.0	22.4	-0.3	-0.3	-12.3
GEW-005	5/2/2018 9:20	51.4	35.8	0.0	12.8	84.0	84.0	7.8	6.2	-0.1	-0.1	-13.4
GEW-005	5/7/2018 15:20	52.7	35.3	0.0	12.0	85.9	85.9	9.1	10.1	0.2	0.2	-12.6
GEW-005	5/7/2018 15:26	52.6	35.2	0.0	12.2	86.1	86.1	24.9	24.6	0.1	0.1	-12.9
GEW-005	5/8/2018 8:17	52.0	35.7	0.0	12.3	84.2	84.2	0.0	0.0	-0.02	-0.03	-13.4
GEW-005	5/16/2018 13:29	54.2	34.8	0.0	11.0	88.4	88.3	6.8	7.0	0.0	0.0	-12.9
GEW-005	5/16/2018 13:31	53.9	35.0	0.0	11.1	88.2	88.2	7.1	7.0	0.0	0.0	-12.9
GEW-005	5/17/2018 7:58	50.9	34.8	0.0	14.3	86.3	86.3	6.7	3.9	-0.3	-0.2	-13.5
GEW-005	5/17/2018 7:59	50.8	34.8	0.0	14.4	86.3	86.3	5.5	5.5	-0.2	-0.2	-13.5

May 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 ₂ O		
GEW-005	5/21/2018 14:31	52.4	35.5	0.0	12.1	87.2	87.2	9.1	10.0	0.1	0.1	-13.1
GEW-005	5/21/2018 14:32	52.0	35.2	0.0	12.8	87.6	87.7	10.3	10.3	0.1	0.1	-13.0
GEW-005	5/22/2018 8:33	50.2	35.4	0.0	14.4	88.6	88.6	3.9	2.5	-0.4	-0.4	-13.4
GEW-005	5/22/2018 8:35	49.7	34.7	0.0	15.6	88.9	88.7	3.4	4.2	-0.4	-0.4	-13.2
GEW-005	5/30/2018 10:00	51.4	35.8	0.0	12.8	91.0	91.0	28.7	28.9	-0.1	-0.1	-13.2
GEW-006	5/2/2018 9:28	56.0	37.9	0.0	6.1	87.2	87.2	19.3	17.6	-0.2	-0.2	-13.3
GEW-006	5/8/2018 8:27	56.3	37.2	0.0	6.5	86.9	87.0	16.3	13.7	-0.2	-0.2	-14.3
GEW-006	5/8/2018 8:33	56.3	37.4	0.0	6.3	87.0	87.0	20.0	17.2	-0.2	-0.2	-14.0
GEW-006	5/16/2018 13:38	58.0	37.0	0.0	5.0	88.4	88.4	19.4	15.5	-0.2	-0.2	-13.2
GEW-006	5/21/2018 14:41	56.8	37.4	0.0	5.8	88.4	88.4	18.8	19.0	-0.1	-0.1	-13.1
GEW-006	5/30/2018 10:06	55.7	37.6	0.0	6.7	89.1	89.1	18.0	20.1	-0.4	-0.4	-13.7
GEW-007	5/1/2018 14:43	59.7	39.6	0.0	0.7	91.0	91.0	9.9	10.6	-0.1	-0.1	-12.8
GEW-007	5/1/2018 14:44	59.5	40.0	0.0	0.5	91.0	91.0	10.7	10.6	-0.1	-0.1	-12.7
GEW-007	5/7/2018 9:21	58.2	40.6	0.0	1.2	88.4	88.4	10.0	9.6	-1.1	-1.1	-13.9
GEW-007	5/7/2018 9:28	59.0	39.6	0.0	1.4	88.6	88.6	10.3	11.0	-1.1	-1.1	-13.5
GEW-007	5/16/2018 10:06	58.1	40.1	0.0	1.8	90.7	90.8	8.4	8.4	-0.7	-0.7	-13.4
GEW-007	5/21/2018 8:32	58.6	40.3	0.0	1.1	85.7	85.8	12.9	11.3	-0.3	-0.3	-11.5
GEW-007	5/29/2018 14:32	57.8	40.0	0.0	2.2	95.0	95.1	10.2	12.2	-0.1	-0.1	-13.6
GEW-008	5/1/2018 14:48	54.8	41.9	0.0	3.3	113.7	113.7	15.2	15.6	-0.6	-0.6	-13.1
GEW-008	5/7/2018 9:32	52.8	42.5	0.0	4.7	113.2	113.2	15.9	16.6	-1.0	-1.0	-13.9
GEW-008	5/7/2018 9:39	53.5	42.4	0.0	4.1	113.0	113.1	15.2	17.2	-1.0	-1.0	-13.9
GEW-008	5/16/2018 10:11	52.6	43.6	0.0	3.8	113.5	113.7	24.0	23.9	-0.8	-0.7	-13.4
GEW-008	5/21/2018 8:36	53.7	42.5	0.0	3.8	111.4	111.3	14.2	15.4	-0.6	-0.6	-12.1
GEW-008	5/29/2018 14:36	52.6	42.5	0.0	4.9	114.4	114.3	16.3	16.3	-0.5	-0.5	-13.7
GEW-009	5/1/2018 14:51	51.8	39.8	0.0	8.4	122.1	122.1	9.2	10.7	-0.04	-0.1	-13.1
GEW-009	5/1/2018 14:53	51.9	39.9	0.0	8.2	122.1	122.1	14.1	13.6	-0.1	-0.1	-13.1
GEW-009	5/7/2018 9:43	47.6	39.3	0.0	13.1	119.2	119.2	11.1	11.1	-0.3	-0.3	-13.7
GEW-009	5/7/2018 9:49	48.5	38.5	0.0	13.0	119.4	119.4	13.1	12.0	-0.3	-0.3	-13.5
GEW-009	5/16/2018 10:15	48.6	40.1	0.0	11.3	121.0	120.8	10.1	10.4	-0.2	-0.2	-13.1
GEW-009	5/16/2018 10:17	48.8	40.0	0.0	11.2	120.5	120.7	10.0	9.9	-0.2	-0.2	-13.4
GEW-009	5/21/2018 8:40	50.3	40.8	0.0	8.9	119.4	119.2	11.6	10.7	-0.1	-0.1	-11.6
GEW-009	5/29/2018 14:39	51.0	40.6	0.0	8.4	123.9	123.9	10.3	13.0	-0.04	-0.04	-13.5
GEW-010	5/2/2018 13:24	53.7	41.1	0.7	4.5	93.6	93.6	3.8	3.3	-1.3	-1.3	-18.3
GEW-010	5/2/2018 13:31	53.4	40.5	0.7	5.4	92.7	92.7	3.8	3.8	-1.3	-1.3	-18.3
GEW-010	5/9/2018 8:40	53.7	43.1	0.5	2.7	70.2	70.2	3.8	3.8	-1.7	-1.7	-19.8
GEW-010	5/16/2018 8:29	54.1	42.4	0.5	3.0	74.1	74.1	4.0	4.1	-1.7	-1.6	-19.3
GEW-010	5/21/2018 14:56	53.2	41.2	0.2	5.4	94.4	94.5	4.4	4.4	-1.7	-1.7	-19.0
GEW-010	5/31/2018 9:07	54.4	41.2	0.5	3.9	84.7	84.7	2.0	3.3	-1.8	-1.8	-19.6
GEW-013A	5/8/2018 9:40	7.8	36.5	3.5	52.2	143.2	142.9	36.1	34.4	-0.7	-0.7	-13.9
GEW-013A	5/8/2018 9:48	7.7	37.3	3.7	51.3	143.5	144.2	33.5	33.5	-0.6	-0.6	-14.4
GEW-013A	5/22/2018 10:06	6.7	32.9	6.0	54.4	146.6	147.0	30.9	34.8	-0.7	-0.6	-13.7

May 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 ₂ O		
GEW-013A	5/22/2018 10:07	6.4	33.2	6.3	54.1	150.2	149.5	28.0	28.0	-0.5	-0.5	-14.3
GEW-015	5/1/2018 15:44	0.4	1.3	20.1	78.2	96.0	96.0	1.1	1.1	0.0	0.1	-20.1
GEW-015	5/1/2018 15:47	1.4	50.2	0.0	48.4	96.5	96.5	3.4	4.4	-0.3	-0.3	-20.0
GEW-015	5/10/2018 13:33	0.2	47.6	0.0	52.2	101.3	101.5	3.1	2.9	-0.3	-0.3	-19.9
GEW-015	5/10/2018 13:39	1.3	47.6	0.0	51.1	103.6	103.6	3.8	3.3	-0.3	-0.3	-19.7
GEW-016R	5/10/2018 13:56	9.8	45.5	0.1	44.6	179.9	179.9	NFD		-19.1	-19.1	-19.4
GEW-016R	5/10/2018 14:04	10.2	43.3	0.1	46.4	180.3	180.3	NFD		-19.0	-19.0	-19.4
GEW-016R	5/23/2018 9:56	9.0	44.5	0.1	46.4	179.6	179.7	NFD		-18.5	-18.5	-18.5
GEW-016R	5/23/2018 9:58	9.7	44.7	0.0	45.6	179.7	179.7	NFD		-18.5	-18.5	-18.7
GEW-018B	5/11/2018 10:26	1.2	40.8	3.8	54.2	165.2	165.2	1.3	0.9	-0.4	-0.4	-18.4
GEW-018B	5/11/2018 10:33	1.6	41.2	3.9	53.3	167.1	167.4	1.3	1.1	-0.4	-0.4	-18.2
GEW-018B	5/24/2018 9:26	1.4	44.5	3.4	50.7	175.3	175.3	1.7	1.4	-0.3	-0.2	-19.7
GEW-018B	5/24/2018 9:28	1.5	45.3	3.0	50.2	175.3	174.8	1.0	1.7	-0.2	-0.2	-19.4
GEW-022R	5/11/2018 14:24	1.9	25.8	12.5	59.8	90.3	90.4	12.1	9.5	-19.1	-19.1	-19.1
GEW-022R	5/11/2018 14:31	1.4	24.9	12.7	61.0	92.4	92.4	11.2	8.1	-18.7	-18.7	-19.0
GEW-022R	5/24/2018 9:49	1.2	3.7	20.2	74.9	101.9	102.1	10.4	10.1	-19.6	-19.6	-19.6
GEW-022R	5/24/2018 9:51	1.0	2.0	20.3	76.7	104.5	104.5	7.4	7.1	-19.8	-19.7	-19.6
GEW-038	5/3/2018 10:01	5.0	25.3	12.2	57.5	84.9	84.9	2.0	2.0	-0.5	-0.5	-17.6
GEW-038	5/3/2018 10:07	5.6	23.3	11.9	59.2	87.5	87.5	2.8	3.1	-0.5	-0.5	-17.4
GEW-038	5/9/2018 9:37	9.2	41.2	5.2	44.4	78.7	78.7	2.3	2.3	-0.5	-0.5	-12.8
GEW-038	5/9/2018 9:39	9.0	42.3	5.5	43.2	78.9	78.9	2.3	2.3	-0.6	-0.6	-13.1
GEW-038	5/16/2018 9:17	8.2	29.4	10.7	51.7	87.2	87.2	2.1	2.1	-0.6	-0.6	-17.2
GEW-038	5/16/2018 9:18	7.8	27.7	11.3	53.2	87.7	87.8	2.1	2.1	-0.6	-0.6	-16.8
GEW-038	5/22/2018 9:25	7.7	26.6	11.7	54.0	93.3	93.4	1.6	1.1	-0.6	-0.6	-17.2
GEW-038	5/22/2018 9:26	7.7	26.2	11.9	54.2	93.4	93.4	1.6	1.1	-0.6	-0.6	-16.1
GEW-038	5/31/2018 10:25	13.4	45.0	4.3	37.3	86.1	86.2	2.0	2.0	-0.1	-0.1	-12.6
GEW-039	5/3/2018 10:29	29.2	39.1	1.2	30.5	117.1	117.1	20.6	20.7	-1.1	-1.0	-19.5
GEW-039	5/3/2018 10:34	29.4	38.3	1.2	31.1	116.8	116.8	22.9	18.5	-1.0	-1.1	-19.1
GEW-039	5/9/2018 9:46	32.0	39.6	0.4	28.0	117.1	117.1	23.1	20.4	-1.1	-1.1	-19.9
GEW-039	5/16/2018 9:28	30.0	39.9	0.4	29.7	117.9	117.9	20.2	18.9	-1.0	-1.0	-18.6
GEW-039	5/22/2018 9:37	28.2	37.5	0.8	33.5	118.6	118.6	22.2	20.0	-1.0	-1.0	-19.4
GEW-039	5/31/2018 10:35	31.7	38.7	0.3	29.3	117.1	117.2	18.1	18.9	-0.9	-0.9	-19.0
GEW-040	5/1/2018 15:21	61.6	37.8	0.0	0.6	94.3	94.3	8.6	8.6	-0.5	-0.5	-12.5
GEW-040	5/7/2018 10:51	56.1	38.7	0.0	5.2	83.7	83.7	8.4	6.9	-0.6	-0.6	-12.9
GEW-040	5/7/2018 10:57	57.2	37.5	0.0	5.3	84.9	84.9	11.7	11.4	-0.6	-0.6	-12.8
GEW-040	5/16/2018 10:46	58.1	39.1	0.0	2.8	86.3	86.3	5.0	5.0	-0.6	-0.6	-12.5
GEW-040	5/21/2018 9:08	57.2	39.0	0.0	3.8	70.7	70.7	10.1	9.7	-0.4	-0.4	-9.8
GEW-040	5/29/2018 11:17	59.3	37.7	0.0	3.0	87.5	87.5	6.7	6.7	-0.6	-0.6	-12.5
GEW-040	5/29/2018 11:23	59.7	37.3	0.0	3.0	87.6	87.6	6.7	6.7	-0.6	-0.6	-12.7
GEW-041R	5/1/2018 15:25	59.6	36.8	0.0	3.6	98.9	98.9	12.5	10.9	-0.2	-0.1	-12.4
GEW-041R	5/1/2018 15:26	59.5	36.8	0.0	3.7	98.9	98.9	12.5	9.4	-0.1	-0.2	-12.3

May 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 ₂ O		
GEW-041R	5/7/2018 11:01	57.1	36.7	0.0	6.2	99.4	99.4	10.6	10.6	-0.3	-0.3	-12.6
GEW-041R	5/7/2018 11:07	57.6	36.8	0.0	5.6	99.4	99.4	11.3	10.2	-0.3	-0.3	-12.5
GEW-041R	5/16/2018 10:49	58.1	37.9	0.0	4.0	100.8	100.8	35.7	35.5	-0.3	-0.3	-12.4
GEW-041R	5/21/2018 9:14	58.3	37.8	0.0	3.9	96.0	96.1	29.7	30.7	-0.2	-0.3	-9.9
GEW-041R	5/29/2018 15:28	58.5	37.4	0.0	4.1	100.6	100.6	11.5	11.5	-0.2	-0.2	-12.9
GEW-042R	5/1/2018 15:29	58.9	40.6	0.0	0.5	104.6	104.8	10.5	9.7	-0.3	-0.4	-12.4
GEW-042R	5/1/2018 15:31	58.3	40.5	0.0	1.2	104.5	104.5	10.1	9.8	-0.4	-0.4	-12.5
GEW-042R	5/7/2018 11:11	56.6	39.9	0.0	3.5	103.3	103.5	7.0	7.0	-0.6	-0.6	-12.6
GEW-042R	5/7/2018 11:17	57.4	39.7	0.0	2.9	103.8	103.8	11.2	10.5	-0.6	-0.6	-12.4
GEW-042R	5/16/2018 10:52	56.7	41.1	0.0	2.2	103.8	103.9	6.8	5.6	-0.5	-0.5	-12.5
GEW-042R	5/21/2018 9:17	56.2	41.0	0.0	2.8	97.8	98.1	10.5	10.5	-0.1	-0.1	-9.4
GEW-042R	5/21/2018 9:19	55.8	41.8	0.0	2.4	98.0	98.2	11.9	10.2	-0.1	-0.1	-9.4
GEW-042R	5/29/2018 15:30	56.8	40.5	0.0	2.7	107.0	107.0	28.2	28.2	-0.4	-0.5	-12.9
GEW-043R	5/2/2018 8:26	52.6	41.1	0.7	5.6	116.8	116.8	32.9	32.8	-0.3	-0.3	-13.4
GEW-043R	5/7/2018 11:25	52.3	39.7	0.8	7.2	117.1	117.3	12.3	12.4	-0.3	-0.3	-12.7
GEW-043R	5/7/2018 11:31	52.7	39.8	0.8	6.7	117.1	117.1	11.7	12.9	-0.3	-0.3	-12.7
GEW-043R	5/16/2018 10:55	52.6	40.0	0.8	6.6	117.6	117.6	36.8	36.7	-0.3	-0.3	-12.8
GEW-043R	5/21/2018 10:48	54.8	41.0	0.0	4.2	118.1	118.1	19.6	20.0	-0.1	-0.1	-12.8
GEW-043R	5/29/2018 11:28	56.9	40.3	0.0	2.8	115.8	115.8	7.1	3.8	-0.3	-0.3	-12.8
GEW-043R	5/29/2018 11:34	56.2	41.3	0.0	2.5	116.1	116.1	20.2	20.4	-0.3	-0.3	-12.9
GEW-044	5/2/2018 8:30	57.0	38.0	0.0	5.0	89.6	89.4	29.3	28.5	-0.5	-0.5	-13.0
GEW-044	5/7/2018 13:26	56.0	35.8	0.0	8.2	95.5	95.5	11.6	11.2	-0.4	-0.4	-12.5
GEW-044	5/7/2018 13:32	55.6	36.0	0.0	8.4	95.8	95.8	7.7	7.7	-0.4	-0.4	-12.5
GEW-044	5/16/2018 10:58	55.4	37.7	0.0	6.9	97.0	97.1	5.7	5.7	-0.6	-0.6	-12.5
GEW-044	5/21/2018 10:52	55.3	38.3	0.0	6.4	94.5	94.4	34.2	34.1	-0.3	-0.3	-12.8
GEW-044	5/30/2018 9:11	55.8	37.2	0.0	7.0	97.6	97.4	35.6	22.6	-0.5	-0.5	-12.6
GEW-045R	5/2/2018 8:33	57.2	40.2	0.0	2.6	89.6	89.4	10.3	10.3	-1.8	-1.8	-13.0
GEW-045R	5/2/2018 8:35	56.9	41.2	0.0	1.9	90.0	89.9	9.5	9.9	-1.8	-1.8	-13.0
GEW-045R	5/7/2018 13:36	56.6	40.0	0.0	3.4	94.8	94.8	2.7	2.9	-1.5	-1.5	-12.5
GEW-045R	5/7/2018 13:43	57.1	39.7	0.0	3.2	95.1	95.1	8.2	7.7	-1.4	-1.4	-12.5
GEW-045R	5/16/2018 11:07	58.1	41.3	0.0	0.6	95.5	95.8	5.0	5.7	-1.4	-1.4	-12.4
GEW-045R	5/21/2018 10:57	56.6	41.1	0.0	2.3	90.6	90.5	11.6	10.6	-0.8	-0.8	-12.8
GEW-045R	5/30/2018 9:15	56.0	40.8	0.0	3.2	95.0	95.0	9.8	10.9	-0.8	-0.8	-12.7
GEW-046R	5/2/2018 8:38	53.2	38.2	0.0	8.6	99.1	99.1	35.8	36.3	-0.5	-0.5	-13.3
GEW-046R	5/7/2018 13:48	51.7	36.2	0.0	12.1	100.7	100.6	29.3	29.5	-0.5	-0.5	-12.6
GEW-046R	5/7/2018 13:56	52.5	35.6	0.0	11.9	100.3	100.3	6.7	8.0	-0.4	-0.4	-12.5
GEW-046R	5/16/2018 11:11	53.4	37.4	0.0	9.2	99.6	99.6	4.7	4.7	-0.5	-0.5	-12.8
GEW-046R	5/21/2018 11:00	50.8	37.5	0.0	11.7	99.1	99.1	30.3	30.4	-0.4	-0.3	-13.0
GEW-046R	5/21/2018 11:01	51.3	37.3	0.0	11.4	99.1	99.1	37.5	37.4	-0.3	-0.4	-12.8
GEW-046R	5/30/2018 9:19	49.2	37.0	0.0	13.8	100.8	101.1	8.5	12.4	-0.5	-0.5	-12.6
GEW-046R	5/30/2018 9:21	49.1	36.7	0.0	14.2	101.1	101.1	13.6	13.3	-0.5	-0.5	-12.4

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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 ₂ O		
GEW-047R	5/2/2018 9:17	54.5	39.0	0.0	6.5	110.0	109.8	15.5	18.1	-0.3	-0.3	-13.3
GEW-047R	5/7/2018 15:05	53.1	38.6	0.0	8.3	112.7	112.7	12.9	13.2	-0.1	-0.1	-12.6
GEW-047R	5/7/2018 15:13	53.9	37.4	0.0	8.7	112.5	112.5	11.7	13.2	-0.1	-0.1	-13.1
GEW-047R	5/16/2018 13:20	54.0	37.1	0.0	8.9	112.7	112.7	12.6	11.4	-0.2	-0.2	-12.6
GEW-047R	5/21/2018 14:22	49.4	37.6	0.0	13.0	112.0	112.0	13.4	12.6	-0.1	-0.1	-13.6
GEW-047R	5/21/2018 14:23	49.9	37.6	0.0	12.5	111.9	111.9	14.0	14.2	-0.1	-0.1	-13.5
GEW-047R	5/30/2018 9:55	48.0	38.6	0.0	13.4	113.2	113.2	6.6	8.9	-0.3	-0.3	-13.2
GEW-047R	5/30/2018 9:56	48.6	38.1	0.0	13.3	112.8	112.8	4.7	7.6	-0.2	-0.2	-12.8
GEW-048	5/2/2018 9:23	57.6	39.9	0.0	2.5	96.3	96.3	19.9	18.9	-0.1	-0.1	-13.4
GEW-048	5/2/2018 9:25	57.2	40.8	0.0	2.0	97.0	97.0	6.2	4.8	-0.1	-0.1	-13.4
GEW-048	5/7/2018 15:30	56.3	40.0	0.0	3.7	99.7	99.7	4.7	5.4	0.2	0.3	-12.9
GEW-048	5/7/2018 15:36	56.3	40.2	0.0	3.5	100.8	100.8	24.9	25.0	0.1	0.1	-12.9
GEW-048	5/8/2018 8:22	57.3	39.7	0.0	3.0	99.9	99.9	12.5	11.5	-0.1	-0.1	-13.6
GEW-048	5/16/2018 13:36	58.5	39.1	0.0	2.4	102.2	102.2	5.4	6.1	-0.1	-0.1	-12.9
GEW-048	5/21/2018 14:35	57.0	39.0	0.0	4.0	101.2	101.3	11.5	11.7	-0.02	-0.02	-13.2
GEW-048	5/21/2018 14:37	56.4	39.4	0.0	4.2	101.4	101.5	14.1	13.0	-0.03	-0.03	-13.5
GEW-048	5/30/2018 10:03	56.7	38.6	0.0	4.7	102.5	102.6	16.3	17.3	-0.3	-0.3	-13.1
GEW-049	5/2/2018 9:34	51.3	37.0	0.0	11.7	101.3	101.1	7.7	9.4	-0.1	-0.1	-12.6
GEW-049	5/8/2018 8:41	51.6	37.5	0.0	10.9	100.4	100.4	19.0	17.6	-0.02	-0.02	-13.0
GEW-049	5/8/2018 8:48	51.9	37.3	0.0	10.8	100.8	100.8	8.1	6.7	-0.04	-0.03	-13.1
GEW-049	5/16/2018 11:01	51.5	36.6	0.0	11.9	104.5	104.3	12.5	13.3	-0.2	-0.2	-12.8
GEW-049	5/21/2018 14:49	55.8	38.8	0.0	5.4	104.3	104.3	31.1	31.3	0.1	0.1	-12.9
GEW-049	5/21/2018 14:50	55.4	39.3	0.0	5.3	104.8	104.6	13.0	12.7	0.1	0.1	-13.0
GEW-049	5/22/2018 8:41	49.6	35.2	0.0	15.2	104.5	104.5	11.5	10.8	-0.4	-0.4	-13.2
GEW-049	5/22/2018 8:43	49.3	35.6	0.0	15.1	104.5	104.5	37.2	36.8	-0.3	-0.3	-13.1
GEW-049	5/30/2018 9:08	52.9	37.5	0.0	9.6	105.3	105.5	6.6	3.8	-0.1	-0.1	-12.6
GEW-050	5/1/2018 14:33	58.7	38.4	0.0	2.9	103.3	103.3	34.0	34.7	0.3	0.3	-6.3
GEW-050	5/1/2018 14:35	58.4	38.8	0.0	2.8	104.1	104.0	12.4	11.2	0.2	0.2	-6.2
GEW-050	5/2/2018 8:09	56.4	40.1	0.0	3.5	102.1	102.1	15.8	10.5	-0.2	-0.2	-10.1
GEW-050	5/7/2018 8:50	56.4	39.9	0.0	3.7	102.8	102.9	36.4	34.7	-0.4	-0.4	-6.9
GEW-050	5/7/2018 8:57	57.4	38.0	0.0	4.6	102.4	102.5	36.9	36.5	-0.4	-0.4	-7.6
GEW-050	5/16/2018 10:00	57.4	38.8	0.0	3.8	104.3	104.3	27.0	25.9	-0.3	-0.2	-7.9
GEW-050	5/21/2018 8:26	56.7	40.2	0.0	3.1	99.4	99.6	14.1	14.1	-0.1	-0.1	-5.5
GEW-050	5/29/2018 14:27	57.2	40.5	0.0	2.3	106.3	106.4	14.9	14.7	0.1	0.1	-8.6
GEW-050	5/29/2018 14:29	57.5	39.3	0.0	3.2	106.4	106.4	14.6	13.8	0.1	0.1	-9.7
GEW-050	5/30/2018 7:51	57.4	40.5	0.0	2.1	104.7	104.5	10.1	12.7	-0.1	-0.1	-10.1
GEW-051	5/1/2018 14:57	56.9	40.9	0.0	2.2	122.1	122.3	11.3	11.3	0.2	0.2	-12.4
GEW-051	5/1/2018 14:59	56.9	40.7	0.0	2.4	122.9	122.9	13.3	12.8	0.2	0.1	-12.8
GEW-051	5/2/2018 8:16	55.5	40.7	0.0	3.8	121.3	121.3	10.7	11.3	-0.5	-0.5	-13.9
GEW-051	5/7/2018 10:00	55.7	40.3	0.0	4.0	121.8	122.1	13.1	12.3	-0.7	-0.7	-13.2
GEW-051	5/7/2018 10:07	55.7	40.2	0.0	4.1	121.0	121.1	16.9	13.6	-0.7	-0.7	-13.1

May 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 ₂ O		
GEW-051	5/16/2018 10:23	55.2	41.2	0.0	3.6	121.8	121.8	13.9	13.9	-0.5	-0.5	-13.2
GEW-051	5/21/2018 8:44	55.1	41.6	0.0	3.3	118.9	118.9	11.9	11.9	-0.3	-0.3	-11.2
GEW-051	5/29/2018 14:46	54.6	40.6	0.0	4.8	123.9	124.0	16.2	13.8	0.1	0.1	-12.6
GEW-051	5/29/2018 14:47	54.4	40.9	0.0	4.7	124.6	124.5	13.8	10.3	0.0	0.0	-13.1
GEW-051	5/30/2018 7:56	55.2	41.2	0.0	3.6	123.9	123.9	11.0	11.0	-0.4	-0.4	-13.1
GEW-052	5/1/2018 14:38	54.9	38.5	0.0	6.6	113.2	113.1	12.9	9.7	0.2	0.2	-12.8
GEW-052	5/1/2018 14:39	54.9	38.7	0.0	6.4	113.5	113.5	10.4	12.9	0.2	0.2	-13.1
GEW-052	5/2/2018 8:13	46.8	35.5	0.0	17.7	110.2	110.2	11.5	9.4	-0.1	-0.04	-13.7
GEW-052	5/7/2018 9:09	45.6	32.9	0.0	21.5	110.4	110.5	20.7	20.5	-0.2	-0.2	-13.6
GEW-052	5/7/2018 9:16	46.0	33.1	0.0	20.9	110.2	110.2	23.5	24.4	-0.2	-0.2	-13.7
GEW-052	5/16/2018 10:03	49.9	35.7	0.0	14.4	112.0	112.2	7.3	10.2	-0.1	-0.1	-13.2
GEW-052	5/21/2018 8:29	51.1	36.0	0.0	12.9	109.0	109.0	10.1	8.5	-0.1	-0.1	-12.1
GEW-052	5/29/2018 11:05	54.0	36.4	0.0	9.6	112.7	112.6	7.6	2.7	-0.04	-0.03	-12.8
GEW-052	5/29/2018 11:12	53.5	36.3	0.0	10.2	112.6	112.5	8.9	7.1	-0.04	-0.1	-13.2
GEW-053	5/1/2018 15:05	53.3	41.8	0.0	4.9	141.5	141.6	11.1	10.5	0.1	0.1	-12.5
GEW-053	5/1/2018 15:06	53.8	41.8	0.0	4.4	141.5	141.5	13.1	17.0	0.1	0.1	-12.8
GEW-053	5/2/2018 8:20	50.9	42.5	0.0	6.6	141.5	141.5	11.7	12.3	-0.5	-0.4	-13.1
GEW-053	5/2/2018 8:22	51.0	42.8	0.0	6.2	140.9	141.2	12.6	10.2	-0.4	-0.4	-13.0
GEW-053	5/7/2018 10:16	51.4	41.9	0.0	6.7	139.3	139.3	12.9	12.1	-0.6	-0.6	-12.8
GEW-053	5/7/2018 10:23	51.8	41.6	0.0	6.6	139.6	139.6	14.4	15.1	-0.7	-0.7	-12.9
GEW-053	5/16/2018 10:29	51.0	42.0	0.0	7.0	142.2	142.2	17.4	17.6	-0.3	-0.4	-12.8
GEW-053	5/16/2018 10:30	50.8	42.4	0.0	6.8	142.2	142.5	13.4	6.6	-0.4	-0.5	-12.8
GEW-053	5/21/2018 8:51	51.4	41.8	0.0	6.8	141.5	141.7	12.0	10.1	-0.4	-0.4	-10.7
GEW-053	5/21/2018 8:52	50.6	42.5	0.0	6.9	141.5	141.5	10.5	11.7	-0.4	-0.4	-10.9
GEW-053	5/29/2018 14:55	49.9	42.0	0.0	8.1	141.9	141.5	13.9	13.9	-0.02	-0.03	-13.3
GEW-053	5/29/2018 14:57	50.0	42.1	0.0	7.9	141.7	141.9	14.8	15.3	-0.1	-0.1	-13.1
GEW-054	5/1/2018 15:10	55.9	41.7	0.0	2.4	142.5	142.5	39.2	42.5	-3.2	-3.2	-13.3
GEW-054	5/1/2018 15:11	55.9	41.7	0.0	2.4	142.6	142.5	37.9	36.7	-3.1	-3.1	-12.7
GEW-054	5/7/2018 10:27	53.6	42.2	0.0	4.2	142.2	142.2	38.5	35.3	-3.9	-3.9	-13.3
GEW-054	5/7/2018 10:33	53.9	41.6	0.0	4.5	141.9	141.9	38.4	41.9	-3.9	-3.9	-13.1
GEW-054	5/16/2018 10:33	53.7	42.2	0.0	4.1	142.9	142.9	35.6	35.1	-3.7	-3.7	-12.9
GEW-054	5/16/2018 10:35	53.5	42.6	0.0	3.9	142.9	142.9	36.0	33.3	-3.7	-3.7	-12.8
GEW-054	5/21/2018 8:56	53.2	42.5	0.0	4.3	143.2	143.2	35.4	35.1	-3.1	-3.0	-10.8
GEW-054	5/21/2018 8:57	52.9	42.6	0.0	4.5	143.2	143.2	37.2	33.4	-3.0	-3.0	-10.9
GEW-054	5/29/2018 15:00	52.6	41.8	0.0	5.6	143.5	143.5	31.8	31.8	-3.3	-3.3	-12.9
GEW-054	5/29/2018 15:01	52.3	41.8	0.0	5.9	143.4	143.5	34.4	36.1	-3.3	-3.4	-13.4
GEW-055	5/1/2018 15:16	54.3	40.4	0.0	5.3	133.8	133.8	11.8	10.2	-0.3	-0.3	-12.4
GEW-055	5/1/2018 15:18	54.6	40.3	0.0	5.1	134.1	133.8	12.1	12.9	-0.4	-0.4	-12.6
GEW-055	5/7/2018 10:41	50.7	40.9	0.2	8.2	134.1	133.8	7.5	7.5	-0.8	-0.8	-12.9
GEW-055	5/7/2018 10:47	51.6	39.7	0.2	8.5	133.8	133.6	12.7	10.9	-0.8	-0.8	-12.8
GEW-055	5/16/2018 10:42	51.6	40.9	0.1	7.4	134.4	134.4	24.1	24.7	-0.7	-0.7	-12.7

May 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 ₂ O		
GEW-055	5/16/2018 10:43	52.0	41.0	0.1	6.9	134.4	134.4	11.9	11.3	-0.7	-0.7	-12.6
GEW-055	5/21/2018 9:04	51.4	41.1	0.1	7.4	132.9	132.5	37.5	37.2	-0.6	-0.6	-10.2
GEW-055	5/21/2018 9:05	51.3	41.3	0.0	7.4	132.6	132.5	10.6	11.5	-0.5	-0.5	-10.4
GEW-055	5/29/2018 15:08	51.7	40.7	0.1	7.5	134.7	134.7	36.7	36.7	-0.4	-0.4	-12.9
GEW-055	5/29/2018 15:10	52.0	40.8	0.1	7.1	135.0	134.7	13.4	12.6	-0.5	-0.4	-12.6
GEW-056R	5/2/2018 14:43	30.9	44.0	0.0	25.1	109.5	109.5	3.5	3.7	-0.3	-0.3	-18.6
GEW-056R	5/2/2018 14:50	29.5	45.2	0.0	25.3	109.6	109.7	2.5	2.3	-0.3	-0.3	-18.4
GEW-056R	5/9/2018 8:56	32.2	45.0	0.0	22.8	89.3	89.4	3.0	2.3	-0.4	-0.4	-20.3
GEW-056R	5/16/2018 8:42	33.6	46.5	0.0	19.9	104.4	104.5	2.3	2.6	-0.3	-0.3	-19.3
GEW-056R	5/21/2018 15:07	32.5	45.7	0.0	21.8	118.4	118.7	4.2	4.2	-0.3	-0.3	-18.8
GEW-056R	5/31/2018 9:21	34.0	46.5	0.0	19.5	97.7	97.7	2.5	2.0	-0.3	-0.3	-19.8
GEW-057B	5/10/2018 11:24	0.9	12.4	16.3	70.4	95.4	95.6	4.7	7.0	-0.1	-0.1	-19.5
GEW-057B	5/10/2018 11:30	1.2	10.3	16.3	72.2	95.0	95.0	6.6	4.3	-0.1	-0.1	-19.6
GEW-057B	5/23/2018 11:15	1.2	10.7	16.9	71.2	93.6	93.7	6.7	5.2	-0.1	-0.1	-18.0
GEW-057B	5/23/2018 11:17	1.2	10.8	17.0	71.0	94.1	94.1	3.8	1.2	-0.1	-0.1	-18.0
GEW-057R	5/10/2018 11:34	15.8	25.4	12.2	46.6	96.4	96.6	1.9	1.9	-19.1	-19.1	-19.5
GEW-057R	5/10/2018 11:40	16.3	28.0	12.0	43.7	102.3	102.3	3.6	1.9	-18.9	-19.0	-19.1
GEW-057R	5/23/2018 11:08	12.8	21.1	14.4	51.7	94.6	94.6	1.9	2.7	-18.0	-17.9	-18.1
GEW-057R	5/23/2018 11:10	12.0	18.8	15.0	54.2	94.7	94.7	1.9	2.2	-17.9	-17.7	-18.0
GEW-058	5/10/2018 9:17	7.5	33.4	2.2	56.9	89.0	89.2	2.3	2.3	-0.9	-0.9	-19.5
GEW-058	5/10/2018 9:23	7.6	31.2	1.4	59.8	94.1	94.8	2.0	2.1	-0.3	-0.3	-19.7
GEW-058A	5/10/2018 9:08	0.7	43.7	3.9	51.7	87.9	88.2	3.8	3.8	-0.3	-0.3	-19.7
GEW-058A	5/10/2018 9:14	0.5	43.3	3.5	52.7	89.8	89.8	2.0	2.3	-0.3	-0.3	-19.6
GEW-059R	5/4/2018 14:50	18.0	42.7	0.1	39.2	162.9	162.4	19.3	14.8	-19.1	-19.5	-19.3
GEW-059R	5/4/2018 14:57	16.9	39.8	0.1	43.2	162.0	162.3	20.3	15.9	-19.5	-18.6	-18.8
GEW-059R	5/18/2018 11:23	18.5	42.7	0.0	38.8	164.5	164.7	18.0	15.8	-19.4	-19.0	-19.8
GEW-059R	5/18/2018 11:25	18.2	44.7	0.0	37.1	164.7	164.7	25.1	27.4	-19.4	-19.3	-19.7
GEW-067A	5/10/2018 10:51	3.1	24.4	7.5	65.0	112.5	112.5	7.7	7.7	-0.1	-0.2	-19.9
GEW-067A	5/10/2018 10:57	3.0	23.3	7.5	66.2	112.2	112.2	6.3	7.9	-0.2	-0.2	-19.7
GEW-067A	5/23/2018 8:58	5.1	23.8	7.8	63.3	101.6	101.6	20.6	20.7	-0.1	-0.2	-18.1
GEW-067A	5/23/2018 9:02	5.0	23.2	8.0	63.8	101.6	101.8	21.0	20.6	-0.1	-0.2	-18.9
GEW-068A	5/10/2018 14:32	13.3	53.0	0.2	33.5	185.1	185.1	24.4	27.4	-9.3	-9.3	-19.6
GEW-068A	5/10/2018 14:38	11.0	49.3	0.1	39.6	185.3	185.2	23.5	24.0	-8.9	-8.8	-19.6
GEW-068A	5/23/2018 13:29	20.1	48.2	0.2	31.5	185.1	185.1	23.0	24.3	-9.2	-9.2	-19.0
GEW-068A	5/23/2018 13:31	19.5	50.1	0.1	30.3	185.1	185.1	20.6	22.6	-9.3	-9.2	-19.4
GEW-077	5/11/2018 9:44	0.3	37.9	9.0	52.8	111.5	111.2	15.8	15.3	-18.5	-18.5	-18.5
GEW-077	5/11/2018 9:51	0.2	31.0	10.3	58.5	108.7	107.3	16.9	17.1	-9.1	-9.2	-18.3
GEW-077	5/23/2018 14:18	3.7	53.0	0.0	43.3	132.6	132.6	5.2	4.2	1.5	1.5	-19.6
GEW-077	5/23/2018 14:22	4.0	47.0	3.2	45.8	137.4	137.4	39.1	38.5	-13.7	-13.7	-20.0
GEW-078R	5/11/2018 9:20	4.1	33.8	0.0	62.1	156.0	156.0	8.4	8.8	-18.5	-18.5	-18.5
GEW-078R	5/11/2018 9:26	4.2	32.8	0.0	63.0	155.6	155.6	9.3	8.4	-18.5	-18.3	-18.5

May 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 ₂ O		
GEW-078R	5/23/2018 14:25	9.4	33.3	0.0	57.3	159.0	159.0	8.8	8.7	-19.1	-19.1	-19.9
GEW-078R	5/23/2018 14:27	10.0	32.4	0.0	57.6	159.0	159.0	9.1	8.6	-19.1	-19.1	-19.9
GEW-081	5/14/2018 9:07	0.3	32.2	10.1	57.4	96.9	97.0	3.3	3.1	-18.7	-18.6	-18.9
GEW-081	5/14/2018 9:13	0.2	30.5	10.6	58.7	97.2	97.2	3.3	1.6	-18.2	-18.2	-18.3
GEW-081	5/24/2018 14:12	0.9	24.6	12.1	62.4	101.6	101.6	1.3	1.7	-19.0	-18.5	-18.5
GEW-081	5/24/2018 14:14	0.9	25.5	11.9	61.7	101.9	101.9	2.9	1.3	-18.7	-18.7	-18.5
GEW-082R	5/11/2018 9:46	8.1	35.5	0.0	56.4	174.7	174.7	2.7	5.0	-17.6	-17.5	-18.5
GEW-082R	5/11/2018 9:53	8.9	35.9	0.0	55.2	174.7	174.7	5.6	3.4	-17.1	-17.1	-17.4
GEW-082R	5/24/2018 8:22	7.9	34.9	0.0	57.2	175.8	175.8	4.5	4.3	-18.1	-18.0	-19.4
GEW-082R	5/24/2018 8:24	7.9	35.5	0.0	56.6	175.8	175.8	2.3	6.0	-18.2	-18.1	-19.0
GEW-086	5/10/2018 11:19	12.0	36.0	0.9	51.1	98.2	98.2	4.7	4.4	-0.2	-0.2	-19.2
GEW-086	5/10/2018 11:28	13.2	36.2	0.8	49.8	98.7	98.7	3.0	3.4	-0.2	-0.2	-19.2
GEW-087	5/10/2018 13:07	5.5	18.3	9.6	66.6	127.0	126.9	NFD		-18.5	-18.6	-18.5
GEW-087	5/10/2018 13:14	5.4	19.1	9.9	65.6	128.0	128.0	NFD		-18.5	-18.6	-19.0
GEW-087	5/23/2018 9:40	6.6	21.1	8.4	63.9	122.8	122.7	NFD		-19.0	-19.0	-18.9
GEW-087	5/23/2018 9:42	6.7	20.5	8.6	64.2	122.9	122.9	NFD		-19.0	-19.0	-19.0
GEW-088	5/14/2018 13:30	3.8	50.3	0.0	45.9	192.9	192.9	21.3	23.4	-1.0	-1.1	-10.9
GEW-088	5/14/2018 13:38	4.0	48.6	0.0	47.4	193.5	193.6	7.2	7.2	-0.3	-0.3	-10.5
GEW-088	5/24/2018 14:51	3.1	47.8	0.0	49.1	197.2	197.2	3.5	2.3	-0.2	-0.1	-7.5
GEW-088	5/24/2018 14:53	4.4	48.9	0.0	46.7	195.8	195.7	16.4	14.0	-0.6	-0.5	-7.4
GEW-090	5/10/2018 10:00	20.6	42.8	1.7	34.9	159.8	159.8	10.2	10.1	-19.0	-19.0	-19.4
GEW-090	5/10/2018 10:09	21.0	42.5	1.5	35.0	159.8	159.8	9.2	11.8	-18.8	-18.8	-19.4
GEW-090	5/23/2018 8:51	24.7	43.1	1.3	30.9	162.0	162.0	10.4	6.3	-19.0	-18.9	-19.9
GEW-090	5/23/2018 8:53	25.0	43.6	1.3	30.1	162.8	162.9	6.2	9.3	-19.0	-19.0	-19.6
GEW-091	5/10/2018 9:37	2.1	16.9	13.7	67.3	154.0	154.8	6.5	6.9	-8.7	-8.7	-10.2
GEW-091	5/10/2018 9:45	2.0	17.3	13.3	67.4	159.8	159.8	6.9	7.4	-8.2	-8.2	-10.3
GEW-091	5/23/2018 8:44	2.2	23.4	13.1	61.3	181.4	181.5	14.7	16.6	-11.3	-11.2	-18.4
GEW-091	5/23/2018 8:46	2.2	22.6	13.1	62.1	181.5	181.5	10.3	11.9	-8.7	-8.7	-18.0
GEW-091	5/31/2018 11:40	2.9	47.8	1.9	47.4	195.0	195.0	18.7	14.2	-1.4	-1.2	-17.2
GEW-091	5/31/2018 11:42	4.3	49.8	1.9	44.0	195.0	195.0	18.2	6.9	-1.0	-1.0	-15.9
GEW-100	5/10/2018 15:25	1.5	50.4	4.3	43.8	99.6	99.6	2.2	2.2	-12.7	-12.7	-19.0
GEW-100	5/10/2018 15:32	1.8	53.6	2.8	41.8	104.3	104.3	8.2	5.8	-18.1	-18.1	-19.0
GEW-101	5/10/2018 14:17	22.4	49.0	3.6	25.0	105.7	105.7	6.6	7.4	-0.3	-0.4	-18.8
GEW-101	5/10/2018 14:23	21.5	48.9	3.6	26.0	105.2	105.2	4.0	3.7	-0.4	-0.3	-20.1
GEW-102	5/10/2018 14:04	14.7	54.1	0.0	31.2	105.3	105.5	3.0	3.8	-19.0	-19.0	-19.4
GEW-102	5/10/2018 14:09	14.2	50.7	0.2	34.9	106.0	106.0	3.8	4.3	-19.0	-19.0	-19.4
GEW-104	5/15/2018 8:04	4.8	53.1	0.0	42.1	200.5	200.6	5.7	6.3	-2.5	-2.5	-12.9
GEW-104	5/15/2018 8:12	6.1	57.1	0.0	36.8	200.8	200.8	26.2	23.9	-3.6	-3.3	-12.2
GEW-104	5/29/2018 11:41	20.6	51.6	0.0	27.8	195.0	195.0	10.0	14.7	-2.7	-2.6	-10.2
GEW-104	5/29/2018 11:42	20.3	54.1	0.0	25.6	195.0	195.0	8.4	7.0	-2.1	-2.1	-10.6
GEW-105	5/10/2018 10:28	17.4	39.3	5.3	38.0	153.3	153.3	19.4	13.4	-19.1	-19.2	-20.3

May 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 ₂ O		
GEW-105	5/10/2018 10:34	17.1	39.3	5.4	38.2	151.7	151.3	8.5	8.6	-10.1	-10.1	-20.5
GEW-105	5/24/2018 9:28	16.7	48.6	2.1	32.6	152.9	152.9	7.4	7.9	-11.0	-10.9	-20.1
GEW-105	5/24/2018 9:30	16.8	48.9	2.0	32.3	152.7	152.5	3.0	2.7	-10.3	-10.5	-20.3
GEW-106	5/10/2018 9:30	3.8	49.0	1.5	45.7	86.1	86.3	3.7	2.8	-0.1	-0.1	-19.7
GEW-106	5/10/2018 9:57	3.3	47.4	1.6	47.7	86.8	86.8	2.3	2.3	-0.1	-0.1	-19.6
GEW-107	5/4/2018 15:12	14.0	56.2	0.0	29.8	156.0	155.6	7.6	8.6	-6.4	-6.4	-19.3
GEW-107	5/4/2018 15:18	12.7	57.3	0.0	30.0	156.9	156.7	8.6	6.3	-6.4	-6.4	-19.3
GEW-107	5/18/2018 11:28	13.5	57.1	0.0	29.4	169.0	169.0	16.2	11.4	-4.2	-4.2	-19.7
GEW-107	5/18/2018 11:29	13.2	58.6	0.0	28.2	169.5	170.0	9.8	10.9	-4.2	-4.2	-19.3
GEW-108	5/4/2018 14:28	36.2	48.7	0.2	14.9	132.3	132.3	3.5	3.5	-17.9	-17.9	-19.3
GEW-108	5/4/2018 14:35	36.4	47.8	0.1	15.7	132.9	132.9	4.7	4.2	-18.1	-18.1	-19.3
GEW-108	5/18/2018 11:18	38.4	48.7	0.0	12.9	136.4	136.4	3.0	3.0	-17.7	-17.7	-19.6
GEW-108	5/18/2018 11:19	38.0	49.8	0.0	12.2	136.5	136.5	2.0	2.0	-17.6	-17.6	-19.5
GEW-109	5/3/2018 10:19	27.4	38.2	0.2	34.2	114.5	114.8	3.6	2.4	-9.6	-9.6	-19.4
GEW-109	5/3/2018 10:26	27.1	38.6	0.1	34.2	112.7	112.7	1.5	2.9	-9.8	-9.8	-19.6
GEW-109	5/9/2018 9:44	26.6	38.8	0.2	34.4	114.0	114.2	3.4	2.2	-9.8	-9.7	-20.2
GEW-109	5/16/2018 9:24	28.5	39.4	0.0	32.1	120.7	120.7	1.2	2.3	-9.0	-9.0	-18.8
GEW-109	5/22/2018 9:35	29.1	41.3	0.1	29.5	130.6	130.6	3.6	3.5	-7.4	-7.4	-18.7
GEW-109	5/31/2018 10:31	29.7	39.7	0.0	30.6	120.7	120.7	2.4	3.9	-7.4	-7.5	-19.2
GEW-110	5/2/2018 13:36	17.7	34.1	7.0	41.2	99.9	99.9	2.2	3.2	-0.1	-0.1	-18.3
GEW-110	5/2/2018 13:42	17.3	33.3	7.2	42.2	98.9	98.9	0.5	1.0	-0.2	-0.2	-19.1
GEW-110	5/9/2018 8:44	15.7	30.4	9.2	44.7	80.1	80.1	2.6	2.0	-0.2	-0.2	-20.1
GEW-110	5/9/2018 8:46	18.8	36.3	6.9	38.0	78.8	78.8	3.3	1.7	-0.1	-0.1	-19.7
GEW-110	5/16/2018 8:32	16.0	34.3	7.1	42.6	86.2	86.1	0.9	2.8	-0.1	-0.1	-19.3
GEW-110	5/16/2018 8:33	16.5	34.8	7.1	41.6	86.4	86.3	0.9	1.5	-0.1	-0.1	-19.3
GEW-110	5/21/2018 14:59	18.5	34.2	6.1	41.2	103.5	103.5	3.2	3.5	-0.1	-0.1	-18.8
GEW-110	5/21/2018 15:00	18.3	34.6	6.2	40.9	103.7	103.6	3.4	2.5	-0.1	-0.1	-19.2
GEW-110	5/31/2018 9:10	12.8	29.3	9.5	48.4	90.1	90.1	2.8	3.6	-0.1	-0.1	-19.8
GEW-110	5/31/2018 9:12	12.9	30.6	9.1	47.4	90.0	90.0	3.3	2.8	-0.1	-0.1	-19.7
GEW-113	5/10/2018 13:45	13.2	52.5	1.3	33.0	151.7	151.7	1.9	11.9	-3.3	-3.3	-20.0
GEW-113	5/10/2018 13:52	14.6	48.9	1.4	35.1	151.7	151.7	12.3	18.9	-3.3	-3.3	-19.5
GEW-113	5/23/2018 9:50	10.7	46.8	1.9	40.6	149.5	149.5	14.9	11.6	-3.2	-3.1	-18.7
GEW-113	5/23/2018 9:52	10.8	48.3	1.8	39.1	149.5	149.4	6.8	9.0	-3.3	-3.5	-18.3
GEW-116	5/11/2018 10:38	16.5	64.0	0.2	19.3	194.3	194.3	16.9	15.1	-1.9	-2.0	-19.2
GEW-116	5/11/2018 10:45	18.2	58.2	0.2	23.4	194.3	194.3	14.0	11.0	-1.6	-1.6	-18.4
GEW-116	5/24/2018 9:32	15.7	61.7	0.2	22.4	194.3	194.3	13.7	11.2	-2.6	-2.5	-20.5
GEW-116	5/24/2018 9:34	15.8	62.2	0.2	21.8	194.3	194.3	15.2	15.5	-3.0	-3.0	-20.9
GEW-117	5/11/2018 10:50	48.5	51.1	0.1	0.3	118.5	118.4	1.7	3.5	-18.0	-17.6	-18.4
GEW-117	5/11/2018 10:56	48.4	47.8	0.1	3.7	118.6	118.6	20.7	20.4	-18.5	-18.5	-18.7
GEW-118	5/11/2018 13:31	1.0	39.3	4.4	55.3	187.7	188.4	15.2	14.4	-0.4	-0.4	-19.1
GEW-118	5/11/2018 13:38	2.6	51.7	0.0	45.7	197.9	197.9	19.5	20.8	-0.6	-0.7	-19.1

May 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 ₂ O		
GEW-118	5/24/2018 9:37	4.0	57.0	0.0	39.0	196.4	196.4	21.6	22.2	-11.2	-11.2	-19.7
GEW-118	5/24/2018 9:43	4.3	47.7	2.7	45.3	192.8	192.3	11.8	17.8	-11.8	-11.2	-19.5
GEW-120	5/11/2018 11:04	19.3	49.8	0.0	30.9	159.0	159.0	13.0	13.2	-7.7	-6.8	-18.0
GEW-120	5/11/2018 11:11	19.8	49.4	0.0	30.8	159.3	159.2	17.8	18.5	-6.8	-6.8	-19.1
GEW-120	5/24/2018 10:04	19.5	50.0	0.0	30.5	159.0	159.0	22.2	21.8	-6.8	-6.8	-19.1
GEW-120	5/24/2018 10:06	19.6	49.9	0.0	30.5	159.0	159.0	21.7	22.7	-6.8	-6.8	-19.5
GEW-121	5/11/2018 14:02	18.7	47.3	0.5	33.5	171.0	171.0	20.9	14.6	-15.2	-15.1	-18.5
GEW-121	5/11/2018 14:09	15.6	45.3	0.5	38.6	171.8	172.1	16.6	8.2	-15.2	-14.8	-18.4
GEW-121	5/24/2018 10:00	11.5	43.6	1.0	43.9	173.6	173.6	26.5	27.0	-14.1	-14.1	-19.0
GEW-121	5/24/2018 10:01	11.4	44.0	1.0	43.6	174.2	174.2	23.3	22.9	-14.1	-14.1	-18.6
GEW-122	5/14/2018 8:56	10.1	38.3	2.0	49.6	152.9	152.9	57.7	59.3	-12.8	-12.3	-18.7
GEW-122	5/14/2018 9:03	10.0	37.5	1.9	50.6	152.9	152.9	59.4	59.8	-12.2	-12.2	-18.5
GEW-122	5/24/2018 14:20	15.0	36.5	1.5	47.0	156.5	156.5	59.6	59.2	-12.2	-12.2	-18.4
GEW-122	5/24/2018 14:22	15.5	36.0	1.5	47.0	156.2	156.5	59.7	59.5	-12.5	-12.2	-18.4
GEW-123	5/11/2018 14:13	22.3	52.1	0.0	25.6	153.7	153.7	3.8	1.0	-11.4	-11.4	-19.4
GEW-123	5/11/2018 14:20	21.7	49.6	0.0	28.7	154.8	154.9	6.9	8.6	-11.8	-11.6	-19.3
GEW-123	5/24/2018 9:54	20.3	46.4	0.1	33.2	156.0	156.0	12.1	11.7	-11.7	-11.7	-19.8
GEW-123	5/24/2018 9:56	19.9	46.3	0.0	33.8	156.1	156.0	11.5	11.2	-11.6	-11.6	-19.7
GEW-124	5/14/2018 9:18	40.4	37.5	4.6	17.5	92.2	92.2	1.6	3.1	-15.9	-16.1	-16.5
GEW-124	5/14/2018 9:25	40.7	35.0	4.6	19.7	93.6	93.6	2.9	1.9	-15.9	-15.9	-16.2
GEW-124	5/24/2018 14:24	40.0	34.4	4.7	20.9	105.3	105.5	3.9	3.3	-12.2	-12.3	-12.4
GEW-125	5/14/2018 9:35	3.6	58.0	0.5	37.9	174.7	174.7	7.7	9.4	-2.6	-2.6	-18.5
GEW-125	5/14/2018 9:42	4.0	58.7	0.4	36.9	174.2	174.2	11.4	9.9	-2.5	-2.6	-18.6
GEW-125	5/24/2018 14:30	3.9	51.5	0.6	44.0	176.4	176.4	9.3	10.0	-3.2	-3.2	-19.4
GEW-125	5/24/2018 14:31	4.0	52.2	0.5	43.3	174.0	173.8	9.4	4.9	-2.0	-2.0	-19.1
GEW-126	5/14/2018 9:31	18.7	55.8	0.6	24.9	119.8	119.9	16.2	10.8	-4.9	-4.9	-5.6
GEW-126	5/14/2018 9:37	19.6	52.1	0.6	27.7	121.5	121.5	10.7	12.3	-4.9	-4.8	-4.2
GEW-127	5/14/2018 9:09	5.7	59.4	0.0	34.9	184.0	183.9	8.3	5.6	-0.6	-0.6	-18.7
GEW-127	5/14/2018 9:15	4.9	63.2	0.0	31.9	184.4	184.5	15.9	17.7	-1.4	-1.4	-18.8
GEW-127	5/24/2018 13:49	7.0	59.8	0.3	32.9	181.5	181.5	9.8	8.7	-0.9	-0.9	-18.8
GEW-127	5/24/2018 13:51	6.9	60.8	0.3	32.0	180.9	180.9	7.6	7.6	-0.9	-0.9	-18.8
GEW-128	5/8/2018 10:09	11.1	43.3	7.0	38.6	143.2	143.2	44.2	35.7	-10.4	-10.3	-18.6
GEW-128	5/8/2018 10:17	13.1	53.0	3.2	30.7	142.2	142.5	8.9	8.7	-1.1	-1.1	-19.0
GEW-128	5/22/2018 10:20	9.0	48.7	5.4	36.9	177.5	177.5	11.0	10.1	-0.4	-0.3	-17.2
GEW-128	5/22/2018 10:22	9.6	49.6	4.7	36.1	176.9	176.9	11.9	9.1	-0.2	-0.2	-18.0
GEW-128	5/22/2018 10:49	9.5	57.3	2.1	31.1	177.5	176.9	8.6	8.2	-0.2	-0.2	-16.7
GEW-129	5/11/2018 10:01	0.6	64.9	0.0	34.5	196.4	196.4	16.1	13.9	-8.1	-7.7	-17.0
GEW-129	5/11/2018 10:06	0.9	59.3	0.0	39.8	197.9	197.9	12.7	13.9	-7.7	-7.7	-15.0
GEW-129	5/24/2018 14:11	14.1	60.6	0.0	25.3	171.6	171.6	16.0	12.5	-8.8	-8.8	-18.8
GEW-129	5/24/2018 14:14	13.6	62.2	0.0	24.2	163.9	162.9	7.0	4.9	-3.4	-3.3	-18.7
GEW-130	5/14/2018 9:20	6.6	57.0	1.3	35.1	185.1	185.1	15.1	22.6	-2.3	-2.3	-18.2

May 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 ₂ O		
GEW-130	5/14/2018 9:26	6.8	54.2	1.2	37.8	185.1	185.1	24.2	21.8	-2.3	-2.3	-18.2
GEW-130	5/24/2018 13:53	7.0	55.3	1.5	36.2	184.3	184.0	26.9	20.8	-2.8	-2.8	-19.0
GEW-130	5/24/2018 13:54	7.2	54.2	1.6	37.0	184.5	184.5	29.9	28.2	-2.8	-2.8	-18.6
GEW-131	5/14/2018 9:42	21.3	43.5	0.0	35.2	156.9	156.9	13.9	11.8	-12.2	-12.2	-18.3
GEW-131	5/14/2018 9:48	21.3	42.4	0.0	36.3	157.3	157.3	14.3	14.1	-12.0	-12.1	-18.4
GEW-131	5/24/2018 14:27	27.8	39.8	0.0	32.4	156.9	156.9	14.5	14.5	-12.6	-12.1	-18.1
GEW-131	5/24/2018 14:28	27.9	39.8	0.0	32.3	156.9	156.9	13.6	15.1	-12.4	-12.4	-17.9
GEW-132	5/4/2018 11:44	0.8	46.0	2.3	50.9	151.3	149.6	1.9	2.3	-0.02	-0.01	-18.6
GEW-132	5/4/2018 11:48	0.8	46.7	2.3	50.2	169.0	178.0	3.2	3.2	-0.1	-0.1	-18.2
GEW-132	5/11/2018 13:45	3.3	53.0	0.5	43.2	179.2	178.1	3.4	6.0	-0.1	-0.04	-18.5
GEW-132	5/11/2018 13:52	3.5	47.7	1.2	47.6	179.7	179.2	3.0	7.1	-0.2	-0.2	-19.0
GEW-133	5/14/2018 10:32	10.9	56.9	0.4	31.8	169.7	169.8	26.3	33.7	-14.6	-14.6	-19.0
GEW-133	5/14/2018 10:40	11.3	54.5	0.4	33.8	169.5	169.5	28.6	29.8	-14.0	-14.0	-17.3
GEW-133	5/24/2018 14:04	12.7	47.9	0.4	39.0	172.1	172.1	32.1	39.2	-13.1	-12.7	-18.2
GEW-133	5/24/2018 14:06	12.7	49.4	0.3	37.6	171.6	171.6	20.8	35.1	-13.0	-13.1	-17.5
GEW-134	5/11/2018 8:52	14.5	44.9	0.6	40.0	152.9	152.9	1.9	1.7	-0.5	-0.5	-18.7
GEW-134	5/11/2018 8:58	14.7	42.4	0.6	42.3	154.4	154.4	2.1	0.9	-0.5	-0.5	-18.5
GEW-134	5/24/2018 9:21	13.1	43.0	1.6	42.3	159.4	159.3	2.5	2.1	-0.5	-0.5	-19.6
GEW-134	5/24/2018 9:23	13.2	43.8	1.5	41.5	159.4	159.4	9.5	11.1	-0.7	-0.6	-19.7
GEW-135	5/11/2018 8:41	7.9	42.9	1.9	47.3	149.5	149.7	5.4	7.0	-2.8	-2.8	-19.0
GEW-135	5/11/2018 8:47	8.1	42.1	1.9	47.9	149.8	149.9	12.8	12.1	-2.9	-2.9	-18.9
GEW-135	5/24/2018 9:14	7.7	42.1	2.1	48.1	151.7	151.7	3.7	8.6	-3.2	-3.3	-19.5
GEW-135	5/24/2018 9:16	7.7	42.5	2.1	47.7	151.7	151.4	8.6	6.3	-3.3	-3.2	-20.0
GEW-136	5/11/2018 8:27	4.5	19.7	13.2	62.6	130.6	130.3	0.5	8.0	-0.2	-0.2	-19.2
GEW-136	5/11/2018 8:33	4.4	17.4	13.2	65.0	130.6	130.6	4.5	2.2	-0.3	-0.3	-19.1
GEW-136	5/24/2018 10:59	4.1	19.5	12.0	64.4	141.5	141.3	5.0	5.8	-0.2	-0.2	-19.4
GEW-136	5/24/2018 11:01	4.1	19.2	12.0	64.7	141.5	141.3	4.0	2.1	-0.3	-0.2	-19.4
GEW-137	5/11/2018 9:05	29.5	34.9	1.1	34.5	89.8	89.8	2.7	2.2	-10.3	-10.3	-18.9
GEW-137	5/11/2018 9:11	28.6	33.4	1.1	36.9	90.3	90.3	3.3	1.0	-9.8	-9.8	-18.8
GEW-138	5/10/2018 14:34	6.1	24.3	3.2	66.4	125.3	125.3	7.5	4.3	-0.2	-0.2	-19.5
GEW-138	5/10/2018 14:40	5.9	24.9	3.1	66.1	127.0	127.1	6.1	3.6	-0.2	-0.2	-19.4
GEW-139	5/11/2018 9:31	6.8	53.3	0.2	39.7	180.4	180.3	10.7	13.5	-7.7	-7.8	-18.6
GEW-139	5/11/2018 9:41	5.3	50.8	0.0	43.9	180.3	180.3	8.2	7.9	-7.7	-7.7	-18.6
GEW-139	5/24/2018 13:28	4.8	48.9	0.3	46.0	185.7	185.7	8.5	2.8	-6.3	-6.3	-18.4
GEW-139	5/24/2018 13:30	4.9	50.7	0.2	44.2	185.7	185.8	5.5	5.4	-6.8	-6.4	-20.4
GEW-140	5/11/2018 8:57	20.2	51.4	0.0	28.4	166.1	166.3	19.7	18.6	-11.9	-11.8	-19.3
GEW-140	5/11/2018 9:03	18.7	51.7	0.0	29.6	166.1	166.1	17.1	19.7	-11.6	-11.6	-18.8
GEW-140	5/24/2018 13:33	21.3	45.7	0.3	32.7	147.3	147.3	15.3	15.5	-14.1	-14.1	-18.5
GEW-140	5/24/2018 13:35	21.8	45.6	0.3	32.3	147.7	147.7	14.1	15.3	-14.0	-14.1	-19.0
GEW-141	5/11/2018 9:25	0.0	1.6	20.8	77.6	87.8	87.9	2.0	2.0	-0.9	-0.9	-18.8
GEW-141	5/11/2018 9:26	0.0	1.6	20.6	77.8	88.4	88.4	1.6	2.0	-0.2	-0.2	-18.8

May 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 ₂ O		
GEW-141	5/24/2018 13:46	0.5	12.7	17.1	69.7	108.7	108.7	1.7	1.8	-0.1	-0.1	-18.9
GEW-141	5/24/2018 13:48	0.5	11.6	17.2	70.7	108.5	108.5	2.1	2.1	-0.1	-0.1	-18.7
GEW-142	5/10/2018 15:47	0.3	0.4	20.6	78.7	98.2	98.2	1.1	1.1	-6.4	-6.4	-19.0
GEW-142	5/10/2018 15:49	0.4	0.1	20.7	78.8	98.4	98.4	1.9	1.9	-6.8	-6.8	-18.8
GEW-142	5/23/2018 13:43	0.5	0.1	20.4	79.0	95.8	95.9	3.0	3.0	-6.4	-6.8	-19.5
GEW-142	5/23/2018 13:45	0.5	0.1	20.4	79.0	96.5	96.5	3.0	2.5	-6.8	-6.8	-19.9
GEW-143	5/10/2018 15:20	0.1	0.8	20.6	78.5	99.4	99.7	1.1	1.1	-3.5	-3.4	-19.0
GEW-143	5/10/2018 15:21	0.0	0.2	20.7	79.1	100.7	100.8	1.6	1.1	-3.6	-3.6	-19.0
GEW-143	5/23/2018 13:38	0.5	0.3	20.2	79.0	99.6	99.7	2.3	3.0	-3.8	-3.8	-19.9
GEW-143	5/23/2018 13:40	0.5	0.1	20.2	79.2	101.1	101.2	2.7	3.0	-3.8	-3.8	-19.9
GEW-144	5/10/2018 14:28	0.0	0.5	20.8	78.7	101.1	101.1	3.2	1.1	-19.2	-19.2	-19.5
GEW-144	5/10/2018 14:29	0.0	0.3	20.8	78.9	100.6	100.6	1.9	2.6	-19.2	-19.2	-19.4
GEW-144	5/23/2018 13:34	0.7	2.1	19.8	77.4	97.5	97.4	1.1	0.0	-19.1	-19.1	-19.9
GEW-144	5/23/2018 13:35	0.7	0.7	20.0	78.6	97.0	97.0	2.4	1.5	-19.1	-19.1	-19.7
GEW-145	5/10/2018 13:54	6.8	52.7	0.0	40.5	122.6	122.9	9.9	10.1	-16.7	-16.8	-19.6
GEW-145	5/10/2018 14:00	6.7	50.6	0.0	42.7	123.5	123.7	1.6	1.6	-16.7	-16.7	-19.5
GEW-146	5/10/2018 14:23	4.3	5.1	15.6	75.0	100.4	100.4	13.1	14.2	-0.1	-0.1	-19.7
GEW-146	5/10/2018 14:29	3.3	4.5	15.8	76.4	102.1	102.1	13.0	13.5	-0.1	-0.1	-19.5
GEW-146	5/23/2018 10:18	3.8	5.6	16.4	74.2	95.4	95.4	13.2	13.2	-0.1	-0.1	-18.8
GEW-146	5/23/2018 10:20	4.1	5.0	16.4	74.5	95.6	95.6	13.5	12.8	-0.1	-0.1	-18.5
GEW-147	5/11/2018 8:14	9.6	41.7	0.4	48.3	181.5		37.7		-17.0		-18.9
GEW-147	5/11/2018 8:21	10.5	42.8	0.3	46.4	181.5	181.5	39.0	39.5	-17.1	-17.1	-18.7
GEW-147	5/24/2018 11:05	11.0	41.7	0.3	47.0	180.3	180.3	38.8	39.6	-17.0	-17.0	-18.8
GEW-147	5/24/2018 11:07	10.9	42.5	0.2	46.4	180.9	180.9	38.4	39.3	-17.1	-17.1	-18.8
GEW-148	5/10/2018 13:19	0.0	1.5	19.9	78.6	98.9	99.1	3.7	1.3	-19.1	-19.1	-19.1
GEW-148	5/10/2018 13:26	0.0	0.4	19.9	79.7	98.2	98.2	3.1	4.1	-19.6	-19.6	-20.1
GEW-148	5/23/2018 14:44	13.5	43.5	3.9	39.1	117.8	117.9	1.1	3.8	-18.6	-18.6	-19.4
GEW-149	5/10/2018 10:38	12.4	40.0	0.5	47.1	138.9	139.0	13.1	21.5	-0.1	-0.1	-1.3
GEW-149	5/10/2018 10:46	11.7	38.7	0.5	49.1	138.3	138.3	12.4	7.5	-0.4	-0.3	-1.3
GEW-149	5/23/2018 9:05	11.9	36.9	0.9	50.3	133.6	133.5	13.9	7.3	-0.2	-0.2	-2.7
GEW-149	5/23/2018 9:07	11.8	37.3	0.8	50.1	133.5	133.4	16.1	15.0	-0.2	-0.2	-2.7
GEW-150	5/15/2018 7:53	19.1	51.9	0.1	28.9	197.2	197.2	15.5	13.5	-1.1	-1.2	-15.9
GEW-150	5/15/2018 8:03	20.2	51.2	0.0	28.6	197.2	197.2	9.8	7.9	-0.7	-0.8	-15.7
GEW-150	5/29/2018 11:46	20.6	47.7	2.4	29.3	189.8	189.6	6.2	5.7	-0.9	-0.9	-14.8
GEW-150	5/29/2018 11:47	20.4	47.3	2.4	29.9	189.2	189.3	5.9	8.2	-0.6	-0.6	-15.0
GEW-151	5/14/2018 13:42	24.8	52.7	0.0	22.5	135.0	135.0	2.0	4.3	-0.7	-0.7	-10.7
GEW-151	5/14/2018 13:49	25.8	52.0	0.0	22.2	133.8	133.8	4.2	5.3	-0.7	-0.7	-10.5
GEW-151	5/24/2018 14:48	23.5	51.0	0.0	25.5	119.9	120.1	4.7	3.8	-0.8	-0.8	-7.7
GEW-152	5/4/2018 15:21	27.8	44.8	1.8	25.6	119.6	119.7	3.0	2.1	-8.3	-8.3	-19.4
GEW-152	5/4/2018 15:27	29.0	44.9	0.8	25.3	114.0	113.5	3.2	1.5	-7.3	-7.4	-19.3
GEW-153	5/4/2018 14:41	34.2	33.6	0.0	32.2	92.7	92.7	2.8	3.4	-3.6	-3.6	-19.0

May 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 ₂ O		
GEW-153	5/4/2018 14:47	35.2	31.8	0.0	33.0	92.2	92.2	2.5	2.5	-3.6	-3.6	-19.3
GEW-154	5/10/2018 9:50	0.3	2.3	18.8	78.6	84.2	84.2	0.5	0.5	-1.2	-1.2	-10.2
GEW-154	5/10/2018 9:56	0.1	1.5	18.8	79.6	83.8	83.8	1.3	0.5	-1.2	-1.2	-10.2
GEW-154	5/24/2018 9:06	2.0	5.3	12.6	80.1	112.0	112.2	1.1	2.2	-0.9	-0.9	-17.7
GEW-154	5/24/2018 9:07	2.0	5.7	12.6	79.7	112.4	112.5	2.5	1.1	-0.9	-0.9	-18.6
GEW-155	5/11/2018 9:35	0.7	20.6	5.8	72.9	123.1	123.1	3.3	4.0	-0.02	-0.02	-18.4
GEW-155	5/11/2018 9:41	0.5	19.5	5.8	74.2	123.5	123.4	3.0	2.0	-0.1	-0.04	-18.4
GEW-155	5/24/2018 8:16	0.3	19.7	5.7	74.3	128.3	128.1	2.6	2.9	-0.1	-0.1	-19.0
GEW-155	5/24/2018 8:18	0.3	19.8	5.7	74.2	128.3	128.3	3.1	3.2	-0.1	-0.04	-19.0
GEW-156	5/10/2018 13:40	38.7	46.9	0.4	14.0	109.0	109.0	4.4	3.1	-7.8	-7.8	-19.6
GEW-156	5/10/2018 13:46	37.9	47.5	0.1	14.5	109.8	109.7	10.8	10.4	-7.8	-7.8	-19.5
GEW-157	5/10/2018 11:14	17.8	51.1	1.2	29.9	139.6	139.3	11.0	4.6	-15.7	-15.8	-19.5
GEW-157	5/10/2018 11:20	17.3	50.2	1.2	31.3	138.7	138.8	10.2	4.8	-14.7	-14.6	-19.4
GEW-157	5/23/2018 11:20	19.5	46.1	1.9	32.5	142.5	142.5	1.4	2.5	-12.1	-12.1	-17.9
GEW-157	5/23/2018 11:22	19.6	46.7	1.8	31.9	142.6	142.5	4.4	5.6	-12.5	-12.5	-18.5
GEW-158	5/10/2018 10:01	17.7	52.7	0.0	29.6	132.0	132.0	5.1	6.6	-3.1	-3.2	-10.2
GEW-158	5/10/2018 10:07	16.7	52.4	0.0	30.9	131.7	131.2	2.8	4.7	-3.2	-3.2	-10.2
GEW-158	5/23/2018 10:46	23.0	51.9	0.0	25.1	160.2	159.9	13.7	2.5	-1.3	-1.5	-4.7
GEW-158	5/23/2018 10:48	22.6	53.3	0.0	24.1	159.9	159.8	8.1	9.9	-1.4	-1.4	-4.3
GEW-159	5/4/2018 15:02	34.1	32.7	0.2	33.0	84.8	84.9	1.6	1.2	-1.7	-1.7	-19.1
GEW-159	5/4/2018 15:08	34.7	31.9	0.2	33.2	87.0	87.1	1.6	1.2	-1.7	-1.7	-19.3
GEW-160	5/10/2018 9:12	6.3	19.4	10.5	63.8	89.3	89.3	12.3	8.8	-10.9	-10.8	-11.2
GEW-160	5/10/2018 9:20	6.4	20.0	10.7	62.9	93.3	93.4	4.7	3.9	-10.5	-10.6	-11.1
GEW-160	5/23/2018 8:33	5.3	22.3	11.7	60.7	93.9	93.7	21.3	6.8	-16.5	-16.8	-18.9
GEW-160	5/23/2018 8:35	5.5	22.7	11.9	59.9	93.6	93.9	10.4	18.1	-16.2	-16.1	-17.4
GEW-160	5/31/2018 11:27	5.2	45.2	2.5	47.1	104.8	105.0	4.5	5.9	-5.9	-5.9	-15.9
GEW-161	5/10/2018 9:23	4.3	48.9	0.7	46.1	145.9	145.9	4.2	5.8	-8.6	-8.6	-10.5
GEW-161	5/10/2018 9:30	5.3	47.0	0.5	47.2	144.9	144.9	4.7	4.8	-8.6	-8.6	-10.3
GEW-161	5/23/2018 8:38	7.0	48.6	0.1	44.3	141.5	141.2	2.7	7.0	-11.3	-11.2	-18.5
GEW-161	5/23/2018 8:40	7.3	49.1	0.3	43.3	141.5	141.5	3.1	1.4	-11.3	-11.3	-18.4
GEW-162	5/10/2018 10:26	13.4	56.2	0.0	30.4	128.1	128.3	6.5	6.4	-6.8	-7.1	-20.1
GEW-162	5/10/2018 10:33	13.1	55.3	0.0	31.6	130.7	130.7	3.2	3.5	-7.0	-7.1	-20.2
GEW-163	5/3/2018 13:24	13.4	48.1	1.6	36.9	174.2	174.4	23.2	23.8	-0.2	-0.2	-19.5
GEW-163	5/3/2018 13:29	13.1	48.7	1.5	36.7	175.0	175.3	23.6	22.6	-0.1	-0.1	-19.1
GEW-163	5/9/2018 14:11	19.5	55.6	0.6	24.3	177.5	177.5	12.2	13.3	-0.1	-0.1	-18.6
GEW-163	5/9/2018 14:12	19.9	55.3	0.6	24.2	177.9	177.7	13.9	14.9	-0.1	-0.1	-19.1
GEW-163	5/14/2018 11:20	15.2	57.0	0.9	26.9	176.1	175.9	12.3	8.2	-0.2	-0.2	-20.1
GEW-163	5/14/2018 11:22	15.2	60.3	0.9	23.6	176.4	176.4	9.4	9.8	-0.2	-0.2	-19.8
GEW-163	5/22/2018 10:43	12.9	46.4	2.3	38.4	171.2	171.4	18.5	8.6	-0.2	-0.3	-17.5
GEW-163	5/22/2018 10:46	12.6	48.7	2.3	36.4	171.6	171.6	4.1	4.1	-0.2	-0.2	-18.0
GEW-163	5/30/2018 13:22	13.4	49.5	3.0	34.1	172.9	173.1	15.3	13.1	-0.3	-0.3	-18.6

May 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 ₂ O		
GEW-163	5/30/2018 13:24	13.5	50.4	2.8	33.3	172.7	172.6	14.5	6.7	-0.3	-0.2	-18.5
GEW-164	5/3/2018 13:33	24.7	56.1	0.8	18.4	158.8	159.0	25.0	26.5	-0.2	-0.2	-20.0
GEW-164	5/3/2018 13:39	24.0	55.3	0.8	19.9	159.0	159.0	35.8	30.8	-0.3	-0.3	-20.4
GEW-164	5/9/2018 14:15	31.0	57.1	0.0	11.9	159.8	159.8	25.7	24.9	-0.2	-0.1	-19.0
GEW-164	5/9/2018 14:17	31.3	57.6	0.0	11.1	159.8	159.8	22.0	18.9	-0.2	-0.2	-18.6
GEW-164	5/14/2018 11:26	24.2	63.2	0.5	12.1	157.9	157.7	29.0	26.3	-0.3	-0.3	-19.6
GEW-164	5/14/2018 11:28	24.5	63.7	0.6	11.2	157.7	158.1	32.2	9.5	-0.4	-0.4	-19.5
GEW-164	5/22/2018 10:49	24.0	58.6	1.0	16.4	157.3	157.3	30.1	37.8	-0.3	-0.3	-18.4
GEW-164	5/22/2018 10:51	24.3	58.7	1.0	16.0	157.4	157.3	32.3	30.4	-0.3	-0.3	-18.1
GEW-164	5/30/2018 13:28	25.2	57.8	0.8	16.2	153.7	154.0	29.1	29.4	-0.3	-0.3	-19.1
GEW-164	5/30/2018 13:30	25.1	59.1	0.8	15.0	154.0	153.8	37.5	26.2	-0.3	-0.3	-18.1
GEW-165	5/3/2018 13:44	10.3	57.2	1.4	31.1	178.6	178.9	18.7	18.7	-0.3	-0.3	-19.4
GEW-165	5/3/2018 13:50	10.2	57.9	1.5	30.4	179.2	179.2	19.0	18.5	-0.4	-0.3	-19.7
GEW-165	5/9/2018 14:20	15.3	59.0	0.5	25.2	179.7	179.7	22.5	17.5	-0.2	-0.2	-18.2
GEW-165	5/9/2018 14:21	15.9	60.2	0.5	23.4	179.7	179.7	25.1	22.1	-0.3	-0.2	-18.5
GEW-165	5/14/2018 11:32	11.2	63.7	2.1	23.0	179.5	179.7	26.8	23.3	-0.5	-0.5	-19.5
GEW-165	5/14/2018 11:34	11.8	65.1	2.1	21.0	179.7	179.2	13.1	13.3	-0.5	-0.5	-19.7
GEW-165	5/21/2018 11:36	9.8	55.8	2.4	32.0	178.8	178.9	23.3	19.9	-0.5	-0.5	-19.3
GEW-165	5/21/2018 11:42	9.2	52.7	2.4	35.7	178.6	178.6	17.9	21.8	-0.4	-0.4	-19.3
GEW-165	5/30/2018 13:34	11.2	63.3	0.7	24.8	180.9	181.0	18.1	17.8	-0.2	-0.3	-17.6
GEW-165	5/30/2018 13:35	10.8	65.2	0.7	23.3	181.0	180.9	21.9	19.7	-0.2	-0.2	-17.8
GEW-166	5/3/2018 13:54	0.9	57.9	0.1	41.1	195.0	195.0	20.9	19.7	-7.1	-7.2	-19.6
GEW-166	5/3/2018 14:00	0.9	55.6	0.1	43.4	195.0	195.0	26.8	27.4	-7.1	-7.2	-19.4
GEW-166	5/9/2018 14:25	3.0	55.8	0.1	41.1	195.0	195.0	23.8	22.2	-6.3	-6.4	-18.9
GEW-166	5/9/2018 14:26	3.1	56.6	0.1	40.2	195.0	195.1	33.2	37.7	-6.8	-6.9	-19.6
GEW-166	5/14/2018 11:38	1.1	62.6	0.3	36.0	195.7	195.7	29.7	14.2	-6.4	-6.1	-14.8
GEW-166	5/14/2018 11:40	1.0	64.6	0.3	34.1	195.7	195.7	36.3	46.7	-6.7	-6.7	-18.8
GEW-166	5/22/2018 10:55	1.0	59.8	0.3	38.9	195.7	195.7	26.9	15.7	-6.3	-5.7	-18.1
GEW-166	5/22/2018 10:57	0.9	61.8	0.2	37.1	195.7	195.7	32.9	36.7	-6.6	-6.7	-17.9
GEW-166	5/30/2018 13:39	0.9	57.3	0.9	40.9	195.7	195.7	41.8	22.3	-5.4	-5.8	-13.8
GEW-166	5/30/2018 13:41	0.7	59.2	1.0	39.1	195.7	195.7	35.0	29.5	-6.1	-6.1	-16.6
GEW-167	5/3/2018 14:04	0.6	40.2	6.9	52.3	187.0	187.0	13.0	13.0	-0.3	-0.3	-17.0
GEW-167	5/3/2018 14:11	0.4	38.1	7.0	54.5	186.7	186.4	11.5	4.3	-0.3	-0.3	-18.1
GEW-167	5/9/2018 14:30	2.9	49.9	1.4	45.8	191.6	191.6	11.3	11.7	-0.1	-0.1	-17.5
GEW-167	5/9/2018 14:32	4.5	50.8	1.4	43.3	191.6	191.6	15.5	15.4	-0.2	-0.2	-17.9
GEW-167	5/14/2018 11:43	1.2	51.2	3.6	44.0	190.2	190.2	14.3	4.7	-0.2	-0.2	-17.6
GEW-167	5/14/2018 11:45	1.4	51.5	3.6	43.5	190.3	190.4	13.1	24.7	-0.3	-0.4	-16.3
GEW-167	5/22/2018 11:10	0.4	47.7	5.6	46.3	189.6	189.6	30.4	30.9	-0.3	-0.3	-14.4
GEW-167	5/22/2018 11:12	0.5	47.1	5.8	46.6	189.6	189.6	31.4	36.7	-0.4	-0.5	-14.9
GEW-167	5/30/2018 13:44	0.5	54.8	3.1	41.6	191.7	191.8	11.6	20.2	-0.1	-0.1	-16.3
GEW-167	5/30/2018 13:46	0.4	53.8	3.1	42.7	191.6	191.6	2.1	16.7	-0.3	-0.3	-16.8

May 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 ₂ O		
GEW-168	5/3/2018 14:19	11.3	55.2	0.6	32.9	167.1	167.1	14.5	11.4	-0.2	-0.2	-19.5
GEW-168	5/3/2018 14:26	10.3	55.3	0.6	33.8	168.8	168.7	27.5	28.6	-0.4	-0.5	-19.5
GEW-168	5/9/2018 14:36	20.9	58.8	0.0	20.3	170.5	170.0	14.7	13.9	-0.1	-0.1	-19.9
GEW-168	5/9/2018 14:38	21.5	57.6	0.0	20.9	172.1	172.1	31.5	30.4	-0.5	-0.5	-19.9
GEW-168	5/14/2018 14:12	13.4	58.9	1.3	26.4	157.7	157.7	5.7	6.3	-0.5	-0.5	-19.6
GEW-168	5/14/2018 14:13	13.2	60.1	1.3	25.4	157.7	157.7	9.9	9.0	-0.5	-0.5	-19.4
GEW-168	5/23/2018 8:12	11.3	44.0	4.6	40.1	142.3	141.9	8.4	9.4	-0.3	-0.3	-19.3
GEW-168	5/23/2018 8:14	11.2	45.0	4.5	39.3	142.6	142.5	1.0	10.7	-0.3	-0.3	-19.6
GEW-168	5/30/2018 14:15	10.9	54.7	2.9	31.5	170.0	170.0	12.2	12.5	-0.1	-0.1	-18.0
GEW-168	5/30/2018 14:17	11.1	55.2	2.9	30.8	170.5	170.5	12.2	11.3	-0.1	-0.1	-18.2
GEW-169	5/3/2018 14:30	5.9	63.9	0.0	30.2	184.7	185.1	22.0	21.4	-0.2	-0.2	-19.2
GEW-169	5/3/2018 14:36	6.1	58.8	0.0	35.1	185.6	185.7	32.9	32.3	-0.6	-0.5	-19.3
GEW-169	5/9/2018 14:41	13.3	61.3	0.0	25.4	186.8	186.8	21.7	20.5	-0.7	-0.7	-20.1
GEW-169	5/9/2018 14:43	15.3	61.2	0.0	23.5	186.6	187.0	34.1	35.3	-0.6	-0.6	-20.0
GEW-169	5/14/2018 14:18	4.8	68.1	0.0	27.1	187.6	187.6	17.3	5.0	-0.7	-0.7	-19.8
GEW-169	5/14/2018 14:19	4.8	69.4	0.0	25.8	187.6	187.2	47.1	46.5	-1.0	-0.9	-19.6
GEW-169	5/22/2018 11:03	4.7	68.4	0.2	26.7	187.6	187.6	26.6	27.2	-0.8	-0.7	-18.2
GEW-169	5/22/2018 11:05	4.6	70.7	0.2	24.5	187.0	187.1	53.4	57.3	-0.9	-0.9	-17.9
GEW-169	5/30/2018 14:20	3.3	62.0	1.6	33.1	186.5	186.6	18.3	15.8	-0.9	-1.0	-18.2
GEW-169	5/30/2018 14:22	3.3	62.7	1.5	32.5	186.6	186.5	16.6	21.8	-0.9	-0.9	-18.2
GEW-170	5/14/2018 8:59	9.3	60.5	0.0	30.2	182.7	182.7	9.7	16.4	-0.7	-0.7	-11.8
GEW-170	5/14/2018 9:05	8.1	60.8	0.0	31.1	183.3	183.0	9.9	9.8	-0.8	-0.8	-12.6
GEW-170	5/24/2018 13:45	10.1	57.0	0.5	32.4	179.7	179.7	9.6	11.9	-1.2	-1.2	-13.9
GEW-170	5/24/2018 13:46	10.6	58.1	0.4	30.9	180.0	179.9	10.2	10.2	-1.2	-1.2	-13.0
GEW-171	5/10/2018 15:36	6.1	32.4	9.7	51.8	105.0	105.0	1.1	1.1	-4.8	-4.8	-17.4
GEW-171	5/10/2018 15:41	7.4	36.0	8.9	47.7	103.8	103.8	2.2	2.2	-5.8	-5.7	-17.4
GEW-171	5/23/2018 8:22	4.6	63.0	0.0	32.4	116.8	117.1	13.9	13.2	5.1	5.0	-18.0
GEW-171	5/23/2018 8:24	6.5	63.5	0.0	30.0	115.3	115.0	8.7	7.9	-2.9	-3.1	-18.6
GEW-172	5/10/2018 15:52	18.5	55.7	0.1	25.7	172.6	172.8	13.8	17.4	-1.4	-1.4	-18.7
GEW-172	5/10/2018 15:58	16.3	54.4	0.0	29.3	173.4	173.6	18.4	21.5	-1.2	-1.3	-18.8
GEW-172	5/23/2018 13:48	14.7	53.9	0.1	31.3	175.8	175.8	9.5	8.5	-1.4	-1.4	-19.7
GEW-172	5/23/2018 13:50	13.8	55.7	0.0	30.5	175.8	175.8	9.7	11.3	-1.4	-1.4	-19.7
GEW-173	5/11/2018 9:07	4.0	15.2	9.7	71.1	112.5	112.4	11.7	9.8	-0.1	-0.1	-19.0
GEW-173	5/11/2018 9:13	4.0	13.3	9.8	72.9	112.6	112.7	23.6	6.4	-0.1	-0.1	-18.8
GEW-173	5/25/2018 8:09	2.8	11.8	12.5	72.9	115.3	115.5	5.4	3.7	-0.1	-0.1	-19.2
GEW-173	5/25/2018 8:11	2.8	9.8	12.9	74.5	116.3	116.0	6.4	5.7	-0.1	-0.1	-19.0
GEW-174	5/10/2018 14:43	21.7	46.0	0.2	32.1	147.8	147.8	31.4	27.3	-3.8	-3.8	-19.6
GEW-174	5/10/2018 14:50	20.3	44.6	0.0	35.1	147.7	148.0	31.9	42.0	-3.7	-3.8	-19.6
GEW-174	5/23/2018 13:54	27.0	43.8	0.0	29.2	153.7	153.7	21.6	25.5	-3.7	-3.7	-19.9
GEW-174	5/23/2018 13:56	27.5	44.0	0.0	28.5	153.7	153.5	30.2	33.5	-3.7	-3.7	-19.6
GEW-175	5/10/2018 10:56	15.3	51.5	1.7	31.5	175.8	176.4	17.5	18.3	-0.1	-0.1	-19.1

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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 ₂ O		
GEW-175	5/10/2018 11:02	15.4	51.0	1.5	32.1	175.8	176.4	18.4	19.7	-0.1	-0.1	-18.8
GEW-175	5/23/2018 11:37	24.8	39.9	4.1	31.2	162.9	162.9	27.3	31.1	-0.2	-0.2	-17.3
GEW-175	5/23/2018 11:39	25.5	40.5	3.9	30.1	163.3	163.3	30.8	29.1	-0.2	-0.2	-17.6
GEW-176	5/10/2018 10:40	25.6	33.7	6.4	34.3	92.6	92.7	5.5	5.5	-0.04	-0.03	-20.0
GEW-176	5/10/2018 10:46	26.2	33.5	6.3	34.0	93.4	93.4	2.8	4.1	-0.1	-0.1	-20.2
GEW-176	5/23/2018 10:55	42.8	40.8	1.6	14.8	97.7	97.7	4.1	3.0	-0.1	-0.1	-18.5
GEW-177	5/8/2018 9:58	2.2	62.2	0.0	35.6	186.4	186.0	12.1	15.5	-14.2	-14.3	-17.2
GEW-177	5/8/2018 10:05	1.7	63.4	0.0	34.9	186.4	186.4	19.4	17.9	-13.7	-13.7	-15.8
GEW-177	5/22/2018 10:16	2.1	62.9	0.0	35.0	196.4	196.2	13.4	25.0	-2.9	-2.9	-16.0
GEW-177	5/22/2018 10:17	2.0	65.2	0.0	32.8	196.4	196.3	33.9	33.9	-3.4	-3.4	-17.4
GEW-178	5/3/2018 15:08	16.9	53.4	3.1	26.6	102.5	102.3	10.6	10.0	-0.1	-0.1	-19.4
GEW-178	5/3/2018 15:14	16.9	51.5	3.1	28.5	102.5	102.3	9.6	8.8	-0.1	-0.1	-19.7
GEW-178	5/9/2018 11:45	17.9	53.2	2.7	26.2	108.7	108.7	13.7	11.8	-0.1	-0.1	-19.6
GEW-178	5/15/2018 10:20	19.8	47.2	4.2	28.8	101.8	101.8	7.0	6.4	-0.1	-0.1	-19.3
GEW-178	5/22/2018 8:43	20.0	55.1	0.3	24.6	104.3	104.0	3.9	11.5	-1.0	-1.0	-18.6
GEW-178	5/30/2018 10:05	20.5	55.3	0.4	23.8	109.7	109.5	12.2	7.4	-1.0	-1.0	-19.3
GEW-179	5/3/2018 15:18	22.6	64.9	0.0	12.5	109.7	109.5	4.7	5.5	-1.9	-1.9	-19.4
GEW-179	5/3/2018 15:25	22.5	65.1	0.0	12.4	109.4	109.5	3.0	6.0	-1.9	-1.9	-19.4
GEW-179	5/9/2018 11:55	19.1	64.6	0.0	16.3	128.9	128.7	5.8	5.1	0.2	0.2	-18.9
GEW-179	5/9/2018 11:56	19.1	66.8	0.0	14.1	129.9	129.9	6.9	6.5	-0.2	-0.2	-19.3
GEW-179	5/15/2018 10:09	23.1	61.3	0.0	15.6	137.1	137.1	9.9	11.3	-3.8	-3.8	-19.3
GEW-179	5/15/2018 10:16	25.5	58.3	0.0	16.2	136.8	137.1	4.2	10.3	-3.8	-3.8	-18.5
GEW-179	5/22/2018 8:47	17.7	58.8	0.2	23.3	128.9	128.6	15.2	10.4	-7.1	-6.9	-18.9
GEW-179	5/30/2018 10:10	18.4	64.5	0.0	17.1	139.3	139.3	12.9	15.1	-5.4	-5.4	-18.2
GEW-179	5/30/2018 10:11	18.7	65.0	0.0	16.3	139.2	139.3	13.5	13.2	-5.1	-5.4	-18.7
GEW-180	5/4/2018 8:32	14.5	62.0	0.1	23.4	148.0	148.0	10.5	14.5	-9.4	-9.4	-19.1
GEW-180	5/4/2018 8:38	14.6	60.5	0.0	24.9	148.0	147.7	14.7	12.3	-9.4	-9.4	-19.0
GEW-180	5/9/2018 13:24	18.1	63.8	0.2	17.9	150.7	150.3	16.9	14.5	-9.3	-9.3	-19.6
GEW-180	5/9/2018 13:25	18.0	64.8	0.0	17.2	150.3	150.6	14.2	15.5	-9.3	-9.3	-19.7
GEW-180	5/15/2018 10:03	19.6	62.4	0.0	18.0	148.7	148.8	8.7	16.5	-8.9	-8.8	-19.0
GEW-180	5/15/2018 10:05	19.7	61.9	0.0	18.4	149.1	148.8	9.9	11.9	-8.8	-8.8	-19.0
GEW-180	5/22/2018 8:52	14.0	64.5	0.8	20.7	151.3	151.3	10.0	11.0	-9.4	-9.4	-18.9
GEW-180	5/22/2018 8:53	13.9	65.1	0.8	20.2	151.3	151.3	16.0	14.1	-9.3	-9.4	-18.9
GEW-180	5/30/2018 10:15	14.6	64.5	0.8	20.1	151.3	151.4	14.8	13.2	-9.1	-9.5	-18.8
GEW-180	5/30/2018 10:17	14.5	67.0	0.7	17.8	151.7	151.3	14.5	7.5	-9.5	-9.5	-18.7
GEW-181	5/4/2018 8:43	15.3	67.0	0.0	17.7	158.5	158.1	13.4	16.7	-0.9	-0.8	-19.9
GEW-181	5/4/2018 8:50	14.2	63.9	0.0	21.9	159.0	159.0	12.7	11.9	-1.5	-1.5	-19.9
GEW-181	5/9/2018 13:29	17.0	65.0	0.0	18.0	156.9	156.9	17.2	14.7	-1.3	-1.3	-20.9
GEW-181	5/9/2018 13:30	17.1	65.2	0.0	17.7	156.9	157.2	14.2	15.1	-1.7	-1.6	-20.2
GEW-181	5/15/2018 9:57	18.1	60.5	0.0	21.4	159.4	159.4	6.6	4.1	-1.6	-1.6	-19.9
GEW-181	5/15/2018 9:59	17.7	62.3	0.0	20.0	159.4	159.4	5.1	8.8	-1.6	-1.6	-20.1

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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 ₂ O		
GEW-181	5/22/2018 8:58	14.9	67.1	0.6	17.4	158.7	159.0	16.7	9.0	-1.6	-1.6	-19.5
GEW-181	5/22/2018 8:59	14.7	69.3	0.6	15.4	158.5	158.5	16.6	16.9	-1.5	-1.5	-19.5
GEW-181	5/30/2018 10:21	17.0	74.1	0.0	8.9	159.4	159.4	11.4	16.8	-1.1	-1.1	-18.9
GEW-181	5/30/2018 10:23	17.1	74.1	0.0	8.8	159.2	159.4	17.1	15.0	-1.1	-1.1	-19.2
GEW-182	5/4/2018 9:13	18.8	47.4	3.4	30.4	141.5	141.5	19.4	17.2	-0.7	-0.7	-19.6
GEW-182	5/4/2018 9:20	18.7	46.1	3.5	31.7	140.6	140.6	14.6	13.6	-0.6	-0.6	-19.6
GEW-182	5/9/2018 13:45	19.2	49.6	2.6	28.6	149.9	149.9	15.1	16.0	-0.4	-0.4	-20.5
GEW-182	5/9/2018 13:46	19.4	49.8	2.6	28.2	149.9	149.5	14.6	14.0	-0.3	-0.3	-19.5
GEW-182	5/15/2018 9:05	24.1	44.6	3.0	28.3	145.9	145.6	9.9	14.7	-0.5	-0.5	-19.5
GEW-182	5/15/2018 9:07	24.1	45.4	3.0	27.5	145.9	145.8	5.8	13.0	-0.7	-0.5	-19.8
GEW-182	5/22/2018 9:53	18.8	42.6	4.3	34.3	139.6	139.6	11.3	15.5	-0.5	-0.5	-10.5
GEW-182	5/22/2018 9:55	18.8	43.0	4.2	34.0	139.6	139.5	15.3	12.0	-0.5	-0.5	-9.9
GEW-182	5/30/2018 11:13	20.0	49.3	2.9	27.8	148.4	148.4	8.4	9.2	-0.5	-0.5	-17.5
GEW-182	5/30/2018 11:15	20.0	50.0	2.9	27.1	148.4	148.4	14.1	9.3	-0.4	-0.4	-19.3
GEW-184	5/4/2018 9:27	16.1	35.9	8.8	39.2	100.4	100.4	3.4	2.0	-0.03	-0.1	-19.1
GEW-184	5/4/2018 9:33	15.8	34.3	9.4	40.5	102.1	101.8	3.9	2.3	-0.04	-0.04	-18.6
GEW-184	5/9/2018 13:52	27.3	54.8	1.2	16.7	114.3	114.2	2.7	1.6	-0.03	-0.03	-19.3
GEW-184	5/15/2018 9:21	23.3	45.8	4.2	26.7	106.2	106.3	9.0	7.7	-0.2	-0.2	-19.2
GEW-184	5/22/2018 10:11	18.3	47.6	5.9	28.2	112.0	112.2	1.6	2.2	-0.1	-0.1	-18.5
GEW-184	5/22/2018 10:13	18.7	46.6	5.9	28.8	112.0	112.3	2.2	1.9	-0.1	-0.1	-18.6
GEW-184	5/30/2018 11:31	22.0	55.6	3.6	18.8	116.3	116.6	3.8	3.1	-0.04	-0.1	-18.2
GEW-184	5/30/2018 11:33	22.4	54.1	3.6	19.9	117.4	117.3	3.5	2.5	-0.1	-0.04	-18.5
GEW-185	5/4/2018 9:37	16.2	59.4	0.5	23.9	169.0	168.6	5.5	7.8	-0.3	-0.3	-18.8
GEW-185	5/4/2018 9:44	14.8	58.6	0.3	26.3	169.8	169.6	9.7	9.6	-0.4	-0.4	-18.6
GEW-185	5/9/2018 13:56	19.4	58.9	0.6	21.1	168.5	168.5	11.9	11.0	-0.5	-0.4	-18.6
GEW-185	5/9/2018 13:58	19.6	59.2	0.6	20.6	168.5	168.2	11.1	9.7	-0.3	-0.4	-18.4
GEW-185	5/15/2018 9:24	15.2	49.1	3.6	32.1	165.7	166.0	10.6	12.9	-0.6	-0.6	-19.2
GEW-185	5/15/2018 9:26	15.1	50.6	3.7	30.6	166.1	166.1	10.1	12.2	-0.4	-0.6	-19.1
GEW-185	5/22/2018 10:05	13.4	54.2	4.0	28.4	168.1	168.1	8.4	7.8	-0.3	-0.2	-18.5
GEW-185	5/22/2018 10:08	13.4	56.5	3.8	26.3	168.1	168.1	1.4	6.0	-0.2	-0.2	-18.3
GEW-185	5/30/2018 11:26	14.5	57.2	3.5	24.8	168.5	168.5	2.9	6.5	-0.3	-0.3	-18.3
GEW-185	5/30/2018 11:27	14.4	58.2	3.4	24.0	168.5	168.1	8.0	8.9	-0.3	-0.2	-18.1
GEW-186	5/4/2018 8:59	25.7	53.6	1.1	19.6	144.2	144.2	5.5	5.3	-0.1	-0.1	-19.1
GEW-186	5/4/2018 9:07	25.3	53.0	1.2	20.5	144.8	144.5	9.0	10.8	-0.1	-0.1	-19.1
GEW-186	5/9/2018 13:37	27.5	58.6	0.0	13.9	148.9	148.8	8.9	7.8	0.0	0.0	-19.7
GEW-186	5/9/2018 13:39	27.8	58.7	0.0	13.5	150.5	150.2	12.4	14.1	-0.1	-0.1	-19.4
GEW-186	5/15/2018 9:39	23.6	56.2	0.4	19.8	141.9	141.9	1.5	9.2	-0.2	-0.2	-19.5
GEW-186	5/15/2018 9:40	23.6	57.0	0.3	19.1	141.9	141.9	10.2	9.5	-0.2	-0.2	-19.1
GEW-186	5/22/2018 9:28	21.3	53.2	3.6	21.9	145.2	145.2	7.7	9.7	-0.2	-0.2	-18.8
GEW-186	5/22/2018 9:31	21.6	52.7	3.6	22.1	145.2	145.2	8.1	5.0	-0.2	-0.2	-19.2
GEW-186	5/30/2018 10:55	23.8	56.5	2.0	17.7	143.2	143.2	12.7	11.0	-0.2	-0.2	-18.2

May 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 ₂ O		
GEW-186	5/30/2018 10:57	24.0	57.6	2.0	16.4	143.2	143.2	11.5	12.5	-0.2	-0.2	-18.4
GEW-187	5/3/2018 14:44	18.2	58.7	0.6	22.5	151.0	151.0	5.9	6.3	-6.3	-6.3	-20.1
GEW-187	5/3/2018 14:50	17.6	56.9	0.8	24.7	151.3	151.7	5.7	6.6	-6.2	-6.2	-19.9
GEW-187	5/9/2018 11:35	17.9	54.5	1.2	26.4	152.5	152.3	8.3	8.6	-5.9	-6.1	-18.9
GEW-187	5/9/2018 11:37	18.0	55.9	1.4	24.7	152.5	152.9	10.0	7.1	-5.9	-5.8	-19.9
GEW-187	5/15/2018 10:37	20.1	53.0	1.3	25.6	156.5	156.5	6.1	6.3	-5.5	-5.6	-19.4
GEW-187	5/15/2018 10:39	20.4	54.0	1.3	24.3	156.1	156.0	3.2	6.3	-5.6	-5.7	-19.1
GEW-187	5/22/2018 8:30	19.1	57.4	1.3	22.2	157.7	158.1	5.6	8.5	-5.8	-5.7	-19.8
GEW-187	5/22/2018 8:32	18.5	59.6	1.0	20.9	158.5	158.5	7.7	6.0	-5.4	-5.4	-19.6
GEW-187	5/30/2018 9:03	19.6	57.8	1.0	21.6	155.6	155.6	7.5	9.2	-6.4	-6.3	-19.4
GEW-187	5/30/2018 9:05	19.1	60.5	0.8	19.6	155.6	155.6	5.9	6.8	-6.4	-6.4	-19.3
GEW-188	5/4/2018 9:49	2.0	12.4	15.1	70.5	107.3	107.2	8.0	9.2	-0.1	-0.2	-18.7
GEW-188	5/4/2018 9:50	2.1	11.1	15.4	71.4	103.6	103.5	4.8	3.7	-0.1	-0.1	-18.9
GEW-188	5/9/2018 14:03	1.5	32.2	5.5	60.8	128.3	128.3	5.2	4.6	-0.02	-0.02	-18.4
GEW-188	5/9/2018 14:05	1.7	31.8	5.5	61.0	127.9	127.9	4.9	6.3	-0.02	-0.02	-18.5
GEW-188	5/10/2018 8:50	1.9	12.2	13.8	72.1	105.0	105.0	5.5	5.8	-0.1	-0.1	-19.5
GEW-188	5/10/2018 8:56	1.9	11.1	13.9	73.1	105.2	105.2	5.0	4.7	-0.1	-0.1	-19.6
GEW-188	5/15/2018 9:14	2.8	14.9	14.6	67.7	99.9	99.9	7.8	3.4	-0.2	-0.1	-19.4
GEW-188	5/15/2018 9:16	2.7	13.6	14.8	68.9	98.4	98.3	7.1	5.1	-0.2	-0.1	-18.9
GEW-188	5/22/2018 9:59	0.6	14.2	13.7	71.5	105.0	105.0	5.6	7.3	-0.04	-0.04	-18.2
GEW-188	5/22/2018 10:01	0.3	10.9	13.8	75.0	105.1	105.2	6.5	4.6	-0.1	-0.1	-17.9
GEW-188	5/30/2018 11:20	0.6	16.1	11.9	71.4	120.7	120.7	7.1	7.3	-0.1	-0.1	-18.2
GEW-188	5/30/2018 11:22	0.6	14.7	11.9	72.8	120.9	121.0	5.8	6.3	-0.04	-0.03	-17.9
GEW-1A	5/2/2018 8:43	13.4	9.3	15.9	61.4	80.3	80.5	2.5	2.2	-12.8	-13.0	-13.2
GEW-1A	5/2/2018 8:45	13.7	8.2	15.9	62.2	81.3	81.4	1.0	1.2	-13.1	-13.1	-13.4
GEW-1A	5/7/2018 14:04	13.7	7.5	15.3	63.5	93.4	93.6	2.7	2.7	-12.8	-12.7	-12.8
GEW-1A	5/7/2018 14:06	15.0	7.6	15.0	62.4	95.4	95.5	2.6	4.6	-12.7	-12.7	-12.8
GEW-1A	5/16/2018 11:16	12.9	5.5	14.9	66.7	88.3	88.6	4.1	4.1	-12.7	-12.7	-12.8
GEW-1A	5/16/2018 11:17	12.2	4.7	15.4	67.7	89.4	89.6	4.1	3.1	-12.7	-12.7	-12.7
GEW-1A	5/21/2018 11:08	11.1	7.2	15.4	66.3	78.0	78.4	2.8	3.7	-13.2	-13.1	-12.9
GEW-1A	5/21/2018 11:10	12.6	6.5	14.5	66.4	79.4	79.5	5.4	5.4	-13.2	-13.2	-13.1
GEW-1A	5/30/2018 9:26	11.2	7.8	15.0	66.0	91.0	91.2	0.0	0.0	-12.7	-12.7	-12.9
GEW-1A	5/30/2018 9:28	11.0	5.6	15.4	68.0	92.9	92.9	2.7	0.0	-12.4	-12.5	-12.9
GEW-2S	5/2/2018 8:57	57.9	37.4	0.4	4.3	79.4	79.4	14.8	14.8	-10.1	-10.1	-13.0
GEW-2S	5/7/2018 14:13	59.0	36.8	0.2	4.0	82.6	82.1	16.9	13.5	-7.7	-8.2	-12.5
GEW-2S	5/7/2018 14:19	59.2	36.3	0.2	4.3	80.3	80.3	22.2	19.0	-8.2	-7.8	-12.5
GEW-2S	5/16/2018 11:21	63.0	36.4	0.1	0.5	83.9	84.0	16.3	16.3	-7.0	-6.9	-12.4
GEW-2S	5/21/2018 11:13	60.7	36.8	0.1	2.4	75.5	75.4	19.9	24.0	-6.3	-6.4	-12.8
GEW-2S	5/31/2018 8:06	59.1	35.3	0.8	4.8	82.9	82.9	17.2	16.8	-10.4	-9.8	-12.8
GIW-01	5/2/2018 15:05	7.3	61.6	0.3	30.8	173.1	173.3	5.3	8.5	-1.5	-1.4	-18.5
GIW-01	5/2/2018 15:11	5.6	58.7	0.2	35.5	173.1	173.1	7.2	8.9	-1.5	-1.5	-18.9

May 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 ₂ O		
GIW-01	5/9/2018 9:04	7.2	57.7	0.4	34.7	170.5	170.5	5.5	5.1	-2.1	-2.1	-19.9
GIW-01	5/9/2018 9:05	7.0	61.1	0.3	31.6	170.5	170.5	5.6	6.1	-2.2	-2.1	-20.3
GIW-01	5/16/2018 8:48	6.6	56.3	1.0	36.1	172.5	172.1	7.9	7.9	-2.2	-2.2	-19.5
GIW-01	5/16/2018 8:49	7.3	62.6	1.0	29.1	172.6	172.1	6.9	6.9	-2.2	-2.2	-19.1
GIW-01	5/22/2018 8:51	5.6	51.9	3.0	39.5	162.4	162.4	8.0	8.2	-9.3	-9.3	-19.1
GIW-01	5/22/2018 8:53	5.8	50.3	2.5	41.4	151.0	151.0	1.5	1.5	-0.5	-0.5	-19.1
GIW-01	5/31/2018 9:51	4.5	63.3	0.0	32.2	125.8	125.6	1.5	1.1	0.3	0.3	-19.3
GIW-01	5/31/2018 9:53	4.3	64.8	0.0	30.9	142.2	142.5	6.2	7.7	-3.3	-3.3	-19.2
GIW-02	5/2/2018 15:14	0.7	20.9	13.5	64.9	99.4	99.6	2.0	2.5	-0.2	-0.2	-18.3
GIW-02	5/2/2018 15:21	0.7	17.3	14.1	67.9	95.3	95.3	2.3	2.0	-0.2	-0.2	-18.6
GIW-02	5/9/2018 9:08	0.8	19.9	13.9	65.4	70.9	70.9	1.2	2.9	-0.2	-0.2	-19.5
GIW-02	5/9/2018 9:10	0.7	17.5	14.3	67.5	71.4	71.4	2.1	2.4	-0.2	-0.2	-19.8
GIW-02	5/16/2018 8:52	0.9	22.1	13.6	63.4	86.0	86.1	2.2	3.2	-0.2	-0.2	-19.3
GIW-02	5/16/2018 8:53	0.9	19.4	13.9	65.8	86.8	86.8	1.9	0.7	-0.2	-0.2	-19.3
GIW-02	5/22/2018 8:58	1.2	18.9	14.4	65.5	94.6	94.8	3.8	3.8	-0.3	-0.3	-19.1
GIW-02	5/22/2018 8:59	1.2	18.0	14.5	66.3	96.0	96.1	2.8	2.8	-0.3	-0.3	-19.3
GIW-02	5/31/2018 9:56	1.7	22.6	13.6	62.1	87.5	87.5	2.6	3.1	-0.2	-0.2	-19.0
GIW-02	5/31/2018 9:57	1.8	20.3	13.9	64.0	87.0	87.0	2.3	2.3	-0.2	-0.2	-18.8
GIW-03	5/2/2018 15:25	10.7	43.3	1.9	44.1	92.5	92.6	5.3	5.3	-10.7	-10.7	-13.1
GIW-03	5/2/2018 15:32	10.0	42.9	1.9	45.2	94.6	94.8	3.4	3.6	-10.4	-10.4	-11.7
GIW-03	5/9/2018 9:13	8.9	44.0	2.3	44.8	70.6	70.7	2.3	3.1	-7.2	-7.2	-11.6
GIW-03	5/16/2018 8:56	8.3	44.6	2.1	45.0	83.0	83.3	0.7	2.9	-8.1	-8.0	-13.4
GIW-03	5/22/2018 9:02	8.7	45.2	2.2	43.9	91.5	91.5	7.4	4.9	-8.0	-8.0	-14.0
GIW-03	5/31/2018 10:00	8.2	48.1	1.3	42.4	86.1	86.2	4.0	5.0	-5.9	-6.0	-14.1
GIW-04	5/2/2018 15:35	5.4	42.3	5.3	47.0	96.0	96.2	2.6	2.3	-5.8	-5.8	-18.2
GIW-04	5/2/2018 15:41	4.7	40.3	5.4	49.6	97.4	97.4	2.3	2.3	-5.6	-5.6	-17.7
GIW-04	5/9/2018 9:17	3.2	48.4	2.7	45.7	70.8	70.9	2.4	2.4	-4.6	-4.6	-13.2
GIW-04	5/16/2018 8:58	1.7	47.0	4.5	46.8	89.9	90.3	1.8	2.1	-5.5	-5.4	-16.9
GIW-04	5/22/2018 9:04	0.6	47.0	4.8	47.6	98.4	98.8	2.5	2.2	-5.4	-5.4	-18.1
GIW-04	5/31/2018 10:02	0.6	48.3	3.1	48.0	87.9	88.0	1.6	1.1	-3.4	-3.4	-12.0
GIW-05	5/3/2018 9:03	0.0	4.1	20.7	75.2	72.3	72.4	2.8	3.9	-5.6	-5.5	-17.4
GIW-05	5/3/2018 9:05	0.0	2.1	20.6	77.3	72.5	72.6	5.5	5.5	-5.6	-5.6	-16.9
GIW-05	5/9/2018 9:25	0.0	1.5	21.1	77.4	71.3	71.8	0.0	0.0	-2.7	-2.7	-12.9
GIW-05	5/9/2018 9:26	0.0	1.0	20.4	78.6	72.3	72.3	4.8	2.8	-3.1	-3.1	-12.8
GIW-05	5/10/2018 8:34	0.2	2.5	20.0	77.3	79.4	79.6	0.0	0.0	-3.0	-3.0	-11.6
GIW-05	5/10/2018 8:42	0.4	10.9	16.0	72.7	82.6	82.6	5.5	4.8	-2.8	-2.8	-11.3
GIW-05	5/16/2018 9:04	0.3	9.2	15.9	74.6	79.1	79.4	3.2	4.2	-1.0	-1.0	-16.7
GIW-05	5/16/2018 9:06	0.3	9.1	15.4	75.2	81.0	81.0	5.1	5.1	-1.1	-1.1	-16.9
GIW-05	5/22/2018 9:09	0.2	8.3	16.9	74.6	85.6	87.0	0.0	0.0	-1.1	-1.1	-17.2
GIW-05	5/22/2018 9:10	0.3	8.8	16.1	74.8	87.7	87.7	3.9	3.9	-1.2	-1.2	-17.8
GIW-05	5/31/2018 10:06	0.6	17.2	13.5	68.7	84.7	84.7	2.8	2.8	-0.4	-0.4	-12.3

May 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 ₂ O		
GIW-05	5/31/2018 10:08	0.6	16.4	13.5	69.5	85.1	85.1	3.9	2.8	-0.5	-0.4	-12.5
GIW-06	5/3/2018 9:10	21.6	43.5	0.2	34.7	72.7	72.7	4.1	3.4	-15.5	-15.4	-16.9
GIW-06	5/3/2018 9:16	21.6	43.0	0.0	35.4	74.8	74.8	3.8	3.8	-15.4	-15.4	-16.9
GIW-06	5/9/2018 9:30	20.7	45.1	0.2	34.0	72.8	72.8	4.0	6.0	-11.3	-11.3	-13.2
GIW-06	5/16/2018 9:09	24.7	46.4	0.4	28.5	84.4	84.6	3.2	3.8	-14.7	-14.7	-16.3
GIW-06	5/22/2018 9:18	23.2	44.9	0.2	31.7	92.4	92.6	3.3	1.6	-15.1	-15.2	-18.3
GIW-06	5/31/2018 10:18	24.9	43.9	0.2	31.0	86.6	86.6	4.5	2.5	-10.8	-10.8	-12.9
GIW-07	5/3/2018 9:20	29.4	57.2	0.0	13.4	75.7	75.7	2.6	3.3	-5.3	-5.5	-16.9
GIW-07	5/3/2018 9:27	29.7	55.1	0.1	15.1	76.8	76.7	4.0	4.2	-5.0	-5.1	-17.4
GIW-07	5/9/2018 9:32	29.5	57.1	0.1	13.3	73.8	73.9	3.3	3.5	-4.4	-4.4	-13.0
GIW-07	5/16/2018 9:12	30.1	56.0	0.2	13.7	84.2	84.4	2.4	3.9	-4.8	-4.8	-16.7
GIW-07	5/22/2018 9:20	29.8	56.9	0.2	13.1	91.9	92.2	3.0	2.8	-4.3	-4.3	-17.0
GIW-07	5/31/2018 10:21	32.0	55.0	0.1	12.9	84.8	84.9	3.5	2.3	-3.2	-3.2	-12.5
GIW-08	5/3/2018 9:52	37.4	52.1	0.0	10.5	84.2	84.3	1.2	1.6	-2.5	-2.5	-18.5
GIW-08	5/3/2018 9:59	37.6	51.3	0.0	11.1	89.3	89.3	2.3	3.8	-2.5	-2.5	-16.9
GIW-08	5/9/2018 9:35	37.7	52.9	0.0	9.4	79.1	79.2	2.0	1.7	-2.1	-2.1	-12.8
GIW-08	5/16/2018 9:14	39.6	53.0	0.0	7.4	91.3	91.4	1.8	2.1	-2.5	-2.5	-14.8
GIW-08	5/22/2018 9:23	39.0	51.6	0.0	9.4	94.5	94.8	1.1	1.1	-2.5	-2.5	-16.3
GIW-08	5/31/2018 10:23	40.6	51.1	0.0	8.3	85.9	86.0	2.8	3.3	-1.8	-1.8	-12.8
GIW-09	5/3/2018 10:10	3.9	25.3	4.2	66.6	83.1	83.3	2.6	2.0	-0.9	-0.9	-17.8
GIW-09	5/3/2018 10:15	3.7	24.4	4.1	67.8	83.0	82.8	2.3	2.0	-1.0	-1.0	-18.4
GIW-09	5/9/2018 9:41	4.5	29.9	0.4	65.2	77.1	77.1	1.7	2.0	-0.9	-0.9	-12.9
GIW-09	5/16/2018 9:20	4.8	24.6	5.2	65.4	90.1	90.2	2.2	1.9	-1.1	-1.1	-17.3
GIW-09	5/16/2018 9:22	4.7	24.0	5.1	66.2	91.0	91.0	2.2	1.9	-1.1	-1.1	-16.2
GIW-09	5/22/2018 9:31	4.1	19.3	7.8	68.8	95.3	95.3	3.0	2.8	-1.2	-1.2	-15.9
GIW-09	5/22/2018 9:32	4.1	18.6	7.8	69.5	95.5	95.5	2.3	3.0	-1.2	-1.2	-16.5
GIW-09	5/31/2018 10:28	5.8	23.2	6.1	64.9	85.1	85.1	2.8	2.6	-0.8	-0.8	-13.1
GIW-09	5/31/2018 10:29	5.8	21.9	6.2	66.1	85.3	85.3	1.2	1.6	-0.8	-0.8	-13.0
GIW-10	5/3/2018 8:52	10.0	30.9	0.0	59.1	71.2	71.2	2.0	3.1	-5.2	-5.6	-16.9
GIW-10	5/3/2018 8:59	9.6	30.6	0.0	59.8	73.0	73.0	1.7	1.7	-5.4	-5.3	-17.1
GIW-10	5/9/2018 9:20	9.7	33.5	0.0	56.8	71.4	71.4	2.6	2.4	-4.3	-4.3	-13.0
GIW-10	5/16/2018 9:01	10.2	34.8	0.0	55.0	80.0	80.0	3.9	1.9	-4.8	-4.8	-16.3
GIW-10	5/21/2018 15:12	10.7	32.9	0.0	56.4	96.5	96.5	2.2	1.6	-4.8	-4.8	-16.4
GIW-10	5/31/2018 9:26	9.8	34.1	0.0	56.1	83.0	83.1	2.8	2.8	-4.1	-4.1	-13.4
GIW-11	5/2/2018 14:53	12.6	38.2	0.6	48.6	92.6	92.7	4.2	4.1	-2.5	-2.6	-18.2
GIW-11	5/2/2018 15:00	12.4	36.6	0.6	50.4	91.2	91.2	5.3	3.9	-2.6	-2.4	-17.9
GIW-11	5/9/2018 8:58	18.5	39.6	0.6	41.3	70.5	70.4	5.4	6.4	-2.7	-2.7	-18.0
GIW-11	5/16/2018 8:45	14.5	38.8	0.5	46.2	80.7	81.2	6.1	6.3	-2.7	-2.6	-16.1
GIW-11	5/21/2018 15:10	14.6	37.0	0.4	48.0	99.4	99.4	2.5	5.4	-2.5	-2.5	-17.1
GIW-11	5/31/2018 9:23	14.2	38.8	0.5	46.5	83.1	83.2	2.0	3.5	-2.5	-2.5	-16.3
GIW-12	5/2/2018 13:58	11.6	32.4	7.8	48.2	94.1	94.1	2.3	1.0	-0.2	-0.2	-16.8

May 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 ₂ O		
GIW-12	5/2/2018 14:12	11.9	29.9	8.2	50.0	95.5	95.3	2.2	2.6	-0.2	-0.2	-16.7
GIW-12	5/9/2018 8:52	11.7	33.2	7.8	47.3	69.5	69.5	2.4	2.4	-0.3	-0.3	-18.4
GIW-12	5/9/2018 8:53	11.8	31.7	8.0	48.5	69.8	69.8	1.7	1.7	-0.2	-0.2	-18.1
GIW-12	5/16/2018 8:39	9.0	38.9	6.6	45.5	79.1	79.3	2.2	2.2	-0.2	-0.2	-17.4
GIW-12	5/16/2018 8:40	8.9	38.3	6.7	46.1	81.2	81.2	2.1	1.8	-0.2	-0.2	-17.4
GIW-12	5/21/2018 15:05	9.3	42.4	4.9	43.4	96.7	96.9	2.8	2.8	-0.2	-0.2	-16.4
GIW-12	5/31/2018 9:17	9.4	36.3	7.5	46.8	82.2	82.3	4.2	2.3	-0.2	-0.2	-18.2
GIW-12	5/31/2018 9:18	9.1	35.4	7.6	47.9	82.6	82.6	3.5	3.9	-0.2	-0.2	-18.3
GIW-13	5/2/2018 13:47	26.6	55.4	0.0	18.0	88.9	88.9	4.1	3.1	-1.1	-1.2	-11.3
GIW-13	5/2/2018 13:54	25.3	53.5	0.0	21.2	91.2	91.2	2.3	2.0	-1.1	-1.1	-11.3
GIW-13	5/9/2018 8:49	28.0	54.8	0.0	17.2	69.6	69.6	2.9	3.6	-1.2	-1.2	-12.5
GIW-13	5/16/2018 8:36	29.8	53.9	0.0	16.3	81.0	81.2	3.6	3.7	-1.4	-1.4	-11.4
GIW-13	5/21/2018 15:03	31.2	52.4	0.0	16.4	91.5	91.7	4.1	3.8	-1.2	-1.2	-10.9
GIW-13	5/31/2018 9:14	30.3	53.3	0.0	16.4	82.1	82.3	3.9	4.2	-1.4	-1.4	-12.1
LCS-1D	5/17/2018 8:45	43.8	30.7	5.2	20.3	114.0	114.3	3.5	7.2	-18.7	-19.0	-18.8
LCS-1D	5/17/2018 8:47	43.6	31.1	5.2	20.1	114.3	114.3	15.1	4.1	-19.1	-19.0	-19.6
LCS-2D	5/17/2018 8:32	58.6	38.8	0.0	2.6	84.6	84.6	3.5	4.4	-19.4	-19.3	-19.4
LCS-3D	5/16/2018 14:56	4.7	47.1	5.5	42.7	96.2	96.3	2.7	1.5	-18.3	-18.3	-18.3
LCS-3D	5/16/2018 14:58	4.5	48.7	5.6	41.2	96.8	96.7	2.4	2.2	-16.8	-16.8	-18.4
LCS-5A	5/1/2018 15:02	56.9	39.7	0.2	3.2	93.9	93.9	7.9	7.9	-10.7	-10.7	-12.3
LCS-5A	5/7/2018 10:13	55.2	39.9	0.4	4.5	91.2	91.7	1.2	2.9	-11.3	-11.3	-12.6
LCS-5A	5/16/2018 10:26	55.6	40.7	0.1	3.6	93.9	94.1	5.7	3.4	-11.2	-11.3	-12.6
LCS-5A	5/21/2018 8:48	55.1	40.7	0.3	3.9	80.5	80.2	21.0	13.0	-9.7	-9.8	-10.7
LCS-5A	5/29/2018 14:52	54.9	39.8	0.1	5.2	102.8	103.0	5.8	6.3	-11.8	-11.8	-12.7
LCS-5B	5/1/2018 15:14	53.0	40.1	0.5	6.4	96.3	96.3	8.7	9.8	-12.2	-12.2	-12.3
LCS-5B	5/8/2018 8:55	51.4	42.0	0.0	6.6	82.8	82.8	5.4	5.4	-12.7	-12.7	-12.9
LCS-5B	5/16/2018 10:37	54.2	41.9	0.0	3.9	147.0	147.0	10.1	10.1	-9.9	-9.9	-12.8
LCS-5B	5/16/2018 10:39	54.2	41.8	0.0	4.0	148.7	148.9	18.4	18.4	-5.8	-5.8	-13.4
LCS-5B	5/21/2018 9:00	53.7	42.0	0.0	4.3	147.8	147.4	23.5	24.3	-3.0	-3.0	-10.6
LCS-5B	5/21/2018 9:01	53.6	42.3	0.0	4.1	147.7	148.1	19.8	15.9	-3.0	-3.0	-10.6
LCS-5B	5/29/2018 15:04	53.6	41.1	0.0	5.3	149.5	149.6	22.2	20.4	-4.3	-4.3	-13.2
LCS-5B	5/29/2018 15:05	53.7	41.3	0.0	5.0	149.5	149.6	18.9	22.6	-4.4	-4.4	-13.4
LCS-6B	5/2/2018 9:14	52.9	41.6	0.6	4.9	94.1	94.1	8.2	9.8	-0.5	-0.5	-12.9
LCS-6B	5/7/2018 15:01	53.8	42.0	0.0	4.2	101.3	101.4	2.7	2.7	0.2	0.2	-12.4
LCS-6B	5/7/2018 15:02	53.0	42.9	0.0	4.1	104.8	104.8	2.7	2.7	-0.7	-0.7	-12.3
LCS-6B	5/16/2018 11:40	53.9	42.8	0.2	3.1	111.2	111.2	1.6	4.0	-0.6	-0.6	-12.4
LCS-6B	5/21/2018 14:19	53.8	41.4	0.0	4.8	94.8	94.8	8.5	10.5	-0.2	-0.2	-12.9
LCS-6B	5/30/2018 9:52	53.9	41.9	0.0	4.2	101.6	101.8	4.6	5.3	-0.1	-0.1	-12.4
PGW-60	5/2/2018 8:50	58.1	40.4	0.0	1.5	87.2	87.2	31.4	28.7	2.6	1.9	-13.3
PGW-60	5/2/2018 8:52	57.5	40.8	0.0	1.7	86.8	86.7	34.5	32.7	-0.5	-0.6	-13.2
PGW-60	5/7/2018 14:09	41.0	30.8	1.0	27.2	84.4	84.5	5.4	8.1	-10.8	-10.8	-12.5

May 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 ₂ O		
SEW-002	5/17/2018 13:51	15.6	56.4	0.1	27.9	92.2	92.2	7.3	7.1	-0.01	-0.01	-14.0
SEW-003	5/17/2018 14:38	8.1	50.3	1.5	40.1	115.5	115.5	17.2	17.4	-0.2	-0.2	-20.1
T-56	5/2/2018 9:30	51.4	35.6	0.0	13.0	62.7	62.7	17.8	18.5	-0.1	-0.1	-13.8
T-56	5/8/2018 8:37	48.4	34.8	0.0	16.8	64.6	64.6	15.4	16.1	-0.1	-0.1	-13.7
T-56	5/16/2018 13:41	48.5	34.1	0.0	17.4	71.4	71.3	16.3	16.0	-0.1	-0.1	-13.2
T-56	5/21/2018 14:44	52.3	35.0	0.0	12.7	67.5	67.5	16.3	16.6	-0.04	-0.03	-13.4
T-56	5/30/2018 10:09	57.3	36.6	0.0	6.1	71.0	71.1	18.1	17.4	-0.1	-0.1	-13.4

ATTACHMENT E-2

MAXIMUM WELLHEAD TEMPERATURE TABLE

Wellfield Temperature - Bridgeton Landfill

Well Name					Temp Trend	Comments
	February 2018	March 2018	April 2018	May 2018	><30°F	
GEW-002	117.4	115.0	116.0	117.2		
GEW-003	114.0	106.0	119.7	118.6		
GEW-004	115.1	112.5	114.8	115.5		
GEW-005	91.7	88.9	80.5	91.0		
GEW-006	87.7	86.6	87.7	89.1		
GEW-007	83.2	84.4	88.5	95.0		
GEW-008	111.7	110.8	112.9	114.4		
GEW-009	118.9	119.9	123.1	123.9		
GEW-010	61.8	50.6	67.7	94.4		
GEW-013A	119.2	122.6	147.3	150.2		
GEW-015	165.2	158.0	155.9	103.6		
GEW-016R	180.2	179.2	179.7	180.3		
GEW-018B	165.4	163.8	163.3	175.3		
GEW-022R	60.8	52.6	77.5	104.5		
GEW-038	60.2	55.3	54.7	93.4		
GEW-039	119.4	116.1	116.1	118.6		
GEW-040	61.4	67.9	75.2	94.3		
GEW-041R	96.7	94.5	96.7	100.8		
GEW-042R	95.0	94.6	100.4	107.0		
GEW-043R	117.3	110.2	117.6	118.1		
GEW-044	84.0	83.8	88.4	97.6		
GEW-045R	86.1	81.6	90.1	95.5		
GEW-046R	90.8	94.3	103.0	101.1		
GEW-047R	113.5	106.8	111.2	113.2		
GEW-048	99.6	98.9	94.1	102.5		
GEW-049	103.8	102.4	105.7	105.3		
GEW-050	103.8	104.8	103.1	106.4		
GEW-051	122.1	122.1	120.9	124.6		
GEW-052	105.7	117.9	111.6	113.5		
GEW-053	136.6	140.1	141.5	142.2		
GEW-054	143.7	144.6	144.5	143.5		
GEW-055	134.1	132.6	133.2	135.0		
GEW-056R	87.0	79.5	85.6	118.4		
GEW-057B	55.5	63.4	94.8	95.4		
GEW-057R	40.5	60.2	88.9	102.3		
GEW-058	46.6	59.2	92.7	94.1		
GEW-058A	43.6	63.6	91.3	89.8		
GEW-059R	162.9	160.7	161.7	164.7		

Wellfield Temperature - Bridgeton Landfill

Well Name					Temp Trend	Comments
	February 2018	March 2018	April 2018	May 2018	><30°F	
GEW-067A	93.6	128.0	93.4	112.5		
GEW-068A	174.2	182.7	182.1	185.3		
GEW-077	98.2	139.6	125.6	137.4		
GEW-078R	157.7	155.6	155.6	159.0		
GEW-081	63.7	68.2	74.1	101.9		
GEW-082R	176.9	176.4	176.4	175.8		
GEW-086	59.3	68.8	71.8	98.7		
GEW-087	105.0	113.5	115.9	128.0		
GEW-088	193.8	195.0	197.9	197.2		
GEW-090	146.3	157.7	157.7	162.8		
GEW-091	107.0	177.5	182.6	195.0		
GEW-100	49.1	61.6	86.3	104.3		
GEW-101	54.7	80.4	85.6	105.7		
GEW-102	44.8	63.7	60.1	106.0		
GEW-104	40.5	162.8	205.4	200.8		
GEW-105	--	144.2	130.6	153.3		
GEW-106	76.1	56.7	92.9	86.8		
GEW-107	113.1	170.5	148.2	169.5		
GEW-108	119.9	121.3	123.1	136.5		
GEW-109	90.6	105.5	109.7	130.6		
GEW-110	65.1	58.1	77.0	103.7		
GEW-113	151.7	148.1	151.3	151.7		
GEW-116	121.3	190.9	193.6	194.3		
GEW-117	93.1	108.7	120.2	118.6		
GEW-118	196.4	195.7	197.2	197.9		
GEW-120	160.3	160.7	159.4	159.3		
GEW-121	171.6	173.6	174.2	174.2		
GEW-122	186.3	156.0	156.0	156.5		
GEW-123	160.6	159.8	156.0	156.1		
GEW-124	60.7	69.8	54.6	105.3		
GEW-125	171.1	182.7	163.8	176.4		
GEW-126	75.7	94.6	96.0	121.5		
GEW-127	154.0	79.4	186.4	184.4		
GEW-128	136.8	144.6	145.9	177.5		
GEW-129	170.0	169.5	167.1	197.9		
GEW-130	180.9	187.0	187.0	185.1		
GEW-131	160.2	159.4	158.5	157.3		
GEW-132	174.7	182.7	179.7	179.7		

Wellfield Temperature - Bridgeton Landfill

Well Name					Temp Trend	Comments
	February 2018	March 2018	April 2018	May 2018	><30°F	
GEW-133	58.0	169.0	167.1	172.1		
GEW-134	117.0	109.2	139.9	159.4		
GEW-135	153.3	148.6	147.0	151.7		
GEW-136	114.3	117.6	126.9	141.5		
GEW-137	64.4	77.7	97.2	90.3		
GEW-138	95.8	135.9	134.1	127.0		
GEW-139	147.3	197.9	188.9	185.7		
GEW-140	116.4	203.9	190.2	166.1		
GEW-141	51.8	68.6	81.2	108.7		
GEW-142	47.0	75.2	83.7	98.4		
GEW-143	56.4	65.0	87.4	101.1		
GEW-144	45.6	69.5	79.3	101.1		
GEW-145	87.4	93.6	115.3	123.7		
GEW-146	80.5	77.0	87.0	102.1		
GEW-147	181.2	158.4	180.7	181.5		
GEW-148	58.5	120.2	174.7	117.8		
GEW-149	113.5	93.7	126.9	138.9		
GEW-150	186.4	188.0	193.6	197.2		
GEW-151	156.9	172.2	172.6	135.0		
GEW-152	115.5	119.7	115.5	119.6		
GEW-153	44.0	63.5	83.3	92.7		
GEW-154	43.4	48.5	75.7	112.4		
GEW-155	102.3	115.8	121.5	128.3		
GEW-156	69.7	95.8	102.5	109.8		
GEW-157	124.5	98.7	124.2	142.6		
GEW-158	182.1	167.6	130.6	160.2		
GEW-159	59.1	58.0	77.9	87.0		
GEW-160	44.3	49.6	75.5	104.8		
GEW-161	48.2	48.6	89.8	145.9		
GEW-162	67.9	45.9	99.9	130.7		
GEW-163	189.0	173.2	182.1	177.9		
GEW-164	156.5	162.4	159.9	159.8		
GEW-165	182.1	183.3	180.3	181.0		
GEW-166	194.3	195.7	195.7	195.7		
GEW-167	189.6	193.6	193.3	191.7		
GEW-168	172.1	170.1	169.0	172.1		
GEW-169	188.3	186.4	185.7	187.6		
GEW-170	189.6	182.1	182.7	183.3		

Wellfield Temperature - Bridgeton Landfill

Well Name					Temp Trend	Comments
	February 2018	March 2018	April 2018	May 2018	><30°F	
GEW-171	80.7	66.4	75.0	116.8		
GEW-172	56.3	158.2	90.9	175.8		
GEW-173	95.5	114.8	102.3	116.3		
GEW-174	143.5	144.3	149.9	153.7		
GEW-175	113.7	164.7	174.7	175.8		
GEW-176	59.2	54.9	76.1	97.7		
GEW-177	54.6	203.9	192.3	196.4		
GEW-178	105.4	100.6	87.2	109.7		
GEW-179	68.6	121.4	125.3	139.3		
GEW-180	118.1	126.7	129.4	151.7		
GEW-181	169.0	169.0	159.4	159.4		
GEW-182	173.9	139.0	142.5	149.9		
GEW-184	112.7	85.0	83.8	117.4		
GEW-185	161.9	159.4	167.1	169.8		
GEW-186	141.5	139.3	139.3	150.5		
GEW-187	174.8	172.6	153.3	158.5		
GEW-188	99.9	82.8	94.1	128.3		
GEW-1A	72.7	51.5	85.1	95.4		
GEW-2S	64.7	65.8	82.3	83.9		
GIW-01	175.8	173.1	169.0	173.1		
GIW-02	68.4	50.2	56.7	99.4		
GIW-03	62.3	47.0	56.2	94.6		
GIW-04	63.3	46.8	55.7	98.4		
GIW-05	61.4	46.5	50.7	87.7		
GIW-06	60.9	46.5	53.2	92.4		
GIW-07	59.4	48.2	52.1	91.9		
GIW-08	65.5	50.2	58.0	94.5		
GIW-09	61.4	53.4	57.5	95.5		
GIW-10	60.7	48.5	53.1	96.5		
GIW-11	62.8	48.4	72.7	99.4		
GIW-12	62.9	48.2	68.6	96.7		
GIW-13	62.3	48.5	70.0	91.5		
LCS-1D	85.1	55.1	46.6	114.3		
LCS-2D	--	56.9	72.9	84.6		
LCS-4B	--	--	--	--		
LCS-5A	80.0	72.3	91.5	102.8		
LCS-5B	146.4	142.8	142.5	149.5		
LCS-6B	121.3	92.2	103.0	111.2		

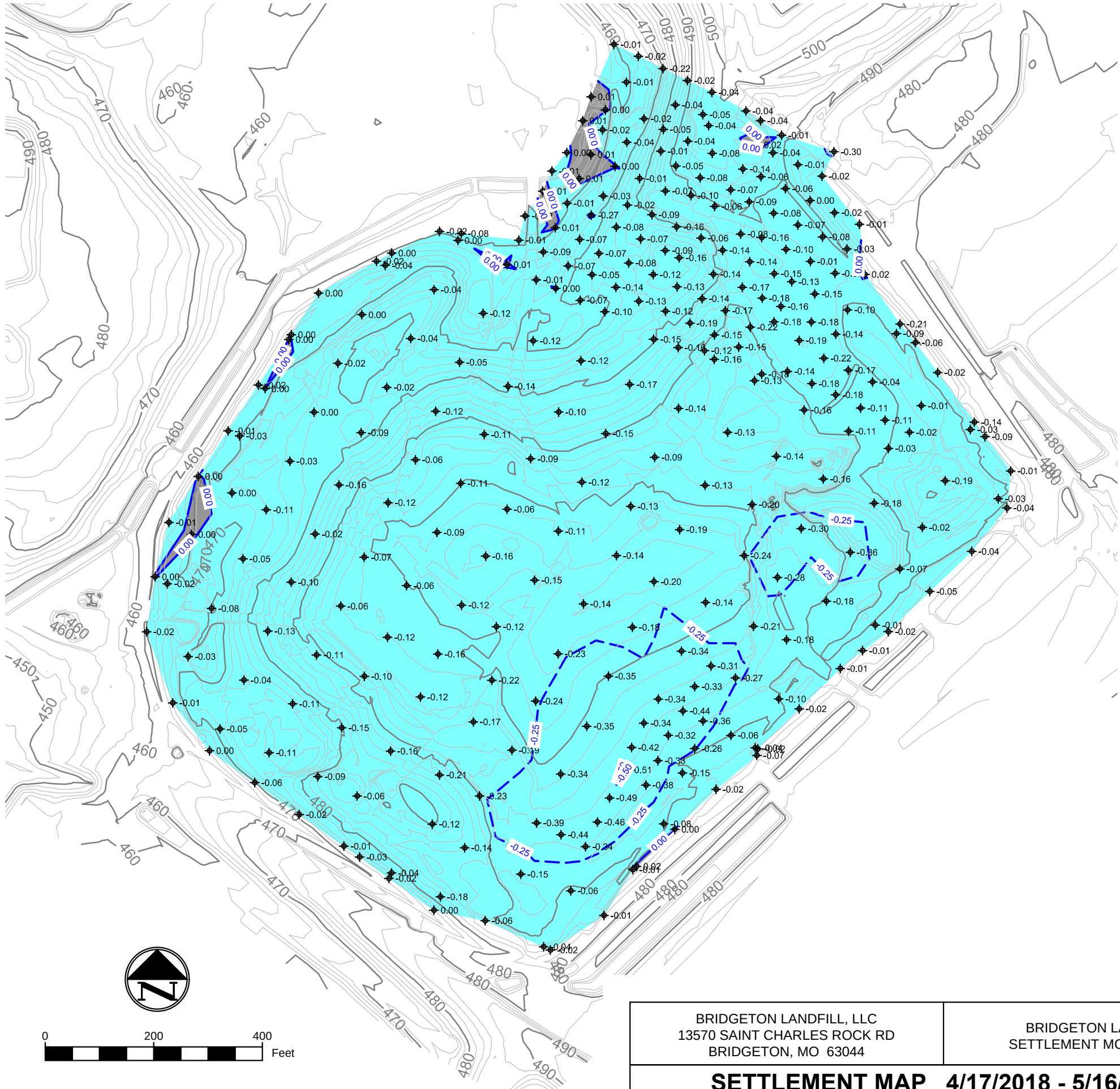
Wellfield Temperature - Bridgeton Landfill

Well Name					Temp Trend	Comments
	Febrauary 2018	March 2018	April 2018	May 2018	><30°F	
PGW-60	86.6	80.7	79.1	87.2		
SEW-002	57.2	59.7	68.8	92.2		
SEW-003	--	88.4	90.5	115.5		
T-56	52.6	50.7	56.2	71.4		

-- = 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	1,520,048.35	
6	0.00	1.00	17,694.08	

LEGEND

-
- 12-1-2017 TOPOGRAPHY (2' CONTOUR)
-
- 12-2-2017 TOPOGRAPHY (10' CONTOUR)
-
- MINOR ELEVATION CHANGE CONTOUR (0.25 FEET)
-
- MAJOR ELEVATION CHANGE CONTOUR (0.50 FEET)
-
- SPOT ELEVATION DIFFERENCE (4-17-2018 to 5-16-2018)
-
- *SETTLEMENT FRONT CONTOUR FOR AREA WITH 1.31' PER 29 DAYS FOR CURRENT PERIOD OF DAYS
-
- *NONE FOR MAY 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 4-17-18 FROM SPOT ELEVATIONS SURVEYED ON 5-16-18.
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.

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

BRIDGETON LANDFILL
SETTLEMENT MONITORING

Engineering for a Better World
FEEZOR
ENGINEERING, INC.

MAY 2018

DESIGNED BY: PML

APPROVED BY: DRF

REVISION

DATE

PROJECT NUMBER: BT-145

FILE PATH: C:\Users\pmlrs\Dropbox (Feezor Engineering)\Bridgeton\100.149\BT-145 (Agreed Order Reporting)\Monthly Reports\05-2018 Report\Internal Draft\Site Data\settlement3_gd\delivered\Settlement And Fill 5-16-2018.dwg

DRAWING NO.:

001

ATTACHMENT G

SUMMARY OF ODOR COMPLAINTS

May 1, 2018 – May 31, 2018 / MDNR ODOR COMPLAINTS

Name: N/A

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

Follow-up: No information was provided in this odor concern received on May 7, 2018, therefore Bridgeton Landfill staff could not investigate.

Name: Donna Sparks

Message: Odor logged May 7, 2018, at 11:16 pm strength of 6

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 May 7, 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 May 14, 2018, therefore Bridgeton Landfill staff could not investigate.

Name: Robbin Dailey

Message: Odor logged May 16, 2018, at 8:53 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 at several observation points between this location and the Bridgeton Landfill. There is no evidence to suggest that this was a Bridgeton Landfill odor.

Name: Michael Dailey

Message: Odor logged May 16, 2018, at 8:54 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 at several observation points between this location and the Bridgeton Landfill. 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 May 20, 2018, therefore Bridgeton Landfill staff could not investigate.

Name: Donna Sparks

Message: Odor logged May 21, 2018, at 12:26 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: N/A

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

Follow-up: No information was provided in this odor concern received on May 28, 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 May 28, 2018, therefore Bridgeton Landfill staff could not investigate.

Name: Margaret Beckermann

Message: Odor logged May 31, 2018, at 11:36 pm strength of 3

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. At the time cited in this concern winds were calm. There is no evidence to suggest that this was a Bridgeton Landfill odor.

ATTACHMENT H

LIQUID CHARACTERIZATION DATA AND DISCHARGE LOG

Bridgeton Landfill - Leachate PreTreatment Plant

May 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
5/1/2018	LPTP Activated Sludge/ Permeate	Tank 1 (T1)	MBI	0
5/2/2018				0
5/3/2018				0
5/4/2018				0
5/5/2018				0
5/6/2018				0
5/7/2018				0
5/8/2018				0
5/9/2018				0
5/10/2018				0
5/11/2018				0
5/12/2018				0
5/13/2018				0
5/14/2018				0
5/15/2018				0
5/16/2018				0
5/17/2018				0
5/18/2018				0
5/19/2018				0
5/20/2018				0
5/21/2018				0
5/22/2018				0
5/23/2018				0
5/24/2018				0
5/25/2018				0
5/26/2018				0
5/27/2018				0
5/28/2018				0
5/29/2018				0
5/30/2018				0
5/31/2018				0
Total				0

Direct Discharge to MSD

Date	Waste	Source	Quantity (gal)
5/1/2018	LPTP Permeate	Through Tank AST 97k (MSD Sampling Point 013)	263,176
5/2/2018			227,712
5/3/2018			164,856
5/4/2018			155,968
5/5/2018			241,800
5/6/2018			247,584
5/7/2018			135,096
5/8/2018			128,032
5/9/2018			126,976
5/10/2018			159,920
5/11/2018			257,560
5/12/2018			249,128
5/13/2018			247,848
5/14/2018			191,936
5/15/2018			125,376
5/16/2018			130,592
5/17/2018			149,168
5/18/2018			141,824
5/19/2018			217,888
5/20/2018			246,568
5/21/2018			239,360
5/22/2018			231,560
5/23/2018			229,072
5/24/2018			175,624
5/25/2018			119,480
5/26/2018			120,080
5/27/2018			150,952
5/28/2018			237,528
5/29/2018			228,784
5/30/2018			174,664
5/31/2018			105,392
Total			5,821,504

ATTACHMENT I

LOW FILL PROJECT AREA

ATTACHMENT I-1
LOW FILL AREA BOUNDARY

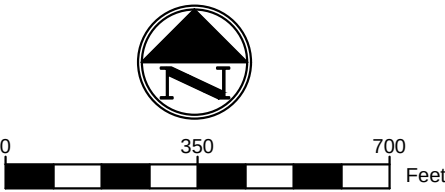


LEGEND

 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.



BRIDGETON LANDFILL, LLC 13570 SAINT CHARLES ROCK RD BRIDGETON, MO 63044	BRIDGETON LANDFILL SETTLEMENT MONITORING	 Engineering for a Better World FEEZOR ENGINEERING, INC.	MAY 2018	DRAWING NO.: 002
			DESIGNED BY: PML	
LOW FILL AREA BOUNDARY 4/17/2018 - 5/16/2018	PROJECT NUMBER: BT-145 FILE PATH: C:\Users\pmlro\Desktop (FEEZOR Engineering)\Bridgeton\200-149\BT 145 (Agreed Order Reporting)\Monthly Reports\05-2018 Report\Internal Draft\Draft Site Data\Settlement\3_deliverables\Settlement And FILL 5-16-2018.dwg		APPROVED BY: DRF	
			REVISION DATE	