

Bridgeton Landfill, LLC

Monthly Data Submittals

August 2018

Required by Section IX.f of Final Consent Judgement, Case No. 13SL-CC01088-01
Effective June 29, 2018

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Provided Separately:

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

September 20, 2018

Commentary on Data

September 20, 2018

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

Gas Volume

- As presented in Attachment B-1, the gas collection volumetric rate in for this month averaged 298 SCFM from the North Quarry and 1,004 SCFM from the South Quarry, for a total site flow of 1,303 SCFM, as normalized per the MDNR weekly flow and TRS sampling results.

Gas Quality

- Attachments D and E present the monthly data related to gas quality as measured at the respective wellheads.
- Attachment E-1 presents vertical wells which had oxygen levels over 5% at one (1) or more weekly monitoring events during this reporting period. These consisted of 38 GEW wells that are experiencing low or restricted flows, one (1) leachate collection sump (LCS), and three (3) GIW wells that have low gas flow due to the cooling loops that are installed in these wells. By the end of the month, 20 of the GEW wells, 1 of the LCS, and 1 of the GIW wells still exhibited oxygen levels at the wellhead at or greater than 5%. All of these wells are low-flow/vacuum sensitive wells with valves that are only slightly open. On-going tuning, maintenance, and pump operation are being performed to manage the oxygen content.
- Attachment E-2 presents gas temperatures as measured at the wellheads. Three (3) vertical wells (excluding GIW wells) increased by 30°F during this reporting period. Additionally, two (2) vertical wells (excluding GIW wells) decreased by 30°F or more. All wells that exhibited changes greater than 30°F are within the historical gas temperature norms for these wells or within the range of temperatures of nearby vertical wells.
- All gas wells in the North Quarry exhibited a maximum wellhead temperature less than 145°F during this reporting period. Carbon monoxide (CO) results were non-detect (ND) for North Quarry wells, with the exception of GEW-053 (58 ppm) and GEW-055 (34 ppm), consistent with past events.
- Site personnel are 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 with identified downhole integrity issues will be scheduled for abandonment during the upcoming GCCS system expansion event. Wells with no identified downhole integrity issues and which are no longer exhibiting excessive

moisture and/or dangerous conditions have been brought back online. Wells with no identified downhole integrity issues but still exhibited excessive moisture and/or dangerous conditions will remain decommissioned until conditions at the location improve. Additional SUMMA samples were collected and the results analyzed to optimize the GCCS during the upcoming drilling event. This investigation will continue through Third Quarter 2018, and wellfield expansion and abandonment activities will be reported in the quarterly Landfill Gas Corrective Action Update.

- Fifteen gas wells (GEW-217, GEW-218, GEW-219, GEW-220, GEW-221, GEW-222, GEW-223, GEW-224, GEW-225, GEW-226, GEW-227, GEW-228, GEW-229, GEW-230, and GEW-231) were installed during this month.
- GEW-1A was decommissioned in August per approval of St. Louis County Department of Public Health and is planned to be abandoned in the near future.

Settlement

- The South Quarry exhibited monthly maximum settlement up to 0.49 feet over 30 days during this reporting period (see Attachment E).

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.

Natural Gas Usage

- Natural gas was not used as a supplemental fuel for the destruction of landfill gas in the previous month. The requirements for landfill gas destruction under 40 CFR 60 Subpart WWW were achieved by meeting the provisions of 40 CFR 60 Subpart A under §60.18 for non-assisted flares.

ATTACHMENT A

DAILY FLARE MONITORING DATA

ATTACHMENT A-1

FLOW DATA TABLE

Daily Flare Monitoring Data - Bridgeton Landfill
August 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***	
8/1/2018	0	977	0	303	1,280
8/2/2018	0	981	0	301	1,281
8/3/2018	0	1,003	0	307	1,310
8/4/2018	0	987	0	306	1,293
8/5/2018	0	1,000	0	306	1,307
8/6/2018	0	1,001	0	308	1,308
8/7/2018	0	950	0	302	1,252
8/8/2018	0	974	0	311	1,285
8/9/2018	0	1,017	7	309	1,333
8/10/2018	0	1,021	0	303	1,324
8/11/2018	0	1,016	0	304	1,320
8/12/2018	0	1,015	0	303	1,318
8/13/2018	0	1,028	0	304	1,331
8/14/2018	0	982	0	296	1,278
8/15/2018	0	977	0	291	1,268
8/16/2018	0	1,050	0	303	1,353
8/17/2018	0	1,044	0	297	1,341
8/18/2018	0	1,069	0	298	1,367
8/19/2018	0	1,055	0	296	1,351
8/20/2018	0	1,007	0	291	1,297
8/21/2018	0	980	0	286	1,266
8/22/2018	0	1,006	0	288	1,294
8/23/2018	0	1,009	0	290	1,299
8/24/2018	0	949	0	281	1,231
8/25/2018	0	983	0	297	1,280
8/26/2018	0	1,010	0	302	1,312
8/27/2018	0	1,025	0	301	1,325
8/28/2018	0	1,022	0	301	1,323
8/29/2018	0	980	0	283	1,263
8/30/2018	0	995	0	291	1,286
8/31/2018	0	1,008	0	296	1,304
AVERAGE	0	1,004	0	298	1,303

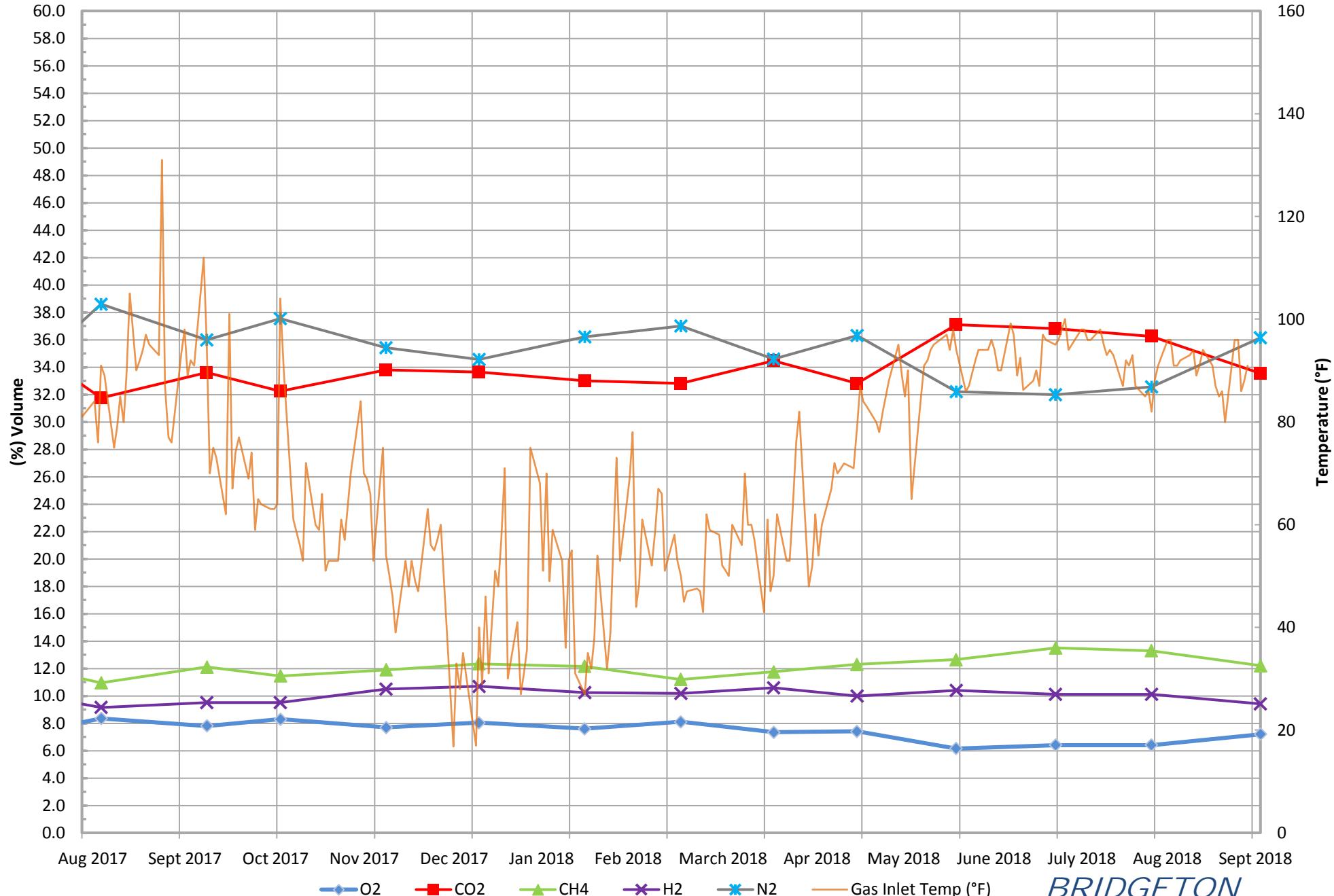
* Flows normalized to **Blower Outlet Flowmeter - EPA Method 2 measurement verified

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

ATTACHMENT A-2

FLOW DATA GRAPHS

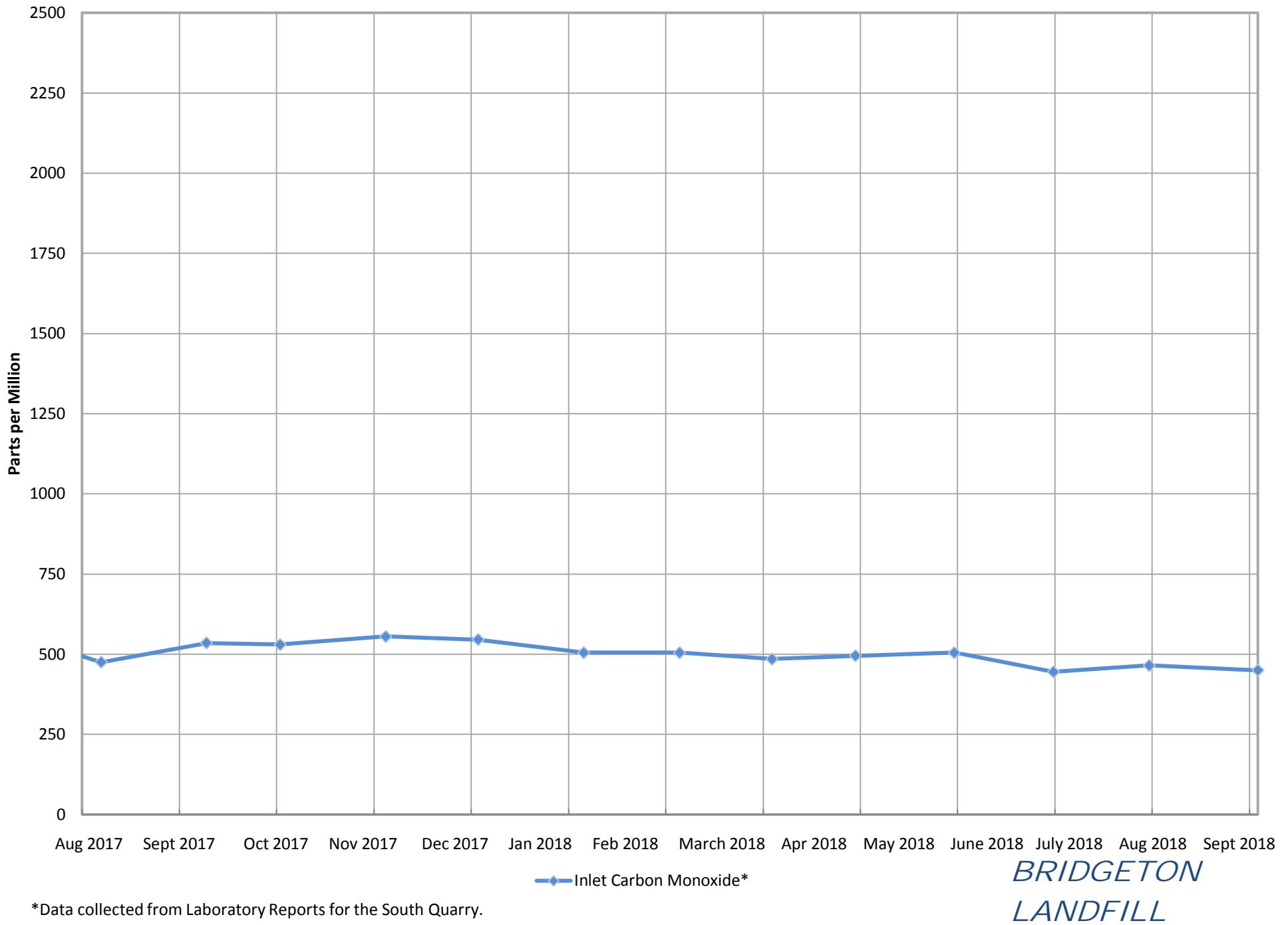
South Quarry Inlet Gas and Temperature*



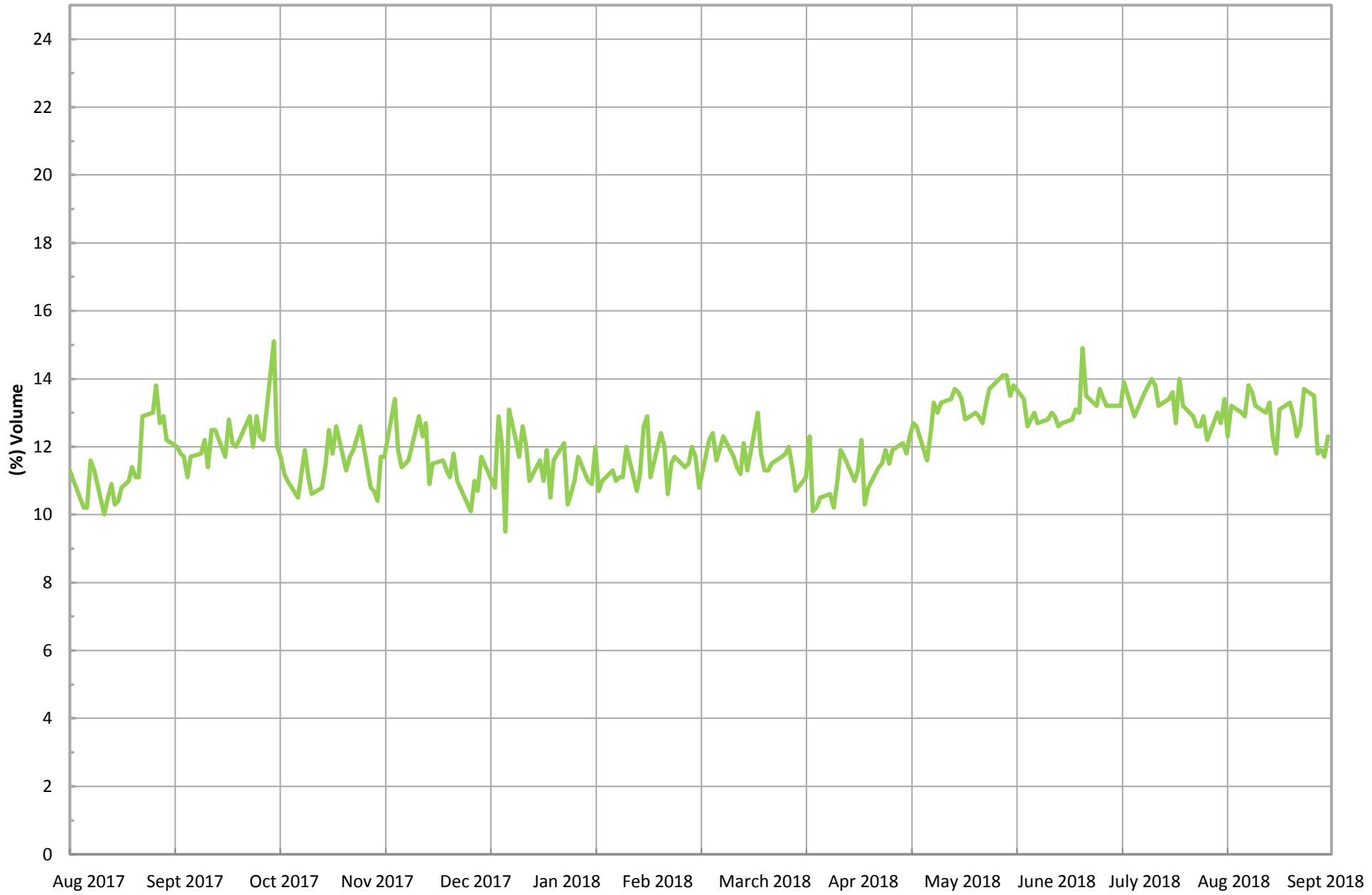
*Gas data collected from Laboratory Reports. Temperature data collected from field readings.

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South Quarry Inlet Carbon Monoxide*



South Quarry Inlet Methane (Field Data)*

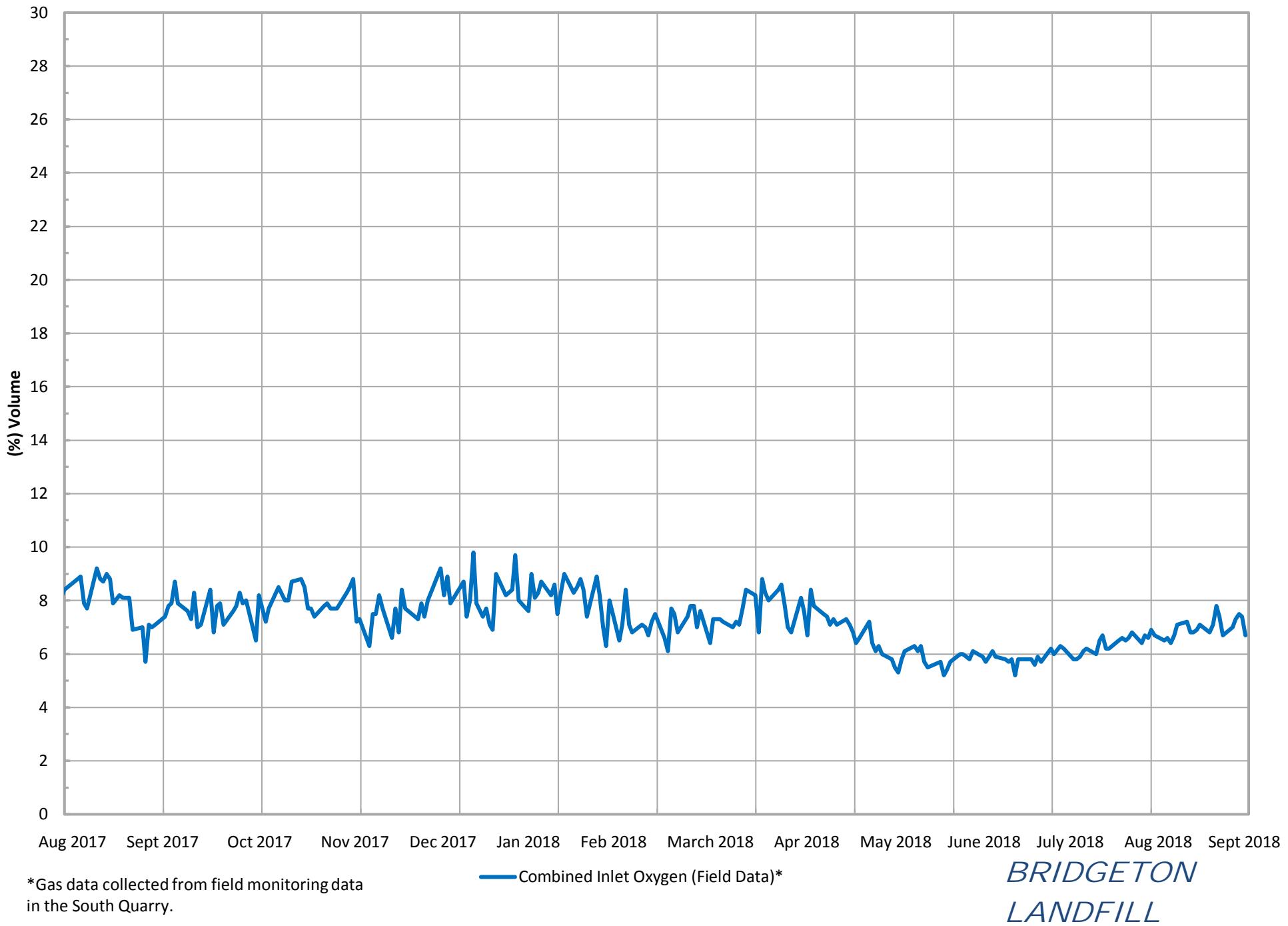


*Gas data collected from field monitoring data in the South Quarry.

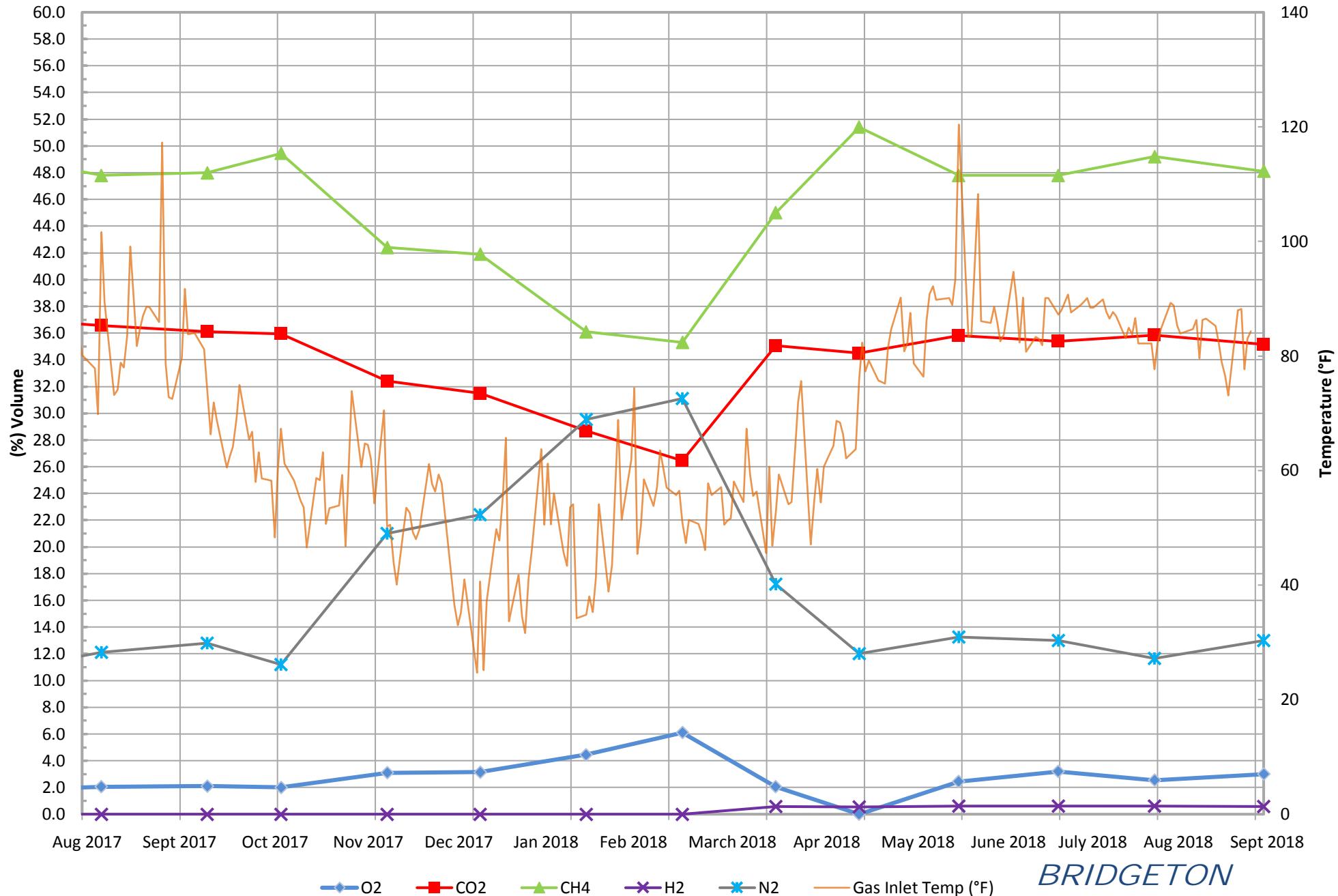
Combined Inlet Methane (Field Data)*

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South Quarry Inlet Oxygen (Field Data)*



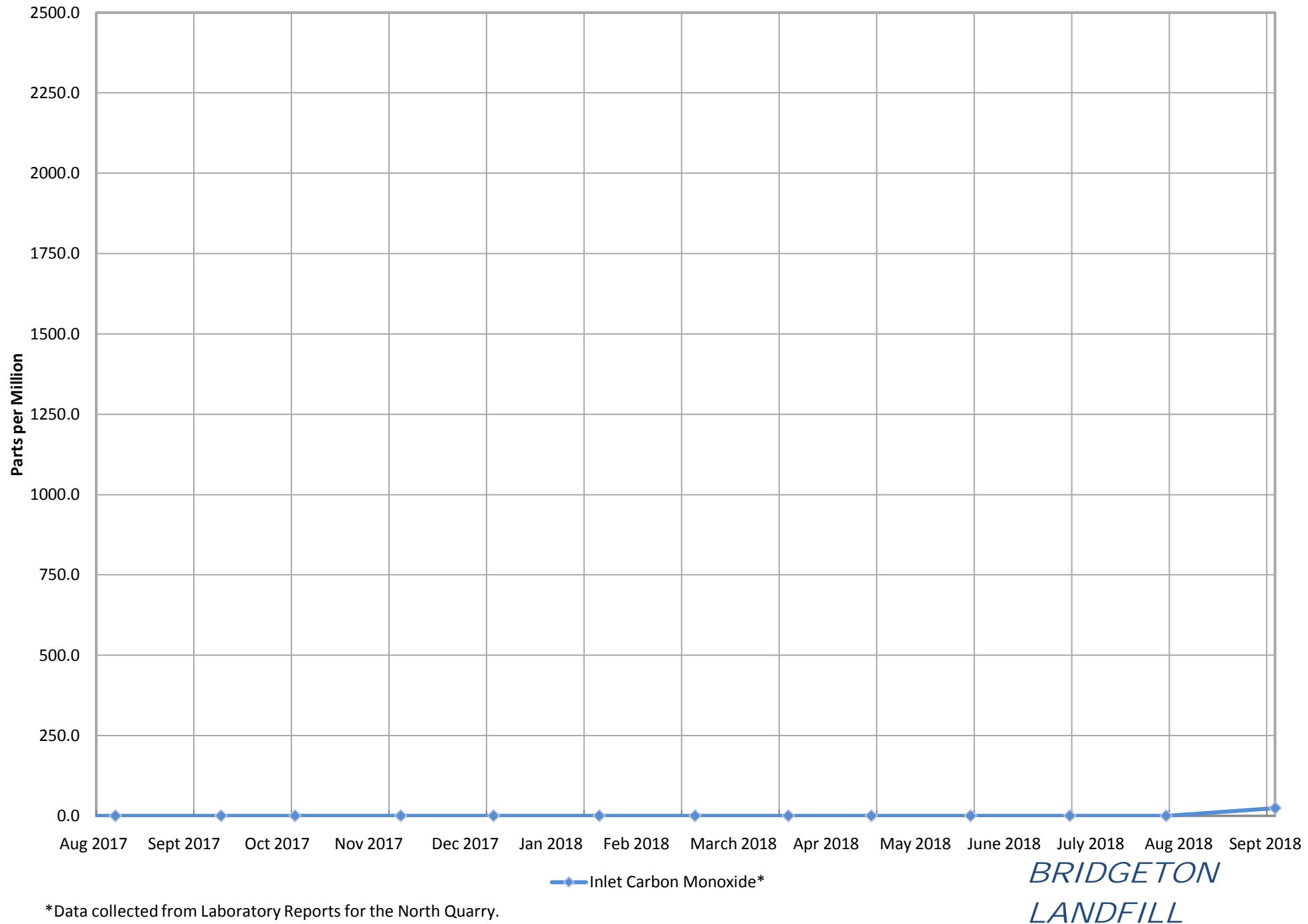
North Quarry Inlet Gas and Temperature*



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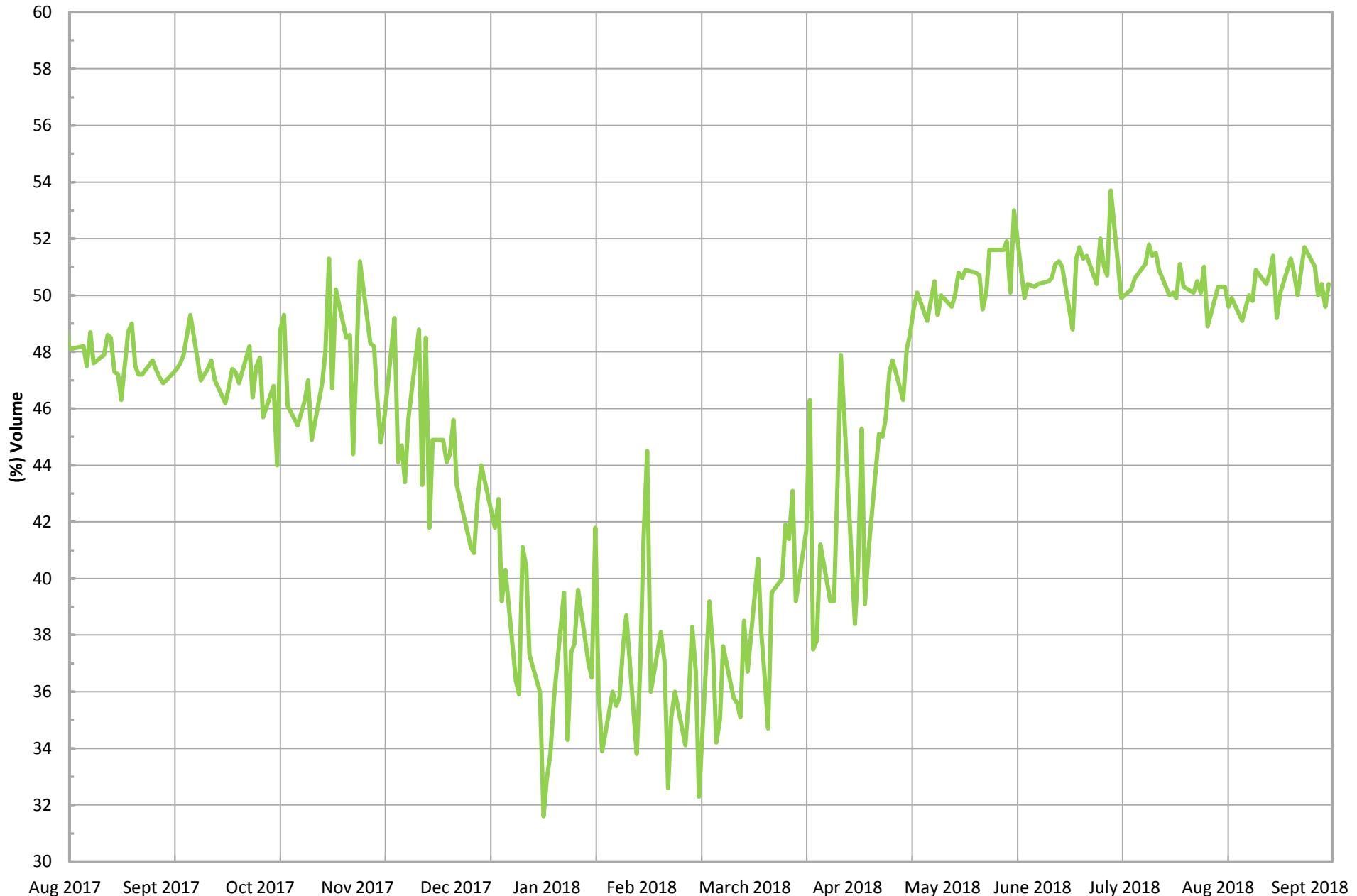
*Gas data collected from Laboratory Reports. Temperature data collected from field readings.

North Quarry Inlet Carbon Monoxide*



*Data collected from Laboratory Reports for the North Quarry.

North Quarry Inlet Methane (Field Data)*

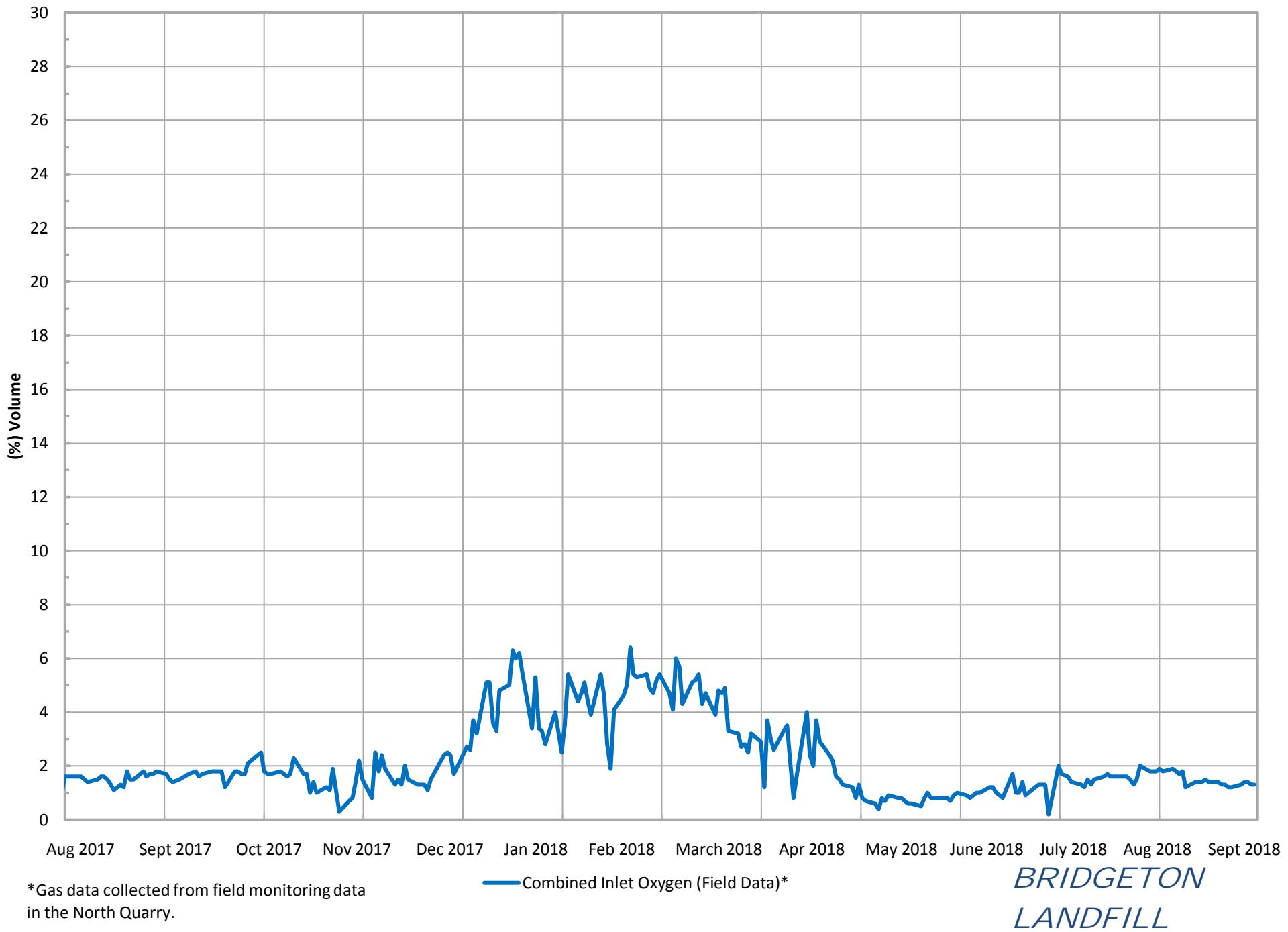


*Gas data collected from field monitoring data in the North Quarry.

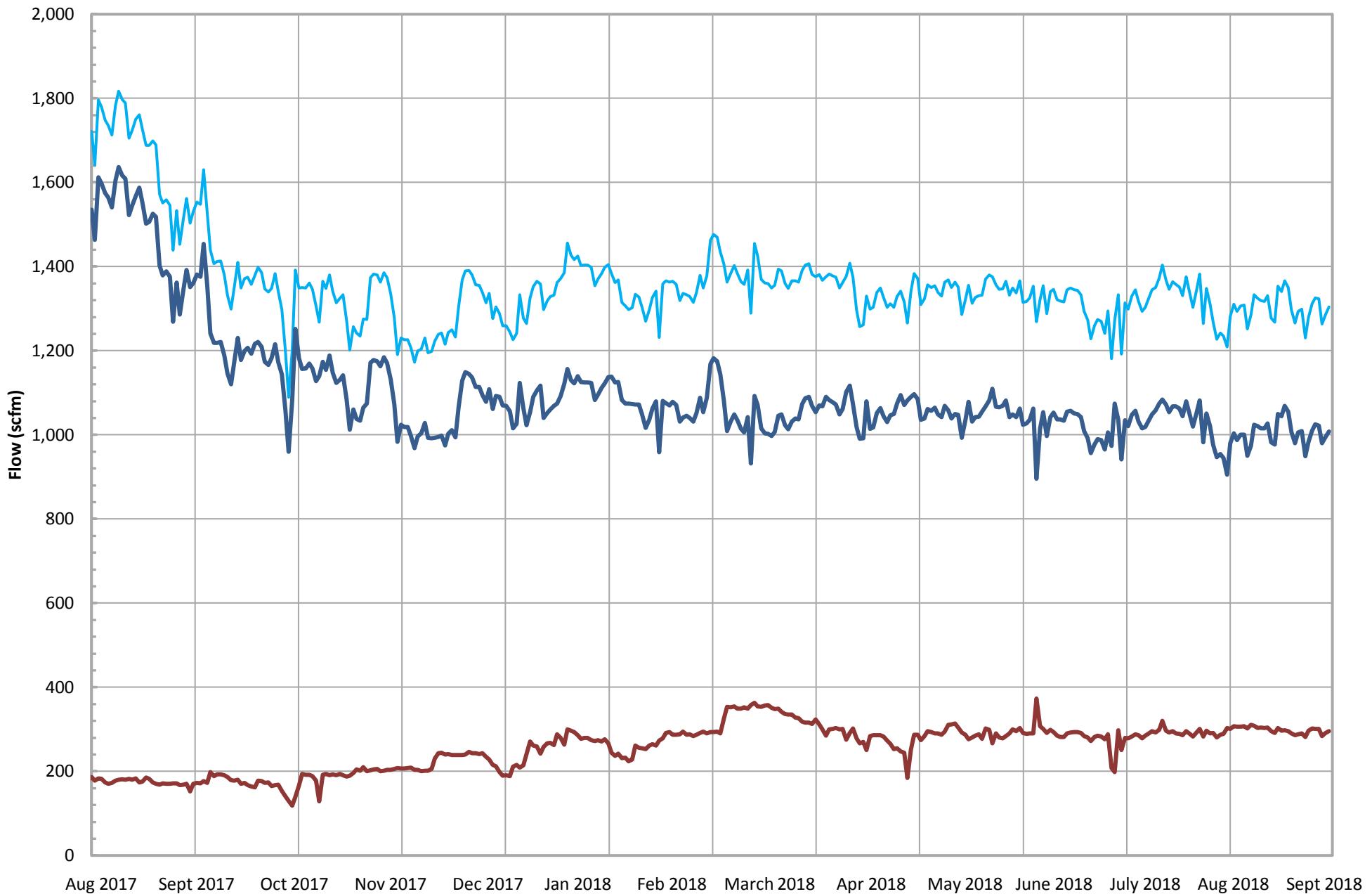
Combined Inlet Methane (Field Data)*

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North Quarry Inlet Oxygen (Field Data)*



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

WELL CONDITION/STATUS REPORT

August 2018

ID	Well Condition	Comments
GEW-1A	Non-Operational	Decommissioned
GEW-2	Operational	
GEW-2S	Operational	
GEW-3	Operational	
GEW-4	Operational	
GEW-5	Operational	
GEW-6	Operational	
GEW-7	Operational	
GEW-8	Operational	
GEW-9	Operational	
GEW-10	Operational	
GEW-13A	Operational	
GEW-15	Operational	
GEW-16R	Operational	
GEW-18B	Operational	
GEW-22R	Operational	
GEW-38	Operational	
GEW-39	Operational	
GEW-40	Operational	
GEW-41R	Operational	
GEW-42R	Operational	
GEW-43R	Operational	
GEW-44	Operational	
GEW-45R	Operational	
GEW-46R	Operational	
GEW-47R	Operational	
GEW-48	Operational	
GEW-49	Operational	
GEW-50	Operational	
GEW-51	Operational	
GEW-52	Operational	
GEW-53	Operational	
GEW-54	Operational	
GEW-55	Operational	
GEW-56R	Operational	
GEW-57B	Operational	
GEW-57R	Operational	
GEW-58	Operational	
GEW-58A	Operational	
GEW-59R	Operational	
GEW-67A	Operational	
GEW-68A	Operational	
GEW-77	Operational	
GEW-78R	Operational	

August 2018

ID	Well Condition	Comments
GEW-81	Operational	
GEW-82R	Operational	
GEW-86	Operational	
GEW-87	Operational	
GEW-88	Operational	
GEW-90	Operational	
GEW-91	Operational	
GEW-100	Operational	
GEW-101	Operational	
GEW-102	Operational	
GEW-104	Operational	
GEW-105	Operational	
GEW-106	Operational	
GEW-107	Operational	
GEW-108	Operational	
GEW-109	Operational	
GEW-110	Operational	
GEW-113	Operational	
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GEW-120	Operational	
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GEW-122	Operational	
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GEW-125	Operational	
GEW-126	Operational	
GEW-127	Operational	
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GEW-130	Operational	
GEW-131	Operational	
GEW-132	Operational	
GEW-133	Operational	
GEW-134	Operational	
GEW-135	Operational	
GEW-136	Operational	
GEW-137	Operational	
GEW-138	Operational	
GEW-139	Operational	
GEW-140	Operational	
GEW-141	Operational	
GEW-142	Operational	

August 2018

ID	Well Condition	Comments
GEW-143	Operational	
GEW-144	Operational	
GEW-145	Operational	
GEW-146	Operational	
GEW-147	Operational	
GEW-148	Operational	
GEW-149	Operational	
GEW-150	Operational	
GEW-151	Operational	
GEW-152	Operational	
GEW-153	Operational	
GEW-154	Operational	
GEW-155	Operational	
GEW-156	Operational	
GEW-157	Operational	
GEW-158	Operational	
GEW-159	Operational	
GEW-160	Operational	
GEW-161	Operational	
GEW-162	Operational	
GEW-163	Operational	
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GEW-166	Operational	
GEW-167	Operational	
GEW-168	Operational	
GEW-169	Operational	
GEW-170	Operational	
GEW-171	Operational	
GEW-172	Operational	
GEW-173	Operational	
GEW-174	Operational	
GEW-175	Operational	
GEW-176	Operational	
GEW-177	Operational	
GEW-178	Operational	
GEW-179	Operational	
GEW-180	Operational	
GEW-181	Operational	
GEW-182	Operational	
GEW-184	Operational	
GEW-185	Operational	
GEW-186	Operational	
GEW-187	Operational	

August 2018

ID	Well Condition	Comments
GEW-188	Operational	
GEW-217	Operational	Newly Installed Well
GEW-218	Operational	Newly Installed Well
GEW-219	Operational	Newly Installed Well
GEW-220	Operational	Newly Installed Well
GEW-221	Operational	Newly Installed Well
GEW-222	Operational	Newly Installed Well
GEW-223	Operational	Newly Installed Well
GEW-224	Operational	Newly Installed Well
GEW-225	Operational	Newly Installed Well
GEW-226	Operational	Newly Installed Well
GEW-227	Operational	Newly Installed Well
GEW-228	Operational	Newly Installed Well
GEW-229	Operational	Newly Installed Well
GEW-230	Operational	Newly Installed Well
GEW-231	Operational	Newly Installed Well
GIW-1	Operational	
GIW-2	Operational	
GIW-3	Operational	
GIW-4	Operational	
GIW-5	Operational	
GIW-6	Operational	
GIW-7	Operational	
GIW-8	Operational	
GIW-9	Operational	
GIW-10	Operational	
GIW-11	Operational	
GIW-12	Operational	
GIW-13	Operational	

ATTACHMENT C

LABORATORY DATA

ATTACHMENT C-1

LABORATORY ANALYSES 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	4/6/2018	57	40	ND	ND	ND	ND	
GEW-002	5/21/2018	53	37	2.3	7.9	0.058	ND	See Note 8
GEW-002	5/31/2018	55	41	ND	ND	ND	ND	
GEW-002	6/4/2018	56	40	ND	3.4	ND	ND	
GEW-002	7/5/2018	56	42	ND	ND	ND	ND	
GEW-002	8/8/2018	56	41	ND	ND	ND	ND	
GEW-02S	5/7/2018	59	35	ND	4.5	ND	ND	
GEW-02S	7/5/2018	57	34	2.1	7.4	ND	ND	See Note 4
GEW-02S	8/8/2018	59	36	ND	3.9	ND	ND	
GEW-003	4/6/2018	51	37	ND	12	0.060	ND	
GEW-003	5/7/2018	53	36	ND	9.8	0.072	ND	
GEW-003	6/4/2018	51	37	ND	11	0.075	ND	
GEW-003	7/5/2018	54	40	ND	4.9	0.052	ND	
GEW-003	8/8/2018	50	39	ND	10	ND	ND	
GEW-004	4/6/2018	53	37	ND	9.6	0.068	ND	
GEW-004	5/7/2018	54	37	ND	7.7	0.067	ND	
GEW-004	6/4/2018	55	39	ND	5.9	0.053	ND	
GEW-004	7/5/2018	56	39	ND	4.7	0.077	ND	
GEW-004	8/8/2018	55	39	ND	5.3	0.072	ND	
GEW-005	4/6/2018	49	34	ND	16	ND	ND	
GEW-005	5/7/2018	54	34	ND	11	ND	ND	
GEW-005	6/5/2018	51	33	ND	14	ND	ND	
GEW-005	7/5/2018	52	32	2.2	14	ND	ND	See Note 3
GEW-005	8/8/2018	52	34	ND	13	ND	ND	
GEW-006	5/8/2018	56	35	ND	7.8	ND	ND	
GEW-006	7/5/2018	58	37	ND	4.9	ND	ND	
GEW-006	8/8/2018	56	37	ND	6.5	ND	ND	
GEW-007	5/7/2018	59	39	ND	ND	ND	ND	
GEW-007	7/3/2018	58	39	ND	ND	ND	ND	
GEW-007	8/6/2018	58	39	ND	ND	ND	ND	
GEW-008	4/2/2018	51	39	1.8	6.2	1.6	ND	See Note 8
GEW-008	4/26/2018	55	41	ND	ND	1.6	ND	
GEW-008	5/7/2018	54	42	ND	ND	1.5	ND	
GEW-008	6/4/2018	53	42	ND	3.3	1.3	ND	
GEW-008	7/3/2018	52	44	ND	ND	1.4	ND	
GEW-008	8/6/2018	53	43	ND	ND	1.6	ND	
GEW-009	4/2/2018	54	40	ND	4.3	0.98	ND	
GEW-009	5/7/2018	48	37	ND	14	0.45	ND	
GEW-009	6/4/2018	46	35	2.8	15	0.52	ND	See Note 3
GEW-009	7/3/2018	53	40	ND	4.9	0.67	ND	
GEW-009	8/8/2018	55	41	ND	ND	0.71	ND	
GEW-040	4/2/2018	55	35	ND	8.8	ND	ND	
GEW-040	5/7/2018	55	34	1.6	9.3	ND	ND	See Note 8
GEW-040	5/29/2018	58	36	ND	5.0	ND	ND	
GEW-040	6/4/2018	58	36	ND	5.3	ND	ND	
GEW-040	7/3/2018	57	35	ND	6.0	ND	ND	
GEW-040	8/7/2018	57	36	ND	5.4	ND	ND	
GEW-041R	5/7/2018	58	35	ND	6.0	ND	ND	
GEW-041R	7/3/2018	59	36	ND	3.6	ND	ND	
GEW-041R	8/7/2018	56	37	ND	5.3	ND	ND	
GEW-042R	4/6/2018	55	37	1.7	5.7	ND	ND	See Note 8
GEW-042R	4/26/2018	57	38	ND	ND	ND	ND	
GEW-042R	5/7/2018	57	39	ND	ND	ND	ND	
GEW-042R	6/4/2018	57	39	ND	3.6	ND	ND	
GEW-042R	7/3/2018	55	38	ND	5.6	ND	ND	

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO ₂	O ₂ /Argon	Nitrogen	Hydrogen	Carbon Monoxide	Comments
		(%)	(%)	(%)	(%)	(%)	(ppm)	
GEW-042R	8/7/2018	57	40	ND	ND	ND	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-043R	7/5/2018	56	41	ND	ND	0.19	ND	
GEW-043R	8/7/2018	55	41	ND	ND	0.21	ND	
GEW-044	5/7/2018	55	37	ND	7.5	ND	ND	
GEW-044	7/5/2018	56	35	ND	6.8	ND	ND	
GEW-044	8/7/2018	58	38	ND	ND	ND	ND	
GEW-045R	4/6/2018	57	39	ND	ND	ND	ND	
GEW-045R	5/7/2018	58	40	ND	ND	ND	ND	
GEW-045R	6/4/2018	54	38	1.9	6.5	ND	ND	
GEW-045R	7/5/2018	56	39	ND	3.9	ND	ND	
GEW-045R	8/7/2018	57	39	ND	ND	ND	ND	
GEW-046R	4/6/2018	53	35	ND	11	0.051	ND	
GEW-046R	5/7/2018	53	35	ND	11	ND	ND	
GEW-046R	6/4/2018	49	35	ND	16	0.034	ND	
GEW-046R	7/5/2018	56	37	ND	6.1	ND	ND	
GEW-046R	8/7/2018	57	38	ND	4.3	ND	ND	
GEW-047R	4/6/2018	49	35	ND	15	0.061	ND	
GEW-047R	5/7/2018	55	37	ND	7.2	0.068	ND	
GEW-047R	6/5/2018	48	36	ND	15	0.044	ND	
GEW-047R	7/5/2018	55	39	ND	4.8	0.058	ND	
GEW-047R	8/8/2018	53	38	ND	8.2	ND	ND	
GEW-048	4/6/2018	53	35	2.7	9.3	ND	ND	See Note 8
GEW-048	4/25/2018	58	38	ND	ND	ND	ND	
GEW-048	5/7/2018	58	40	ND	ND	ND	ND	
GEW-048	6/5/2018	56	37	ND	5.7	ND	ND	
GEW-048	7/5/2018	57	38	ND	3.9	ND	ND	
GEW-048	8/8/2018	58	39	ND	ND	ND	ND	
GEW-049	4/6/2018	47	33	1.7	19	ND	ND	See Note 8
GEW-049	4/25/2018	58	38	ND	ND	ND	ND	
GEW-049	5/8/2018	53	36	ND	10	ND	ND	
GEW-049	6/5/2018	52	35	ND	11	ND	ND	
GEW-049	7/5/2018	56	37	ND	5.7	ND	ND	
GEW-049	8/8/2018	57	39	ND	ND	ND	ND	
GEW-050	5/7/2018	55	35	ND	8.5	ND	ND	
GEW-050	7/3/2018	59	38	ND	ND	0.043	ND	
GEW-050	8/6/2018	58	38	ND	ND	0.045	ND	
GEW-051	5/7/2018	56	39	ND	ND	0.92	ND	
GEW-051	7/3/2018	56	40	ND	ND	0.99	ND	
GEW-051	8/6/2018	56	40	ND	ND	1.0	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-052	7/3/2018	55	36	ND	8.0	ND	ND	
GEW-052	8/6/2018	56	37	ND	5.6	ND	ND	
GEW-053	4/5/2018	51	39	ND	4.7	4.9	60	
GEW-053	5/7/2018	52	41	ND	ND	3.0	65	
GEW-053	6/4/2018	51	40	ND	ND	4.6	67	
GEW-053	7/3/2018	51	41	ND	ND	4.5	60	
GEW-053	8/7/2018	51	39	ND	4.4	4.8	58	
GEW-054	4/5/2018	49	37	2.7	9.6	2.2	ND	See Note 8
GEW-054	4/25/2018	54	40	ND	ND	2.3	ND	
GEW-054	5/7/2018	54	41	ND	ND	2.3	ND	
GEW-054	6/4/2018	54	41	ND	ND	1.9	ND	
GEW-054	7/3/2018	50	39	1.9	6.5	2.0	ND	
GEW-054	8/7/2018	52	40	ND	4.7	2.0	ND	

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO ₂	O ₂ /Argon	Nitrogen	Hydrogen	Carbon Monoxide	Comments
		(%)	(%)	(%)	(%)	(%)	(ppm)	
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	
GEW-055	6/4/2018	52	39	ND	5.9	1.8	ND	
GEW-055	7/3/2018	52	41	ND	ND	2.5	ND	
GEW-055	8/7/2018	46	38	2.5	8.4	4.5	34	See Note 3
Flare Station ²	4/5/2018	45.2	35.1	2.1	17.2	0.6	ND	See Note 5
Flare Station ²	5/1/2018	51.4	34.5	ND	12.0	0.5	ND	See Note 5
Flare Station ²	6/1/2018	47.8	35.8	2.5	13.3	0.6	ND	See Note 5
Flare Station ²	7/2/2018	47.8	35.4	3.2	13.0	0.6	ND	See Note 5
Flare Station ²	8/1/2018	49.2	35.9	2.6	11.7	0.6	ND	See Note 5

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

ND = Analyte not detected in sample.

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

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO ₂	O ₂ /Argon	Nitrogen	Hydrogen	Carbon Monoxide	Comments
		(%)				(ppm)		
South Quarry								
GEW-010	4/3/2018	56	42	ND	ND	ND	ND	
GEW-010	5/2/2018	51	40	2.3	7.2	ND	ND	
GEW-010	6/5/2018	55	41	ND	3.3	ND	ND	
GEW-010	7/2/2018	54	41	ND	3.5	0.46	ND	
GEW-010	8/9/2018	55	42	ND	ND	ND	ND	
GEW-013A	5/8/2018	7.0	35	5.0	44	8.0	330	
GEW-013A	7/5/2018	10	40	5.2	33	11	450	See Note 3
GEW-015	5/10/2018	0.41	46	ND	ND	49	2,400	
GEW-015	7/11/2018	0.43	46	ND	ND	50	2,400	
GEW-016R	5/10/2018	5.3	42	ND	25	26	1,100	
GEW-016R	7/11/2018	6.3	43	ND	24	25	1,000	
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-018B	7/17/2018	0.63	40	4.1	17	37	1,400	
GEW-022R	5/11/2018	1.1	29	12	41	16	1,100	See Note 4
GEW-038	4/4/2018	2.1	18	14	51	15	620	See Note 4
GEW-038	5/3/2018	5.0	23	12	43	17	710	See Note 4
GEW-038	6/5/2018	8.5	26	11	39	15	610	
GEW-038	7/3/2018	8.4	35	7.5	26	22	910	See Note 4
GEW-038	8/9/2018	21	39	5.0	17	18	620	
GEW-039	4/4/2018	24	31	4.2	41	0.038	30	
GEW-039	5/3/2018	29	38	2.3	31	ND	ND	
GEW-039	6/5/2018	30	36	ND	32	ND	ND	
GEW-039	7/3/2018	33	38	ND	28	ND	ND	
GEW-039	8/9/2018	35	38	ND	26	ND	ND	
GEW-056R	4/3/2018	27	47	ND	ND	23	670	
GEW-056R	5/2/2018	28	40	2.4	12	17	480	
GEW-056R	6/5/2018	32	43	ND	7.9	16	470	
GEW-056R	7/3/2018	37	45	ND	ND	16	340	
GEW-056R	8/9/2018	38	44	ND	ND	15	310	
GEW-057R	5/10/2018	12	28	12	44	3.2	130	See Note 4
GEW-057B	5/10/2018	0.50	11	17	60	11	270	See Note 3
GEW-057B	7/11/2018	1.0	52	ND	ND	43	1,400	
GEW-058	5/10/2018	6.8	29	2.8	47	13	580	
GEW-058	7/11/2018	20	39	ND	26	12	530	
GEW-058A	5/10/2018	0.62	39	4.3	17	38	1,300	
GEW-058A	7/11/2018	3.9	36	4.5	25	30	1,000	
GEW-059R	5/4/2018	15	36	2.6	18	28	930	
GEW-059R	7/11/2018	20	40	ND	6.7	31	890	
GEW-067A	5/10/2018	2.4	21	8.6	58	9.4	140	See Note 3
GEW-067A	7/5/2018	6.4	32	2.5	52	6.4	95	
GEW-068A	5/10/2018	12	52	ND	4.6	29	1,900	
GEW-068A	7/12/2018	8.1	54	ND	ND	33	2,100	
GEW-077	5/11/2018	0.36	30	10	35	23	1,200	See Note 3
GEW-078R	5/11/2018	3.6	30	ND	50	15	550	
GEW-078R	7/12/2018	4.2	31	ND	48	15	490	
GEW-081	5/14/2018	0.45	25	11	40	22	750	See Note 3
GEW-081	7/12/2018	0.29	22	12	44	20	610	See Note 4
GEW-082R	5/11/2018	6.7	33	ND	37	21	740	
GEW-082R	7/12/2018	0.81	47	ND	3.8	46	1,500	
GEW-086	5/10/2018	10	34	2.3	48	5.3	130	
GEW-086	7/5/2018	19	41	1.9	31	7.0	130	
GEW-087	5/10/2018	5.7	17	12	63	2.5	130	See Note 4
GEW-087	7/11/2018	4.0	24	4.6	61	5.6	180	
GEW-088	5/14/2018	4.1	42	ND	13	38	840	

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO ₂	O ₂ /Argon	Nitrogen	Hydrogen	Carbon Monoxide	Comments
		(%)	(%)	(%)	(%)	(%)	(ppm)	
GEW-088	7/17/2018	10.0	43	1.7	19	24	610	
GEW-090	5/10/2018	14	33	5.7	24	22	640	See Note 3
GEW-090	7/5/2018	19	43	ND	9.3	27	690	
GEW-091	5/10/2018	0.97	14	14	59	10	150	See Note 4
GEW-091	7/5/2018	2.0	35	5.5	27	28	350	See Note 4
GEW-091	8/9/2018	2.2	39	4.0	20	33	360	
GEW-100	5/10/2018	1.0	43	6.8	24	23	640	See Note 3
GEW-100	7/12/2018	0.89	40	7.7	27	22	560	See Note 3
GEW-101	5/10/2018	22	50	4.6	20	2.8	310	
GEW-101	7/12/2018	17	43	7.6	29	2.9	300	See Note 4
GEW-102	5/10/2018	9.8	35	6.7	23	24	370	See Note 3
GEW-102	7/12/2018	13	50	ND	ND	33	460	
GEW-104	5/15/2018	3.7	56	ND	ND	36	1,200	
GEW-104	7/12/2018	44	41	ND	ND	11	200	
GEW-105	5/10/2018	16	36	6.3	28	14	600	See Note 3
GEW-105	7/11/2018	14	39	5.5	23	17	740	See Note 3
GEW-106	5/10/2018	3.6	45	2.0	13	34	1,200	
GEW-106	7/11/2018	7.0	53	ND	6.0	30	670	
GEW-107	5/4/2018	12	56	ND	ND	28	1,600	
GEW-107	7/11/2018	13	55	ND	ND	29	1,300	
GEW-108	5/4/2018	35	48	ND	14	0.94	52	
GEW-108	7/11/2018	40	48	ND	10	1.3	47	
GEW-108	8/9/2018	40	46	ND	11	1.4	52	
GEW-109	4/4/2018	22	38	2.3	27	11	380	
GEW-109	5/3/2018	26	36	ND	27	9.3	340	
GEW-109	6/5/2018	27	38	ND	23	10	340	
GEW-109	7/3/2018	30	39	ND	20	10	280	
GEW-109	8/9/2018	30	40	ND	19	9.2	240	
GEW-110	4/3/2018	21	37	4.6	19	19	550	
GEW-110	5/2/2018	17	31	8.2	29	15	470	See Note 4
GEW-110	6/5/2018	17	31	7.7	28	16	490	See Note 4
GEW-110	7/2/2018	22	40	3.8	17	18	520	
GEW-110	8/9/2018	24	46	ND	3.7	25	680	
GEW-113	5/10/2018	7.4	46	3.6	19	23	1,200	
GEW-113	7/11/2018	11	51	ND	13	23	1,100	
GEW-116	5/11/2018	10	66	ND	ND	19	730	
GEW-116	7/13/2018	13	58	ND	4.9	22	750	
GEW-117	5/11/2018	43	51	ND	4.9	0.087	90	
GEW-117	7/13/2018	45	52	ND	ND	0.080	65	
GEW-118	5/11/2018	1.3	53	ND	3.9	39	1,300	
GEW-118	7/17/2018	1.6	55	ND	3.9	37	980	
GEW-120	5/11/2018	17	52	ND	19	10	450	
GEW-120	7/17/2018	22	61	ND	3.7	12	590	
GEW-121	5/11/2018	9.5	44	2.1	29	15	770	
GEW-121	7/13/2018	6.9	42	2.4	31	17	780	
GEW-122	5/14/2018	10	33	3.1	39	15	1,100	
GEW-122	7/13/2018	12	36	ND	35	15	1,100	
GEW-123	5/11/2018	17	52	ND	18	12	610	
GEW-123	7/13/2018	13	45	ND	29	11	480	
GEW-124	5/14/2018	41	34	5.5	19	ND	ND	See Note 4
GEW-124	7/13/2018	35	24	8.9	31	ND	ND	See Note 3
GEW-125	5/14/2018	3.4	52	ND	11	32	1,700	
GEW-125	7/13/2018	2.7	52	ND	9.8	33	1,600	
GEW-126	5/14/2018	17	53	ND	18	8.8	630	
GEW-126	7/17/2018	19	51	ND	15	13	870	
GEW-127	5/14/2018	4.9	62	ND	4.3	27	2,300	

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO ₂	O ₂ /Argon	Nitrogen	Hydrogen	Carbon Monoxide	Comments
		(%)	(%)	(%)	(%)	(%)	(ppm)	
GEW-127	7/17/2018	8.4	57	ND	11	21	1,800	
GEW-128	5/8/2018	12	45	6.3	24	12	1,100	See Note 3
GEW-128	7/13/2018	9.5	54	3.5	15	17	1,700	
GEW-129	5/11/2018	1.0	64	ND	ND	31	3,600	
GEW-129	7/13/2018	1.1	64	ND	ND	31	3,500	
GEW-130	5/14/2018	5.9	53	2.0	9.3	29	2,400	
GEW-130	7/17/2018	7.3	50	2.3	13	26	2,200	
GEW-131	5/14/2018	20	40	ND	25	14	940	
GEW-131	7/17/2018	24	40	ND	22	13	810	
GEW-132	5/11/2018	1.0	43	3.7	17	34	1,800	
GEW-132	7/12/2018	1.6	49	ND	8.5	40	1,900	
GEW-133	5/14/2018	11	49	ND	16	22	1,000	
GEW-133	7/13/2018	11	48	ND	17	21	880	
GEW-134	5/11/2018	11	42	ND	28	17	710	
GEW-134	7/12/2018	14	43	1.8	23	18	680	
GEW-135	5/11/2018	5.4	39	3.7	30	22	900	
GEW-135	7/12/2018	6.6	41	2.5	28	22	840	
GEW-136	5/11/2018	3.4	15	14	57	11	310	See Note 4
GEW-136	7/11/2018	6.1	20	11	48	15	330	See Note 3
GEW-137	5/11/2018	24	29	4.2	43	0.25	39	
GEW-137	7/11/2018	23	31	3.1	42	0.49	43	
GEW-138	5/10/2018	4.4	22	4.7	60	8.1	420	
GEW-138	7/12/2018	4.8	24	5.2	57	8.8	430	See Note 4
GEW-139	5/11/2018	6.1	50	ND	12	31	2,100	
GEW-139	7/13/2018	6.4	49	ND	11	31	2,100	
GEW-140	5/11/2018	20	49	ND	5.7	24	1,100	
GEW-140	7/13/2018	15	50	ND	7.2	26	1,300	
GEW-143	7/12/2018	0.25	19	14	52	14	1,400	See Note 4
GEW-144	7/12/2018	30	28	8.6	30	2.5	120	See Note 4
GEW-145	5/10/2018	5.6	42	3.6	13	36	1,400	
GEW-145	7/12/2018	5.0	49	ND	ND	42	1,700	
GEW-146	5/10/2018	1.9	4.9	18	75	0.40	ND	See Note 4
GEW-146	7/11/2018	2.7	7.2	15	74	0.59	ND	See Note 4
GEW-147	5/11/2018	9.0	40	ND	26	23	810	
GEW-147	7/11/2018	12	42	ND	20	24	750	
GEW-148	5/10/2018	0.052	0.84	22	77	0.25	ND	See Note 4
GEW-148	7/11/2018	7.4	43	3.9	16	28	1,400	
GEW-149	5/10/2018	9.7	37	ND	43	7.7	290	
GEW-149	7/5/2018	15	41	ND	40	2.7	150	
GEW-150	5/15/2018	18	53	ND	7.1	20	940	
GEW-150	7/11/2018	22	47	ND	10.0	18	760	
GEW-151	5/14/2018	25	48	ND	4.7	21	570	
GEW-151	7/17/2018	7.6	49	ND	ND	39	1,200	
GEW-152	5/4/2018	25	40	2.5	12	19	950	
GEW-152	7/11/2018	25	44	ND	5.1	24	1,000	
GEW-153	5/4/2018	32	29	1.8	35	1.6	ND	
GEW-153	7/11/2018	46	37	ND	15	1.8	ND	
GEW-154	5/10/2018	0.015	2.4	20	77	0.47	74	See Note 4
GEW-154	7/5/2018	0.81	9.6	13	76	0.34	ND	See Note 4
GEW-155	5/11/2018	0.41	17	7.6	70	5.0	170	See Note 4
GEW-155	7/12/2018	0.58	19	5.9	70	4.7	130	See Note 4
GEW-156	5/10/2018	39	48	ND	6.5	5.8	160	
GEW-156	7/11/2018	37	48	ND	6.3	7.5	200	
GEW-157	5/10/2018	15	47	1.9	6.7	29	1,100	
GEW-157	7/11/2018	16	45	2.3	8.0	28	1,100	
GEW-158	5/10/2018	15	46	2.8	17	18	440	

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO ₂	O ₂ /Argon	Nitrogen	Hydrogen	Carbon Monoxide	Comments
		(%)					(ppm)	
GEW-158	7/11/2018	17	53	ND	5.8	22	620	
GEW-159	5/4/2018	31	29	1.7	32	5.1	200	
GEW-159	7/11/2018	37	35	2.9	20	4.5	86	
GEW-159	8/9/2018	44	40	ND	13	2.5	47	
GEW-160	5/10/2018	6.1	17	12	56	9.2	360	See Note 4
GEW-160	7/5/2018	1.6	51	ND	4.5	40	2,100	
GEW-160	8/9/2018	4.4	50	ND	5.0	38	1,700	
GEW-161	5/10/2018	3.6	46	1.8	16	31	1,600	
GEW-161	7/5/2018	5.0	47	1.8	13	32	1,400	
GEW-161	8/9/2018	7.9	47	ND	11	32	1,200	
GEW-162	5/10/2018	9.4	59	ND	16	14	730	
GEW-162	7/5/2018	7.2	39	8.5	36	8.5	420	See Note 3
GEW-162	8/9/2018	11	58	2.1	15	13	560	
GEW-163	5/3/2018	12	48	2.6	23	14	520	
GEW-163	7/9/2018	8.0	32	7.7	43	8.9	270	See Note 3
GEW-164	5/3/2018	24	56	ND	7.6	10	640	
GEW-164	7/9/2018	25	54	ND	10	8.7	490	
GEW-165	5/21/2018	9.5	54	3.3	12	20	930	
GEW-165	7/9/2018	11	54	3.1	12	19	780	
GEW-166	5/3/2018	0.93	54	ND	ND	41	2,600	
GEW-166	7/9/2018	1.3	46	3.3	12	36	2,000	
GEW-167	5/3/2018	0.44	30	9.4	34	25	1,500	See Note 3
GEW-167	7/9/2018	0.63	37	6.4	25	31	1,600	See Note 3
GEW-168	5/3/2018	10	54	ND	8.4	25	1,400	
GEW-168	7/9/2018	13	50	3.1	15	18	800	
GEW-169	5/3/2018	5.5	61	ND	ND	30	1,900	
GEW-169	7/9/2018	5.3	58	ND	5.9	29	1,600	
GEW-170	5/14/2018	8.6	60	ND	4.2	25	2,000	
GEW-170	7/13/2018	10.0	57	ND	7.3	23	1,700	
GEW-171	5/10/2018	4.7	34	9.9	36	15	1,100	See Note 3
GEW-172	5/10/2018	12	55	ND	ND	29	2,200	
GEW-172	7/13/2018	20	51	ND	ND	24	1,600	
GEW-173	5/11/2018	3.8	13	11	71	0.50	53	See Note 4
GEW-173	7/13/2018	4.2	15	11	68	1.4	150	See Note 4
GEW-174	5/10/2018	21	43	ND	20	14	720	
GEW-174	7/12/2018	23	45	ND	16	14	630	
GEW-175	5/10/2018	14	50	2.4	13	20	710	
GEW-175	7/11/2018	14	53	ND	5.8	24	870	
GEW-176	5/10/2018	25	31	7.2	31	4.9	200	See Note 4
GEW-176	7/11/2018	34	46	ND	12	5.9	240	
GEW-177	5/8/2018	2.1	62	ND	ND	33	3,600	
GEW-177	7/13/2018	6.6	53	2.8	9.8	27	2,700	
GEW-178	5/3/2018	16	53	4.0	18	7.8	270	
GEW-178	7/11/2018	26	64	ND	ND	5.8	170	
GEW-179	5/3/2018	22	68	ND	3.9	5.2	140	
GEW-179	7/11/2018	16	54	2.6	22	4.7	130	
GEW-180	5/4/2018	14	64	ND	9.4	11	420	
GEW-180	7/11/2018	14	68	ND	3.9	12	400	
GEW-181	5/4/2018	15	68	ND	ND	13	850	
GEW-181	7/11/2018	16	67	ND	3.8	11	660	
GEW-182	5/4/2018	18	44	4.3	19	13	440	
GEW-182	7/9/2018	24	44	4.0	18	9.3	280	
GEW-184	5/4/2018	16	33	10	40	1.2	100	See Note 4
GEW-184	7/9/2018	21	49	4.2	20	5.0	200	
GEW-185	5/4/2018	16	59	ND	5.8	17	770	
GEW-185	7/9/2018	15	58	ND	6.1	18	690	

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO ₂	O ₂ /Argon	Nitrogen	Hydrogen	Carbon Monoxide	Comments
		(%)				(ppm)		
GEW-186	5/4/2018	25	52	2.5	11	8.5	630	
GEW-186	7/11/2018	19	49	4.4	18	9.2	770	
GEW-187	5/3/2018	16	52	2.7	9.2	18	810	
GEW-187	7/11/2018	14	45	5.6	19	16	630	See Note 3
GEW-187	8/9/2018	17	57	ND	ND	21	800	
GEW-188	5/10/2018	1.8	12	15	68	3.1	160	See Note 4
GEW-188	7/9/2018	0.45	18	8.9	66	6.9	270	See Note 4
GIW-01	4/3/2018	9.1	55	2.2	10	23	1,000	
GIW-01	5/2/2018	6.3	59	ND	6.9	25	1,100	
GIW-01	6/5/2018	4.8	53	1.7	16	24	1,100	
GIW-01	7/3/2018	7.0	54	2.4	13	22	990	
GIW-01	8/9/2018	8.2	58	ND	7.4	25	990	
GIW-02	4/3/2018	0.98	16	15	60	7.5	480	See Note 4
GIW-02	5/2/2018	0.65	17	15	58	8.5	530	See Note 4
GIW-02	6/5/2018	2.3	16	14	62	4.8	280	See Note 4
GIW-02	7/3/2018	3.6	26	10	52	7.9	510	See Note 4
GIW-02	8/9/2018	3.3	24	10	55	7.7	460	See Note 4
GIW-03	4/3/2018	13	41	3.9	25	16	780	
GIW-03	5/2/2018	9.4	40	3.2	31	15	740	
GIW-03	6/5/2018	8.6	45	2.6	26	17	810	
GIW-03	7/3/2018	9.9	46	3.4	20	19	780	
GIW-03	8/9/2018	13	50	ND	14	20	700	
GIW-04	4/3/2018	11	44	4.3	15	25	1,100	
GIW-04	5/2/2018	4.6	38	6.2	25	26	1,100	See Note 3
GIW-04	6/5/2018	0.60	45	3.8	13	37	1,800	See Note 4
GIW-04	7/3/2018	2.5	52	ND	5.0	38	1,700	
GIW-04	8/9/2018	2.8	50	1.8	5.9	39	1,600	
GIW-05	4/6/2018	0.011	0.23	22	78	ND	ND	See Note 3
GIW-05	5/10/2018	0.42	11	16	58	14	130	See Note 3
GIW-05	6/5/2018	0.54	15	15	53	16	160	See Note 3
GIW-05	7/5/2018	0.77	20	13	45	22	210	See Note 3
GIW-05	8/9/2018	1.5	45	3.2	11	39	420	
GIW-06	4/4/2018	15	44	ND	23	17	280	
GIW-06	5/3/2018	20	43	ND	25	11	170	
GIW-06	6/5/2018	24	41	ND	21	12	180	
GIW-06	7/3/2018	27	41	ND	19	11	160	
GIW-06	8/9/2018	25	39	2.0	23	11	150	
GIW-07	4/4/2018	27	55	2.0	9.4	6.7	410	
GIW-07	5/3/2018	28	58	ND	4.9	7.2	360	
GIW-07	6/5/2018	34	54	ND	4.6	6.6	300	
GIW-07	7/3/2018	35	53	ND	4.2	5.9	260	
GIW-07	8/9/2018	37	52	ND	5.0	4.8	250	
GIW-08	4/4/2018	33	53	ND	12	0.12	35	
GIW-08	5/3/2018	37	53	ND	9.0	0.054	ND	
GIW-08	6/5/2018	40	50	ND	9.1	0.15	45	
GIW-08	7/3/2018	43	49	ND	6.4	0.34	58	
GIW-08	8/9/2018	44	49	ND	5.2	0.39	60	
GIW-09	4/4/2018	2.4	14	13	67	4.1	130	See Note 4
GIW-09	5/3/2018	3.4	24	5.6	64	2.6	120	See Note 4
GIW-09	6/5/2018	5.4	19	8.3	64	2.9	100	See Note 4
GIW-09	7/3/2018	7.8	24	4.3	59	5.5	89	
GIW-09	8/9/2018	9.0	27	5.1	52	7.4	180	See Note 4
GIW-10	4/4/2018	7.9	30	ND	47	14	410	
GIW-10	5/3/2018	8.5	28	1.8	50	11	310	
GIW-10	6/5/2018	9.8	31	ND	44	14	440	
GIW-10	7/5/2018	11	34	ND	38	16	420	

Laboratory Analysis - Bridgeton Landfill

Well Name	Date Sampled	Methane	CO ₂	O ₂ /Argon	Nitrogen	Hydrogen	Carbon Monoxide (ppm)	Comments
		(%)						
GIW-10	8/9/2018	12	34	ND	37	15	380	
GIW-11	4/3/2018	18	41	1.7	25	14	550	
GIW-11	5/2/2018	12	34	2.3	39	13	600	
GIW-11	6/5/2018	12	36	ND	38	13	600	
GIW-11	7/3/2018	20	40	ND	28	11	380	
GIW-11	8/9/2018	22	40	ND	26	10	370	
GIW-12	4/3/2018	9.0	43	4.4	23	20	1,100	
GIW-12	5/2/2018	10	25	10	45	9.3	490	See Note 4
GIW-12	6/5/2018	8.8	34	7.3	34	16	820	See Note 3
GIW-12	7/3/2018	9.3	53	ND	9.1	27	1,300	
GIW-12	8/9/2018	11	48	ND	15	24	1,100	
GIW-13	4/3/2018	25	54	ND	6.5	13	350	
GIW-13	5/2/2018	23	50	3.1	12	12	370	
GIW-13	6/5/2018	31	53	ND	4.5	11	330	
GIW-13	7/3/2018	27	56	ND	ND	13	390	
GIW-13	8/9/2018	33	51	ND	ND	12	350	
Flare Station ²	4/5/2018	11.8	34.5	7.4	34.6	10.6	485	See Note 6
Flare Station ²	5/1/2018	12.3	32.8	7.4	36.3	10.0	495	See Note 6
Flare Station ²	6/1/2018	12.7	37.1	6.2	32.2	10.4	505	See Note 6
Flare Station ²	7/2/2018	13.5	36.8	6.4	32.0	10.1	445	See Note 6
Flare Station ²	8/1/2018	13.3	36.3	6.4	32.6	10.1	465	See Note 6

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

ND = Analyte not detected in sample.

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

ATTACHMENT C-2

LABORATORY ANALYSES REPORTS



August 21, 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: J081303-01/51

Enclosed are results for sample(s) received 8/13/18 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, Erin Fanning and Anthony Kimutis; David Randall, Dustin Thoenen and Don Murphy, Weaver Consultants Group; and Jan Feezor, Feezor Engineering on 8/20/18.

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:		
Report To:		Mike Lambrich		Standard	<input type="checkbox"/>	48 hours	<input type="checkbox"/>	EDD	<input checked="" type="checkbox"/>	Condition upon receipt	1 OF 6	
Company:		Republic Services		Same Day	<input type="checkbox"/>	72 hours	<input type="checkbox"/>	EDF	<input type="checkbox"/>	Sealed Yes <input type="checkbox"/> No <input type="checkbox"/>		
Street:		13570 St. Charles Rock Rd.		24 hours	<input type="checkbox"/>	96 hours	<input type="checkbox"/>	Level 3	<input type="checkbox"/>	Intact Yes <input type="checkbox"/> No <input type="checkbox"/>		
City/State/Zip:		Bridgeton , MO 63044		Other:	<input checked="" type="checkbox"/>	5 Day	<input type="checkbox"/>	Level 4	<input type="checkbox"/>	Chilled _____ deg C		
ANALYSIS REQUEST												
Project No.:		Bridgeton Landfill		P.O. No.:		PO7112802						
Phone & Fax:		314-683-3921		Bill to:		Republic Services						
e-mail:		Mlambrich@republicservices.com		Attn:		Mike Lambrich						
BILLING												
Cannister Pressure ("ng)		Cannister ID		Sample Start		Sample End		SAMPLE IDENTIFICATION				
7081303 - 01		A7760		-20		-5		GEW 187		8/9/2018 9:14 C LFG NA X		
-02		3155		-20.3		-5		GEW 108		8/9/2018 9:26 C LFG NA X		
-03		R1349		-20.1		-5		GEW 159		8/9/2018 9:41 C LFG NA X		
-04		5901		-19.2		-5		GIW 6		8/9/2018 9:52 C LFG NA X		
-05		1616		-19.8		-5		GIW 7		8/9/2018 10:03 C LFG NA X		
-06		A7761		-20		-5		GIW 8		8/9/2018 10:55 C LFG NA X		
-07		A7654		-19.9		-5		GEW 38		8/9/2018 11:04 C LFG NA X		
-08		5836		-20.1		-5		GIW 9		8/9/2018 11:15 C LFG NA X		
-09		5816		-20		-5		GEW 109		8/9/2018 11:35 C LFG NA X		
-10		A7769		-20.1		-5		GEW 39		8/9/2018 11:46 C LFG NA X		
LAB USE ONLY												
SAMPLE IDENTIFICATION												
COMMENTS												
AUTHORIZATION TO PERFORM WORK: Dave Penoyer COMPANY: Republic Services												
SAMPLED BY: Tim Ahrens	COMPANY: Cornerstone		DATE/TIME: 8/10/18		DATE/TIME: 8/10/18		RECEIVED BY:		RECEIVED BY:		RECEIVED BY:	
RELINQUISHED BY: 	DATE/TIME: 8/10/18		DATE/TIME: 8/10/18		DATE/TIME: 8/10/18		RECEIVED BY: 		RECEIVED BY: 		RECEIVED BY: 	
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

CHAIN OF CUSTODY RECORD												
TURNAROUND TIME				DELIVERABLES				PAGE:		OF		
Standard		<input type="checkbox"/> 48 hours		<input type="checkbox"/> EDD		<input checked="" type="checkbox"/> EDF		<input type="checkbox"/>		Condition upon receipt:		
Same Day		<input type="checkbox"/> 72 hours		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/> Level 3		<input type="checkbox"/> No		
24 hours		<input type="checkbox"/> 96 hours		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/> Level 4		<input type="checkbox"/> Intact		
Other: <i>5 Day</i>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/> Chilled		
ANALYSIS REQUEST												
Report To:	Mike Lambrich			P.O. No.:			PO7112802					
Company:	Republic Services			Bill to:			Public Services					
Street:	13570 St. Charles Rock Rd.			Attn:			Mike Lambrich					
City/State/Zip:	Bridgeton, MO 63044			13570 St. Charles Rock Rd.								
Phone & Fax:	314-683-3921			Bridgeton, MO 63044								
e-mail:	Mlambrich@republicservices.com											
Cannister Pressure ("hg)				SAMPLE IDENTIFICATION								
LAB USE ONLY		Cannister ID	Sample Start	Sample End	SAMPLE DATE	SAMPLE TIME	CONTAINER QTY/TYPE	PRESERVE MATRIX	DATE	H2 + CO, CO, H2		
<i>1081303 - 11</i>		5903	-19.8	-5	8/9/2018	13:55	C	LFG	NA	<i>press 12</i>		
<i>-12</i>		A8066	-19.8	-5	8/9/2018	14:07	C	LFG	NA	<i>-6.9</i>		
<i>-13</i>		5268	-20.1	-5	8/9/2018	14:19	C	LFG	NA	<i>-6.5</i>		
<i>-14</i>		A8063	-19.8	-5	8/9/2018	14:28	C	LFG	NA	<i>-6.5</i>		
COMMENTS												
AUTHORIZATION TO PERFORM WORK:		Dave Penoyer		COMPANY:		Republic Services						
SAMPLED BY:		Tim Ahrens		COMPANY:		Cornerstone		DATE/TIME		8/9/18		
RELINQUISHED BY		<i>Tim Ahrens</i>		DATE/TIME		8/10/18		RECEIVED BY		DATE/TIME		
RELINQUISHED BY		<i>Tony Cox</i>		DATE/TIME		<i>8/13/18 0945</i>		RECEIVED BY		DATE/TIME		
RELINQUISHED BY				DATE/TIME				RECEIVED BY		DATE/TIME		
METHOD OF TRANSPORT (circle one):		Walk-In		FedEx		UPS		Courier		ATL 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												

CHAIN OF CUSTODY RECORD									
TURNAROUND TIME				DELIVERABLES			PAGE:		
Standard	<input type="checkbox"/>	48 hours	<input type="checkbox"/>	EDD	<input checked="" type="checkbox"/>	EDF	<input type="checkbox"/>	Condition upon receipt:	3 OF 6
Same Day	<input type="checkbox"/>	72 hours	<input type="checkbox"/>				<input type="checkbox"/>	Sealed Yes <input type="checkbox"/> No <input type="checkbox"/>	
24 hours	<input type="checkbox"/>	96 hours	<input type="checkbox"/>	Level 3	<input type="checkbox"/>	Level 4	<input type="checkbox"/>	Intact Yes <input type="checkbox"/> No <input type="checkbox"/>	
Other:	<input type="checkbox"/>	5 Day	<input type="checkbox"/>	Level 4	<input type="checkbox"/>		<input type="checkbox"/>	Chilled _____ deg C	
ANALYSIS REQUEST									
P.O. No.:	PO7112802								
Bill to:	Republic Services								
Attn:	Mike Lambrich								
13570 St. Charles Rock Rd.									
Bridgeton, MO 63044									
M. Lambrich									
314-683-3921									
M.lambrich@republicservices.com									
BILLING									
Sample Pressure ("ng)	Cannister Pressure ("ng)								
LAB USE ONLY			SAMPLE IDENTIFICATION			TIME			
Cannister ID	Sample Start	Sample End	DATE	SAMPLE DATE	TIME	CONTAINER QTY/TYPE	MATRIX	PRESERVE	ATION
1081303-15	6155	-19.9	-5	GEW 50	8/6/2018	13:52	C	LFG	NA
-16	6160	-19.9	-5	GEW 52	8/6/2018	14:03	C	LFG	NA
-17	3162	-19.9	-5	GEW 7	8/6/2018	14:15	C	LFG	NA
-18	A8087	-20.1	-5	GEW 8	8/6/2018	14:26	C	LFG	NA
-19	A7793	-19.9	-5	GEW 51	8/6/2018	14:41	C	LFG	NA
-20	A7671	-20.2	-5	GEW 53	8/7/2018	10:48	C	LFG	NA
-21	3436	-20.2	-5	GEW 54	8/7/2018	10:59	C	LFG	NA
-22	5839	-19.7	-5	GEW 55	8/7/2018	11:25	C	LFG	NA
-23	A8090	-20.2	-5	GEW 40	8/7/2018	11:35	C	LFG	NA
-24	3834	-20.2	-5	GEW 41R	8/7/2018	11:47	C	LFG	NA
COMMENTS									
AUTHORIZATION TO PERFORM WORK: <u>Dave Penoyer</u>	COMPANY: Republic Services								
SAMPLED BY: <u>Anthony Kimutis</u>	COMPANY: Republic Services								
RELINQUISHED BY <u>John Brink</u> DATE/TIME <u>8/6/18</u>	RECEIVED BY DATE/TIME <u>8/6/18 - 8/7/18</u>								
RELINQUISHED BY <u>FBI</u> DATE/TIME <u>8/6/18</u>	RECEIVED BY DATE/TIME <u>8/6/18 - 8/7/18</u>								
RELINQUISHED BY <u>ATL</u> DATE/TIME <u>8/6/18</u>	RECEIVED BY DATE/TIME <u>8/6/18 - 8/7/18</u>								
METHOD OF TRANSPORT (circle one): Walk-In FedEx UPS Courier ATL 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									

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<table border="1"> <thead> <tr> <th colspan="3">SAMPLE IDENTIFICATION</th> <th colspan="3">SAMPLE</th> <th colspan="3">SAMPLE DATE</th> <th colspan="3">CONTAINER QTY/TYPE</th> </tr> <tr> <th>Cannister ID</th> <th>Sample Start</th> <th>Sample End</th> <th>DATE</th> <th>TIME</th> <th>Matrix</th> <th>DATE</th> <th>TIME</th> <th>Matrix</th> <th>CONTAINER</th> <th>QTY/TYPE</th> <th>PRESERVE</th> </tr> </thead> <tbody> <tr> <td>7081303 - 25</td> <td>5929</td> <td>-20.1</td> <td>-5</td> <td>GEW 42R</td> <td></td> <td>8/7/2018</td> <td>13:28</td> <td>C</td> <td>LFG</td> <td>NA</td> <td>X</td> </tr> <tr> <td>- 26</td> <td>A7658</td> <td>-20.3</td> <td>-5</td> <td>GEW 43R</td> <td></td> <td>8/7/2018</td> <td>13:40</td> <td>C</td> <td>LFG</td> <td>NA</td> <td>X</td> </tr> <tr> <td>- 27</td> <td>A8082</td> <td>-20.1</td> <td>-5</td> <td>GEW 44</td> <td></td> <td>8/7/2018</td> <td>13:51</td> <td>C</td> <td>LFG</td> <td>NA</td> <td>X</td> </tr> <tr> <td>- 28</td> <td>5822</td> <td>-20.2</td> <td>-5</td> <td>GEW 45R</td> <td></td> <td>8/7/2018</td> <td>14:04</td> <td>C</td> <td>LFG</td> <td>NA</td> <td>X</td> </tr> <tr> <td>- 29</td> <td>3124</td> <td>-20.2</td> <td>-5</td> <td>GEW 46R</td> <td></td> <td>8/7/2018</td> <td>14:14</td> <td>C</td> <td>LFG</td> <td>NA</td> <td>X</td> </tr> <tr> <td>- 30</td> <td>A8080</td> <td>-20.1</td> <td>-5</td> <td>GEW 2S</td> <td></td> <td>8/8/2018</td> <td>8:00</td> <td>C</td> <td>LFG</td> <td>NA</td> <td>X</td> </tr> <tr> <td>- 31</td> <td>5316</td> <td>-20.2</td> <td>-5</td> <td>GEW 2</td> <td></td> <td>8/8/2018</td> <td>8:10</td> <td>C</td> <td>LFG</td> <td>NA</td> <td>X</td> </tr> <tr> <td>- 32</td> <td>A7808</td> <td>-20.1</td> <td>-5</td> <td>GEW 3</td> <td></td> <td>8/8/2018</td> <td>8:22</td> <td>C</td> <td>LFG</td> <td>NA</td> <td>X</td> </tr> <tr> <td>- 33</td> <td>5910</td> <td>-20.5</td> <td>-5</td> <td>GEW 4</td> <td></td> <td>8/8/2018</td> <td>8:33</td> <td>C</td> <td>LFG</td> <td>NA</td> <td>X</td> </tr> <tr> <td>- 34</td> <td>A8098</td> <td>-20.1</td> <td>-5</td> <td>GEW 47R</td> <td></td> <td>8/8/2018</td> <td>8:53</td> <td>C</td> <td>LFG</td> <td>NA</td> <td>X</td> </tr> </tbody> </table>												SAMPLE IDENTIFICATION			SAMPLE			SAMPLE DATE			CONTAINER QTY/TYPE			Cannister ID	Sample Start	Sample End	DATE	TIME	Matrix	DATE	TIME	Matrix	CONTAINER	QTY/TYPE	PRESERVE	7081303 - 25	5929	-20.1	-5	GEW 42R		8/7/2018	13:28	C	LFG	NA	X	- 26	A7658	-20.3	-5	GEW 43R		8/7/2018	13:40	C	LFG	NA	X	- 27	A8082	-20.1	-5	GEW 44		8/7/2018	13:51	C	LFG	NA	X	- 28	5822	-20.2	-5	GEW 45R		8/7/2018	14:04	C	LFG	NA	X	- 29	3124	-20.2	-5	GEW 46R		8/7/2018	14:14	C	LFG	NA	X	- 30	A8080	-20.1	-5	GEW 2S		8/8/2018	8:00	C	LFG	NA	X	- 31	5316	-20.2	-5	GEW 2		8/8/2018	8:10	C	LFG	NA	X	- 32	A7808	-20.1	-5	GEW 3		8/8/2018	8:22	C	LFG	NA	X	- 33	5910	-20.5	-5	GEW 4		8/8/2018	8:33	C	LFG	NA	X	- 34	A8098	-20.1	-5	GEW 47R		8/8/2018	8:53	C	LFG	NA	X
SAMPLE IDENTIFICATION			SAMPLE			SAMPLE DATE			CONTAINER QTY/TYPE																																																																																																																																																		
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- 27	A8082	-20.1	-5	GEW 44		8/7/2018	13:51	C	LFG	NA	X																																																																																																																																																
- 28	5822	-20.2	-5	GEW 45R		8/7/2018	14:04	C	LFG	NA	X																																																																																																																																																
- 29	3124	-20.2	-5	GEW 46R		8/7/2018	14:14	C	LFG	NA	X																																																																																																																																																
- 30	A8080	-20.1	-5	GEW 2S		8/8/2018	8:00	C	LFG	NA	X																																																																																																																																																
- 31	5316	-20.2	-5	GEW 2		8/8/2018	8:10	C	LFG	NA	X																																																																																																																																																
- 32	A7808	-20.1	-5	GEW 3		8/8/2018	8:22	C	LFG	NA	X																																																																																																																																																
- 33	5910	-20.5	-5	GEW 4		8/8/2018	8:33	C	LFG	NA	X																																																																																																																																																
- 34	A8098	-20.1	-5	GEW 47R		8/8/2018	8:53	C	LFG	NA	X																																																																																																																																																
COMMENTS																																																																																																																																																											
<p>AUTHORIZATION TO PERFORM WORK: Dave Penoyer COMPANY: Republic Services</p> <p>SAMPLED BY: Anthony Kimutis COMPANY: Republic Services DATE/TIME: 8/7/18 - 8/8/18</p> <p>RELINQUISHED BY: <u>John S.</u> DATE/TIME: 8/10/18 RECEIVED BY: <u>John S.</u> DATE/TIME: 8/13/18</p> <p>RELINQUISHED BY: <u>John S.</u> DATE/TIME: 8/13/18 RECEIVED BY: <u>John S.</u> DATE/TIME: 8/13/18</p> <p>RELINQUISHED BY: <u>John S.</u> DATE/TIME: 8/13/18 RECEIVED BY: <u>John S.</u> DATE/TIME: 8/13/18</p>																																																																																																																																																											
<p>METHOD OF TRANSPORT (circle one): Walk-In FedEx UPS Courier ATLI Other _____</p> <p>DISTRIBUTION: White & Yellow - Lab Copies / Pink - Customer Copy</p> <p>Preservation: H=HCl N=None / Container: B=Bag C=Can V=VOA O=Other Rev. 03 - 5/7/09</p>																																																																																																																																																											

CHAIN OF CUSTODY RECORD											
TURNAROUND TIME				DELIVERABLES				PAGE:			
Standard		<input type="checkbox"/> 48 hours		<input type="checkbox"/> EDD		<input checked="" type="checkbox"/>		5 OF		6	
Same Day		<input type="checkbox"/> 72 hours		<input type="checkbox"/> EDF		<input type="checkbox"/>		Sealed Yes <input type="checkbox"/>		No <input type="checkbox"/>	
24 hours		<input type="checkbox"/> 96 hours		<input type="checkbox"/> Level 3		<input type="checkbox"/>		Intact Yes <input type="checkbox"/>		No <input type="checkbox"/>	
Other: <u>5 Day</u>		<input type="checkbox"/> Level 4		<input type="checkbox"/>		<input type="checkbox"/>		Chilled _____		deg C _____	
ANALYSIS REQUEST											
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										
Cannister Pressure ("ng)			SAMPLE IDENTIFICATION			SAMPLE DATE			CONTAINER QTY/TYPE		
LAB USE ONLY			Cannister ID	Sample Start	Sample End	SAMPLE TIME	DATE	PRESERVATION MATRIX	CONTAINER	QTY/TYPE	PRESERVATION
<u>5081303-35</u>	5307	-20.1	-5	GEW 5		8/8/2018	9:37	C	LFG	NA	X
<u>-36</u>	6146	-20.4	-5	GEW 48		8/8/2018	9:48	C	LFG	NA	X
<u>-37</u>	5905	-20	-5	GEW 6		8/8/2018	9:59	C	LFG	NA	X
<u>-38</u>	A8083	-20.1	-5	GEW 49		8/8/2018	10:15	C	LFG	NA	X
<u>-39</u>	5821	-20.3	-5	GEW 9		8/8/2018	10:30	C	LFG	NA	X
<u>-40</u>	A7766	-19.3	-5	GEW 10		8/9/2018	9:28	C	LFG	NA	X
<u>-41</u>	5813	-19.9	-5	GEW 110		8/9/2018	9:37	C	LFG	NA	X
<u>-42</u>	A7820	-20.3	-5	GIW 13		8/9/2018	9:47	C	LFG	NA	X
<u>-43</u>	3131	-20	-5	GIW 12		8/9/2018	9:57	C	LFG	NA	X
<u>-44</u>	5825	-20.1	-5	GEW 56R		8/9/2018	10:07	C	LFG	NA	X
COMMENTS											
AUTHORIZATION TO PERFORM WORK: <u>Dave Penoyer</u> COMPANY: <u>Public Services</u>											
SAMPLED BY: <u>Anthony Kimutis</u>	COMPANY: <u>Public Services</u> DATE/TIME <u>8/8/18 - 8/9/18</u>										
RELINQUISHED BY <u>TH</u>	DATE/TIME <u>8/10/18</u>	RECEIVED BY	DATE/TIME <u>8/9/18</u>								
RELINQUISHED BY <u>TEH</u>	DATE/TIME <u>8/10/18</u>	RECEIVED BY <u>Yanji</u>	DATE/TIME <u>8/10/18</u>								
RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME								
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 Rev. 03 - 5/7/09											

CHAIN OF CUSTODY RECORD											
TURNAROUND TIME				DELIVERABLES				PAGE:			
Standard	<input type="checkbox"/>	48 hours	<input type="checkbox"/>	EDD	<input checked="" type="checkbox"/>	Condition upon receipt:		6	OF	6	
Same Day	<input type="checkbox"/>	72 hours	<input type="checkbox"/>	EDF	<input type="checkbox"/>	Sealed Yes	<input type="checkbox"/>	No	<input type="checkbox"/>		
24 hours	<input type="checkbox"/>	96 hours	<input type="checkbox"/>	Level 3	<input type="checkbox"/>	Intact Yes	<input type="checkbox"/>	No	<input type="checkbox"/>		
Other:	<input checked="" type="checkbox"/>	5 Day	<input type="checkbox"/>	Level 4	<input type="checkbox"/>	Chilled	<input type="checkbox"/>	deg C			
<i>5 days</i>											
ANALYSIS REQUEST											
Report To:	Mike Lambrich										
Company:	Republic Services										
Street:	13570 St. Charles Rock Rd.										
City/State/Zip:	Bridgeton , MO 63044										
Phone & Fax:	314-683-3921										
e-mail:	Mlambrich@republicservices.com										
BILLING											
P.O. No.:	PO7112802										
Bill to:	Republic Services										
Attn:	Mike Lambrich										
13570 St. Charles Rock Rd.											
Bridgeton, MO 63044											
LAB USE ONLY		Cannister Pressure ("ng)		SAMPLE IDENTIFICATION		SAMPLE DATE	SAMPLE TIME	CONTAINER QTY/TYPE	MATRIX	RESERVA-TION	
J081303-45	A7802	-20.2	-5	GIW 11		8/9/2018	10:16	C	LFG	NA	X
-46	3126	-20.1	-5	GIW 10		8/9/2018	11:31	C	LFG	NA	X
-47	A7649	-19.9	-5	GIW 1		8/9/2018	11:42	C	LFG	NA	X
-48	A7775	-20.1	-5	GIW 2		8/9/2018	13:36	C	LFG	NA	X
-49	A7792	-20	-5	GIW 3		8/9/2018	13:46	C	LFG	NA	X
-50	5324	-20	-5	GIW 4		8/9/2018	13:58	C	LFG	NA	X
-51	A7767	-20.1	-5	GIW 5		8/9/2018	14:09	C	LFG	NA	X
COMMENTS											
AUTHORIZATION TO PERFORM WORK: Dave Penoyer		COMPANY: Republic Services									
SAMPLED BY: Anthony Kimutis	COMPANY: Republic Services										DATE/TIME: 8/9/18
RELINQUISHED BY	DATE/TIME: 8/10/18		RECEIVED BY		DATE/TIME						
RELINQUISHED BY	DATE/TIME: 8/10/18		RECEIVED BY		DATE/TIME: 8/10/18						
RELINQUISHED BY	DATE/TIME		RECEIVED BY		DATE/TIME						
METHOD OF TRANSPORT (circle one):		Walk-In	FedEx	UPS	Courier	ATL	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
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 08/13/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J081303-01	J081303-02		J081303-03		J081303-04		
Client Sample I.D.:	GEW 187	GEW 108		GEW 159		GIW 6		
Date/Time Sampled:	8/9/18 9:14	8/9/18 9:26		8/9/18 9:41		8/9/18 9:52		
Date/Time Analyzed:	8/14/18 15:30	8/14/18 15:45		8/14/18 15:59		8/14/18 16:14		
QC Batch No.:	180814GC8A1	180814GC8A1		180814GC8A1		180814GC8A1		
Analyst Initials:	AS		AS		AS		AS	
Dilution Factor:	3.5		3.4		3.4		3.5	
ANALYTE	Result % v/v	RL % v/v						
Hydrogen	21	3.5	1.4	d	0.034	2.5	d	0.034
Carbon Dioxide	57	0.035	46		0.034	40		0.034
Oxygen/Argon	ND	1.7	ND		1.7	ND		1.7
Nitrogen	ND	3.5	11		3.4	13		3.4
Methane	17	0.0035	40		0.0034	44		0.0034
Carbon Monoxide	0.080	0.0035	0.0052		0.0034	0.0047		0.0034

Results normalized including non-methane hydrocarbons

ND = Not Detected (below RL)

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d = Reported from a secondary analysis. QC Batch: 180816GC8A1

Reviewed/Approved By: _____



Mark Johnson

Operations Manager

Date 8/20/18

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AirTECHNOLOGY Laboratories, Inc.

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Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 08/13/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J081303-05	J081303-06	J081303-07	J081303-08
Client Sample I.D.:	GIW 7	GIW 8	GEW 38	GIW 9
Date/Time Sampled:	8/9/18 10:03	8/9/18 10:55	8/9/18 11:04	8/9/18 11:15
Date/Time Analyzed:	8/14/18 16:28	8/14/18 16:43	8/14/18 16:58	8/14/18 17:12
QC Batch No.:	180814GC8A1	180814GC8A1	180814GC8A1	180814GC8A1
Analyst Initials:	AS	AS	AS	AS
Dilution Factor:	3.5	3.6	3.6	3.6
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v
Hydrogen	4.8	3.5	0.39 d	0.036
Carbon Dioxide	52	0.035	49	0.036
Oxygen/Argon	ND	1.7	ND	1.8
Nitrogen	5.0	3.5	5.2	3.6
Methane	37	0.0035	44	0.0036
Carbon Monoxide	0.025	0.0035	0.0060	0.0036

Results normalized including non-methane hydrocarbons

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Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 08/13/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J081303-09	J081303-10		J081303-11		J081303-12			
Client Sample I.D.:	GEW 109	GEW 39		GEW 91		GEW 162			
Date/Time Sampled:	8/9/18 11:35	8/9/18 11:46		8/9/18 13:55		8/9/18 14:07			
Date/Time Analyzed:	8/14/18 17:27	8/14/18 17:41		8/14/18 17:56		8/14/18 18:11			
QC Batch No.:	180814GC8A1	180814GC8A1		180814GC8A1		180814GC8A1			
Analyst Initials:	AS	AS		AS		AS			
Dilution Factor:	3.6	3.6		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	9.2	3.6	ND	d	0.036	33	3.6	13	3.5
Carbon Dioxide	40	0.036	38	0.036	39	0.036	58	0.035	
Oxygen/Argon	ND	1.8	ND	1.8	4.0	1.8	2.1	1.7	
Nitrogen	19	3.6	26	3.6	20	3.6	15	3.5	
Methane	30	0.0036	35	0.0036	2.2	0.0036	11	0.0035	
Carbon Monoxide	0.024	0.0036	ND	0.0036	0.036	0.0036	0.056	0.0035	

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 Project Name: Bridgeton Landfill
 Project No.: NA
 Date Received: 08/13/18
 Matrix: Air
 Reporting Units: % v/v

ASTM D1946

Lab No.:	J081303-13	J081303-14	J081303-15	J081303-16
Client Sample I.D.:	GEW 160	GEW 161	GEW 50	GEW 52
Date/Time Sampled:	8/9/18 14:19	8/9/18 14:28	8/6/18 13:52	8/6/18 14:03
Date/Time Analyzed:	8/14/18 18:25	8/14/18 18:40	8/14/18 18:54	8/14/18 19:09
QC Batch No.:	180814GC8A1	180814GC8A1	180814GC8A1	180814GC8A1
Analyst Initials:	AS	AS	AS	AS
Dilution Factor:	3.5	3.5	3.6	3.6
ANALYTE	Result % v/v	RL % v/v	Result % v/v	RL % v/v
Hydrogen	38	3.5	32	3.5
Carbon Dioxide	50	0.035	47	0.035
Oxygen/Argon	ND	1.7	ND	1.7
Nitrogen	5.0	3.5	11	3.5
Methane	4.4	0.0035	7.9	0.0035
Carbon Monoxide	0.17	0.0035	0.12	0.0035

Results normalized including non-methane hydrocarbons

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 Project Name: Bridgeton Landfill
 Project No.: NA
 Date Received: 08/13/18
 Matrix: Air
 Reporting Units: % v/v

ASTM D1946

Lab No.:	J081303-17	J081303-18	J081303-19	J081303-20							
Client Sample I.D.:	GEW 7	GEW 8	GEW 51	GEW 53							
Date/Time Sampled:	8/6/18 14:15	8/6/18 14:26	8/6/18 14:41	8/7/18 10:48							
Date/Time Analyzed:	8/14/18 19:24	8/14/18 19:38	8/14/18 19:53	8/14/18 20:07							
QC Batch No.:	180814GC8A1	180814GC8A1	180814GC8A1	180814GC8A1							
Analyst Initials:	AS	AS	AS	AS							
Dilution Factor:	3.6	3.6	3.6	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	0.036	1.6	d	0.036	1.0	d	0.036	4.8	3.4
Carbon Dioxide	39		0.036	43		0.036	40		0.036	39	0.034
Oxygen/Argon	ND		1.8	ND		1.8	ND		1.8	ND	1.7
Nitrogen	ND		3.6	ND		3.6	ND		3.6	4.4	3.4
Methane	58		0.0036	53		0.0036	56		0.0036	51	0.0034
Carbon Monoxide	ND		0.0036	ND		0.0036	ND		0.0036	0.0058	0.0034

Results normalized including non-methane hydrocarbons

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 Project Name: Bridgeton Landfill
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 Matrix: Air
 Reporting Units: % v/v

ASTM D1946

Lab No.:	J081303-21	J081303-22	J081303-23	J081303-24							
Client Sample I.D.:	GEW 54	GEW 55	GEW 40	GEW 41R							
Date/Time Sampled:	8/7/18 10:59	8/7/18 11:25	8/7/18 11:35	8/7/18 11:47							
Date/Time Analyzed:	8/14/18 22:05	8/14/18 22:19	8/14/18 22:34	8/15/18 8:21							
QC Batch No.:	180814GC8A2	180814GC8A2	180814GC8A2	180814GC8A2							
Analyst Initials:	AS	AS	AS	AS							
Dilution Factor:	3.4	3.4	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	2.0	d	0.034	4.5	3.4	ND	d	0.032	ND	d	0.034
Carbon Dioxide	40		0.034	38	0.034	36		0.032	37		0.034
Oxygen/Argon	ND		1.7	2.5	1.7	ND		1.6	ND		1.7
Nitrogen	4.7		3.4	8.4	3.4	5.4		3.2	5.3		3.4
Methane	52		0.0034	46	0.0034	57		0.0032	56		0.0034
Carbon Monoxide	ND		0.0034	0.0034	0.0034	ND		0.0032	ND		0.0034

Results normalized including non-methane hydrocarbons

ND = Not Detected (below RL)

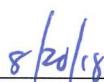
RL = Reporting Limit

d = Reported from a secondary analysis. QC Batch: 180816GC8A1

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Operations Manager

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AirTECHNOLOGY Laboratories, Inc.

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Client: Republic Services
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Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 08/13/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J081303-25	J081303-26	J081303-27	J081303-28				
Client Sample I.D.:	GEW 42R	GEW 43R	GEW 44	GEW 45R				
Date/Time Sampled:	8/7/18 13:28	8/7/18 13:40	8/7/18 13:51	8/7/18 14:04				
Date/Time Analyzed:	8/15/18 8:36	8/15/18 8:50	8/15/18 9:05	8/15/18 9:19				
QC Batch No.:	180814GC8A2	180814GC8A2	180814GC8A2	180814GC8A2				
Analyst Initials:	AS	AS	AS	AS				
Dilution Factor:	3.4	3.4	3.4	3.4				
ANALYTE	Result % v/v	RL % v/v						
Hydrogen	ND d	0.034	0.21 d	0.034	ND d	0.034	ND d	0.034
Carbon Dioxide	40	0.034	41	0.034	38	0.034	39	0.034
Oxygen/Argon	ND	1.7	ND	1.7	ND	1.7	ND	1.7
Nitrogen	ND	3.4	ND	3.4	ND	3.4	ND	3.4
Methane	57	0.0034	55	0.0034	58	0.0034	57	0.0034
Carbon Monoxide	ND	0.0034	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: 180816GC8A1

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 Mark Johnson
 Operations Manager

Date _____

8/20/18

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**AirTECHNOLOGY Laboratories, Inc.**

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Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 08/13/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J081303-29	J081303-30	J081303-31	J081303-32					
Client Sample I.D.:	GEW 46R	GEW 2S	GEW 2	GEW 3					
Date/Time Sampled:	8/7/18 14:14	8/8/18 8:00	8/8/18 8:10	8/8/18 8:22					
Date/Time Analyzed:	8/15/18 9:34	8/15/18 9:49	8/15/18 10:03	8/15/18 10:18					
QC Batch No.:	180814GC8A2	180814GC8A2	180814GC8A2	180814GC8A2					
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	ND	d	0.034	ND	d	0.034
Carbon Dioxide	38		0.034	36		0.034	41		0.034
Oxygen/Argon	ND		1.7	ND		1.7	ND		1.7
Nitrogen	4.3		3.4	3.9		3.4	ND		3.4
Methane	57		0.0034	59		0.0034	56		0.0034
Carbon Monoxide	ND		0.0034	ND		0.0034	ND		0.0034

Results normalized including non-methane hydrocarbons

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AirTECHNOLOGY Laboratories, Inc.

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Client: Republic Services
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 Project Name: Bridgeton Landfill
 Project No.: NA
 Date Received: 08/13/18
 Matrix: Air
 Reporting Units: % v/v

ASTM D1946

Lab No.:	J081303-33	J081303-34	J081303-35	J081303-36					
Client Sample I.D.:	GEW 4	GEW 47R	GEW 5	GEW 48					
Date/Time Sampled:	8/8/18 8:33	8/8/18 8:53	8/8/18 9:37	8/8/18 9:48					
Date/Time Analyzed:	8/15/18 10:32	8/15/18 10:47	8/15/18 11:01	8/15/18 11:16					
QC Batch No.:	180814GC8A2	180814GC8A2	180814GC8A2	180814GC8A2					
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	0.072	d	0.034	ND	d	0.034	ND	d	0.034
Carbon Dioxide	39	0.034	38	0.034	34	0.034	39	0.034	
Oxygen/Argon	ND	1.7	ND	1.7	ND	1.7	ND	1.7	
Nitrogen	5.3	3.4	8.2	3.4	13	3.4	ND	3.4	
Methane	55	0.0034	53	0.0034	52	0.0034	58	0.0034	
Carbon Monoxide	ND	0.0034	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: 180816GC8A2

Reviewed/Approved By: _____


 Mark Johnson
 Operations Manager

Date: 8/20/18

The cover letter is an integral part of this analytical report



AirTECHNOLOGY Laboratories, Inc.

page 1 of 1

Client: Republic Services
 Attn: Mike Lambrich
 Project Name: Bridgeton Landfill
 Project No.: NA
 Date Received: 08/13/18
 Matrix: Air
 Reporting Units: % v/v

ASTM D1946

Lab No.:	J081303-37	J081303-38	J081303-39	J081303-40								
Client Sample I.D.:	GEW 6	GEW 49	GEW 9	GEW 10								
Date/Time Sampled:	8/8/18 9:59	8/8/18 10:15	8/8/18 10:30	8/9/18 9:28								
Date/Time Analyzed:	8/15/18 11:31	8/15/18 11:45	8/15/18 14:09	8/15/18 14:24								
QC Batch No.:	180814GC8A2	180814GC8A2	180815GC8A1	180815GC8A1								
Analyst Initials:	AS	AS	AS	AS								
Dilution Factor:	3.5	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	ND	d	0.035	ND	d	0.035	0.71	d	0.034	ND	d	0.034
Carbon Dioxide	37		0.035	39		0.035	41		0.034	42		0.034
Oxygen/Argon	ND		1.7	ND		1.7	ND		1.7	ND		1.7
Nitrogen	6.5		3.5	ND		3.5	ND		3.4	ND		3.4
Methane	56		0.0035	57		0.0035	55		0.0034	55		0.0034
Carbon Monoxide	ND		0.0035	ND		0.0035	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: 180816GC8A2

Reviewed/Approved By: _____


 Mark Johnson
 Operations Manager

Date: 8/20/18

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AirTECHNOLOGY Laboratories, Inc.

page 1 of 1

Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 08/13/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J081303-41	J081303-42	J081303-43	J081303-44				
Client Sample I.D.:	GEW 110	GIW 13	GIW 12	GEW 56R				
Date/Time Sampled:	8/9/18 9:37	8/9/18 9:47	8/9/18 9:57	8/9/18 10:07				
Date/Time Analyzed:	8/15/18 14:39	8/15/18 14:53	8/15/18 15:08	8/15/18 15:22				
QC Batch No.:	180815GC8A1	180815GC8A1	180815GC8A1	180815GC8A1				
Analyst Initials:	AS	AS	AS	AS				
Dilution Factor:	3.4	3.6	3.4	3.4				
ANALYTE	Result % v/v	RL % v/v						
Hydrogen	25	3.4	12	3.6	24	3.4	15	3.4
Carbon Dioxide	46	0.034	51	0.036	48	0.034	44	0.034
Oxygen/Argon	ND	1.7	ND	1.8	ND	1.7	ND	1.7
Nitrogen	3.7	3.4	ND	3.6	15	3.4	ND	3.4
Methane	24	0.0034	33	0.0036	11	0.0034	38	0.0034
Carbon Monoxide	0.068	0.0034	0.035	0.0036	0.11	0.0034	0.031	0.0034

Results normalized including non-methane hydrocarbons

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: _____



Mark Johnson
Operations Manager

Date: 8/20/18

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AirTECHNOLOGY Laboratories, Inc.

page 1 of 1

Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 08/13/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946								
Lab No.:	J081303-45		J081303-46		J081303-47		J081303-48	
Client Sample I.D.:	GIW 11		GIW 10		GIW 1		GIW 2	
Date/Time Sampled:	8/9/18 10:16		8/9/18 11:31		8/9/18 11:42		8/9/18 13:36	
Date/Time Analyzed:	8/15/18 15:37		8/15/18 15:51		8/15/18 16:06		8/15/18 16:21	
QC Batch No.:	180815GC8A1		180815GC8A1		180815GC8A1		180815GC8A1	
Analyst Initials:	AS		AS		AS		AS	
Dilution Factor:	3.5		3.6		3.6		3.6	
ANALYTE	Result % v/v	RL % v/v						
Hydrogen	10	3.5	15	3.6	25	3.6	7.7	3.6
Carbon Dioxide	40	0.035	34	0.036	58	0.036	24	0.036
Oxygen/Argon	ND	1.7	ND	1.8	ND	1.8	10	1.8
Nitrogen	26	3.5	37	3.6	7.4	3.6	55	3.6
Methane	22	0.0035	12	0.0036	8.2	0.0036	3.3	0.0036
Carbon Monoxide	0.037	0.0035	0.038	0.0036	0.099	0.0036	0.046	0.0036

Results normalized including non-methane hydrocarbons

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: _____


Mark Johnson
Operations Manager

Date _____

8/20/18

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AirTECHNOLOGY Laboratories, Inc.

page 1 of 1

Client: Republic Services
Attn: Mike Lambrich
Project Name: Bridgeton Landfill
Project No.: NA
Date Received: 08/13/18
Matrix: Air
Reporting Units: % v/v

ASTM D1946

Lab No.:	J081303-49	J081303-50		J081303-51			
Client Sample I.D.:	GIW 3	GIW 4		GIW 5			
Date/Time Sampled:	8/9/18 13:46	8/9/18 13:58		8/9/18 14:09			
Date/Time Analyzed:	8/15/18 16:35	8/15/18 16:50		8/15/18 17:04			
QC Batch No.:	180815GC8A1	180815GC8A1		180815GC8A1			
Analyst Initials:	AS	AS		AS			
Dilution Factor:	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	
Hydrogen	20	3.5	39	3.4	39	3.4	
Carbon Dioxide	50	0.035	50	0.034	45	0.034	
Oxygen/Argon	ND	1.7	1.8	1.7	3.2	1.7	
Nitrogen	14	3.5	5.9	3.4	11	3.4	
Methane	13	0.0035	2.8	0.0034	1.5	0.0034	
Carbon Monoxide	0.070	0.0035	0.16	0.0034	0.042	0.0034	

Results normalized including non-methane hydrocarbons

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: _____


Mark Johnson
Operations Manager

Date 8/20/18

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AirTECHNOLOGY Laboratories, Inc.

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QC Batch No: 180814GC8A1
 Matrix: Air
 Reporting Units: % v/v

ASTM D1946 LABORATORY CONTROL SAMPLE SUMMARY															
Lab No.:	METHOD BLANK			LCS		LCSD			Limits						
Date Analyzed:	8/14/18 15:15			8/14/18 14:31		8/14/18 14:46									
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 %	Low %Rec	High %Rec	Max. RPD				
Hydrogen	ND	1.0	5.0	5.73	115	5.38	108	6.4	70	130	30				
Carbon Dioxide	ND	0.010	10	9.83	98	8.94	89	9.5	70	130	30				
Oxygen/Argon	ND	0.50	15	16.2	109	15.3	103	5.4	70	130	30				
Nitrogen	ND	1.0	70	72.2	103	68.3	98	5.6	70	130	30				
Methane	ND	0.0010	0.10	0.113	113	0.111	111	1.7	70	130	30				
Carbon Monoxide	ND	0.0010	0.10	0.107	107	0.105	105	1.7	70	130	30				

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: _____


 Mark Johnson
 Operations Manager

Date: _____

8/20/18

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QC Batch No: 180814GC8A2
 Matrix: Air
 Reporting Units: % v/v

ASTM D1946
LABORATORY CONTROL SAMPLE SUMMARY

Lab No.:	METHOD BLANK		LCS		LCSD						
Date Analyzed:	8/14/18 21:50		8/14/18 21:06		8/14/18 21:21						
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 %	Low %Rec	High %Rec	Max. RPD
Hydrogen	ND	1.0	5.0	5.62	112	5.72	114	1.7	70	130	30
Carbon Dioxide	ND	0.010	10	9.60	96	9.68	97	0.9	70	130	30
Oxygen/Argon	ND	0.50	15	16.3	110	16.3	110	0.2	70	130	30
Nitrogen	ND	1.0	70	73.1	104	73.3	105	0.3	70	130	30
Methane	ND	0.0010	0.10	0.109	109	0.109	109	0.4	70	130	30
Carbon Monoxide	ND	0.0010	0.10	0.104	104	0.104	104	0.4	70	130	30

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: _____

*Mark Johnson*Mark Johnson
Operations Manager

Date: _____

8/20/18

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QC Batch No: 180815GC8A1
 Matrix: Air
 Reporting Units: % v/v

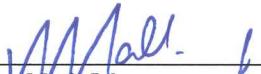
ASTM D1946 LABORATORY CONTROL SAMPLE SUMMARY											
Lab No.:	METHOD BLANK		LCS		LCSD		Limits				
Date Analyzed:	8/15/18 13:55		8/15/18 12:44		8/15/18 13:25						
Analyst Initials:	AS		AS		AS						
Dilution Factor:	1.0		1.0		1.0						
ANALYTE	Result % v/v	RL % v/v	SPIKE AMT. % v/v	Result % v/v	% Rec.	Result % v/v	% Rec.	RPD %	Low %Rec	High %Rec	Max. RPD
Hydrogen	ND	1.0	5.0	5.16	103	5.45	109	5.4	70	130	30
Carbon Dioxide	ND	0.010	10	8.85	88	9.55	95	7.6	70	130	30
Oxygen/Argon	ND	0.50	15	15.3	103	16.2	109	5.6	70	130	30
Nitrogen	ND	1.0	70	68.6	98	72.5	104	5.5	70	130	30
Methane	ND	0.0010	0.10	0.111	111	0.112	112	1.2	70	130	30
Carbon Monoxide	ND	0.0010	0.10	0.106	106	0.107	107	1.1	70	130	30

ND = Not Detected (below RL)

RL = Reporting Limit

Reviewed/Approved By: _____

Date: _____


 Mark Johnson
 Operations Manager

The cover letter is an integral part of this analytical report



QC Batch # 180816GC8A1
Matrix: Air
Units: % v/v

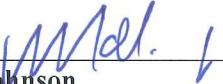
QC for Low Level Hydrogen Analysis

Lab No.:	Blank		LCS		LCSD			
Date Analyzed:	8/16/2018 9:41		8/16/2018 9:15		8/16/2018 9:20			
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	97	70-130	97	70-130	0.3	<20

ND = Not Detected (Below RL)

RL = PQL X Dilution Factor

Reviewed/Approved By:


Mark Johnson
Operations Manager

Date:

8/20/18

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QC Batch # 180816GC8A2
Matrix: Air
Units: % v/v

QC for Low Level Hydrogen Analysis

Lab No.:	Blank		LCS		LCSD			
Date Analyzed:	8/16/2018 12:19		8/16/2018 12:10		8/16/2018 12:14			
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	96	70-130	96	70-130	0.5	<20

ND = Not Detected (Below RL)

RL = PQL X Dilution Factor

Reviewed/Approved By:


Mark Johnson
Operations Manager

Date:

8/20/18

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ATTACHMENT D

GAS WELLFIELD DATA

ATTACHMENT D-1

WELLFIELD DATA TABLE

August 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			
LCS-6B	8/20/2018 14:34	53.3	40.5	0.4	5.8	116.8	117.0	6.8	6.3	-2.8	-2.8	-12.6	
LCS-6B	8/27/2018 10:24	53.3	40.8	0.3	5.6	118.9	119.2	10.0	7.3	-2.7	-2.6	-12.0	
SEW-002	8/3/2018 10:03	16.4	58.3	0.4	24.9	101.6	102.3	7.6	6.6	-0.1	-0.1	-15.9	
SEW-003	8/3/2018 10:32	4.7	45.6	2.9	46.8	122.9	122.9	13.3	13.9	-0.2	-0.2	-18.7	
T-56	8/8/2018 10:05	54.0	36.9	0.0	9.1	81.4	81.7	15.7	14.4	-0.03	-0.04	-13.6	
T-56	8/13/2018 10:59	52.1	36.3	0.0	11.6	86.8	86.8	9.6	11.0	-0.02	-0.02	-13.5	
T-56	8/21/2018 9:23	51.2	36.6	0.0	12.2	78.0	78.1	10.7	9.6	-0.02	-0.02	-13.1	
T-56	8/27/2018 10:44	50.1	35.3	0.0	14.6	84.0	84.0	15.1	14.3	-0.03	-0.03	-13.4	

ATTACHMENT D-2

MAXIMUM WELLHEAD TEMPERATURE TABLE

Wellfield Temperature - Bridgeton Landfill

Well Name					Temp Trend	Comments
	May 2018	June 2018	July 2018	August 2018		
GEW-002	117.2	116.0	118.6	116.9		
GEW-003	118.6	116.8	117.6	115.1		
GEW-004	115.5	117.4	118.4	115.8		
GEW-005	91.0	90.8	97.9	95.5		
GEW-006	89.1	89.0	92.9	92.0		
GEW-007	95.0	96.7	96.1	100.6		
GEW-008	114.4	114.9	114.5	115.8		
GEW-009	123.9	125.0	125.0	126.1		
GEW-010	94.4	105.2	107.7	98.7		
GEW-013A	150.2	159.0	159.2	195.0		
GEW-015	103.6	104.1	97.4	96.2		
GEW-016R	180.3	179.7	178.0	178.6		
GEW-018B	175.3	176.9	174.3	181.5		
GEW-022R	104.5	90.4	106.0	92.2		
GEW-038	93.4	113.0	113.9	111.5		
GEW-039	118.6	120.5	119.3	118.1		
GEW-040	94.3	94.8	101.8	92.4		
GEW-041R	100.8	101.8	106.0	104.8		
GEW-042R	107.0	107.8	109.7	110.0		
GEW-043R	118.1	124.2	125.3	124.4		
GEW-044	97.6	101.4	104.0	103.8		
GEW-045R	95.5	100.1	97.9	100.8		
GEW-046R	101.1	102.2	102.3	101.5		
GEW-047R	113.2	111.5	114.5	113.5		
GEW-048	102.5	102.3	104.6	103.6		
GEW-049	105.3	107.5	109.2	108.6		
GEW-050	106.4	107.0	106.5	108.2		
GEW-051	124.6	123.6	124.6	126.9		
GEW-052	113.5	114.0	113.2	116.3		
GEW-053	142.2	143.4	143.9	144.2		
GEW-054	143.5	144.2	144.5	142.9		
GEW-055	135.0	135.0	135.9	132.6		
GEW-056R	118.4	124.5	123.4	125.8		
GEW-057B	95.4	200.1	185.1	188.9		
GEW-057R	102.3	98.7	100.1	102.2		
GEW-058	94.1	106.9	94.8	99.9		
GEW-058A	89.8	106.5	95.0	100.4		
GEW-059R	164.7	166.1	164.7	165.8		
GEW-067A	112.5	118.6	130.5	114.1		
GEW-068A	185.3	196.4	199.3	200.0		
GEW-077	137.4	--	--	108.6		
GEW-078R	159.0	159.0	156.5	157.7		
GEW-081	101.9	89.1	109.5	92.8		
GEW-082R	175.8	175.8	195.7	176.4		

Wellfield Temperature - Bridgeton Landfill

Well Name					Temp Trend	Comments
	May 2018	June 2018	July 2018	August 2018		
GEW-086	98.7	103.0	114.0	108.7		
GEW-087	128.0	139.3	135.7	126.9		
GEW-088	197.2	196.4	192.9	195.0		
GEW-090	162.8	167.1	167.6	181.5		
GEW-091	195.0	195.0	192.8	194.3		
GEW-100	104.3	103.3	104.1	86.1		
GEW-101	105.7	108.5	111.0	117.1		
GEW-102	106.0	103.3	87.7	84.0		
GEW-104	200.8	193.5	162.4	202.3		
GEW-105	153.3	156.5	145.6	140.2		
GEW-106	86.8	109.2	194.0	179.7		
GEW-107	169.5	139.9	173.6	173.1		
GEW-108	136.5	148.0	143.9	143.9		
GEW-109	130.6	137.1	132.3	135.3		
GEW-110	103.7	115.8	118.1	108.0		
GEW-113	151.7	152.1	150.4	150.2		
GEW-116	194.3	193.7	191.4	191.0		
GEW-117	118.6	124.5	118.3	125.6		
GEW-118	197.9	192.3	197.2	197.3		
GEW-120	159.3	157.7	159.4	161.6		
GEW-121	174.2	173.1	174.8	174.9		
GEW-122	156.5	154.0	151.3	148.0		
GEW-123	156.1	154.4	130.3	140.9		
GEW-124	105.3	88.4	99.4	88.2		
GEW-125	176.4	179.2	179.9	176.4		
GEW-126	121.5	114.0	121.2	119.7		
GEW-127	184.4	179.2	177.7	178.0		
GEW-128	177.5	185.0	180.9	178.0		
GEW-129	197.9	185.5	194.0	170.5		
GEW-130	185.1	185.1	186.4	185.1		
GEW-131	157.3	131.2	156.7	154.7		
GEW-132	179.7	165.2	174.7	167.6		
GEW-133	172.1	168.8	167.1	166.6		
GEW-134	159.4	165.2	161.6	162.4		
GEW-135	151.7	153.7	152.5	152.9		
GEW-136	141.5	128.6	132.9	129.4		
GEW-137	90.3	108.5	114.3	113.7		
GEW-138	127.0	134.7	136.6	135.9		
GEW-139	185.7	187.0	185.1	192.9		
GEW-140	166.1	189.3	188.9	198.8		
GEW-141	108.7	109.0	102.9	101.1		
GEW-142	98.4	105.7	97.9	100.6		
GEW-143	101.1	108.5	107.0	97.2		
GEW-144	101.1	97.7	93.3	88.4		
GEW-145	123.7	123.4	118.6	113.2		
GEW-146	102.1	112.0	105.8	105.5		
GEW-147	181.5	154.8	181.5	157.7		
GEW-148	117.8	178.6	139.9	138.7		

Wellfield Temperature - Bridgeton Landfill

Well Name					Temp Trend	Comments
	May 2018	June 2018	July 2018	August 2018		
GEW-149	138.9	141.9	119.7	133.4		
GEW-150	197.2	190.2	187.0	187.0		
GEW-151	135.0	100.8	183.1	130.3		
GEW-152	119.6	119.9	119.2	121.8		
GEW-153	92.7	108.5	106.0	107.7		
GEW-154	112.4	115.3	110.7	94.1		
GEW-155	128.3	129.4	120.2	115.5		
GEW-156	109.8	113.6	122.6	113.7		
GEW-157	142.6	135.5	124.2	119.0		
GEW-158	160.2	167.4	161.1	156.6		
GEW-159	87.0	98.2	89.8	97.9		
GEW-160	104.8	101.8	111.7	102.8		
GEW-161	145.9	98.7	156.5	130.1		
GEW-162	130.7	112.5	133.5	122.8		
GEW-163	177.9	170.5	166.7	167.1		
GEW-164	159.8	157.6	156.5	155.6		
GEW-165	181.0	179.8	178.0	175.8		
GEW-166	195.7	195.7	195.1	194.4		
GEW-167	191.7	191.5	190.2	190.9		
GEW-168	172.1	168.6	163.0	157.7		
GEW-169	187.6	187.6	187.0	185.7		
GEW-170	183.3	179.7	179.2	178.6		
GEW-171	116.8	162.9	100.9	137.7		
GEW-172	175.8	175.2	183.3	169.0		
GEW-173	116.3	120.7	128.9	131.7		
GEW-174	153.7	150.6	152.3	156.6		
GEW-175	175.8	157.7	176.1	146.7		
GEW-176	97.7	110.9	118.4	105.7		
GEW-177	196.4	195.0	190.9	195.7		
GEW-178	109.7	119.2	121.0	115.2		
GEW-179	139.3	140.8	140.0	137.4		
GEW-180	151.7	152.5	149.1	143.9		
GEW-181	159.4	158.5	160.2	159.8		
GEW-182	149.9	154.8	152.9	122.0		
GEW-184	117.4	122.9	128.7	115.3		
GEW-185	169.8	172.1	174.7	175.5		
GEW-186	150.5	145.8	146.3	137.6		
GEW-187	158.5	156.5	156.9	167.6		
GEW-188	128.3	130.2	135.0	114.0		
GEW-217	--	--	--	104.5		
GEW-218	--	--	--	124.5		
GEW-219	--	--	--	193.6		
GEW-220	--	--	--	110.2		
GEW-221	--	--	--	104.5		
GEW-222	--	--	--	192.3		
GEW-223	--	--	--	200.1		
GEW-224	--	--	--	113.2		
GEW-225	--	--	--	106.0		
GEW-226	--	--	--	143.5		

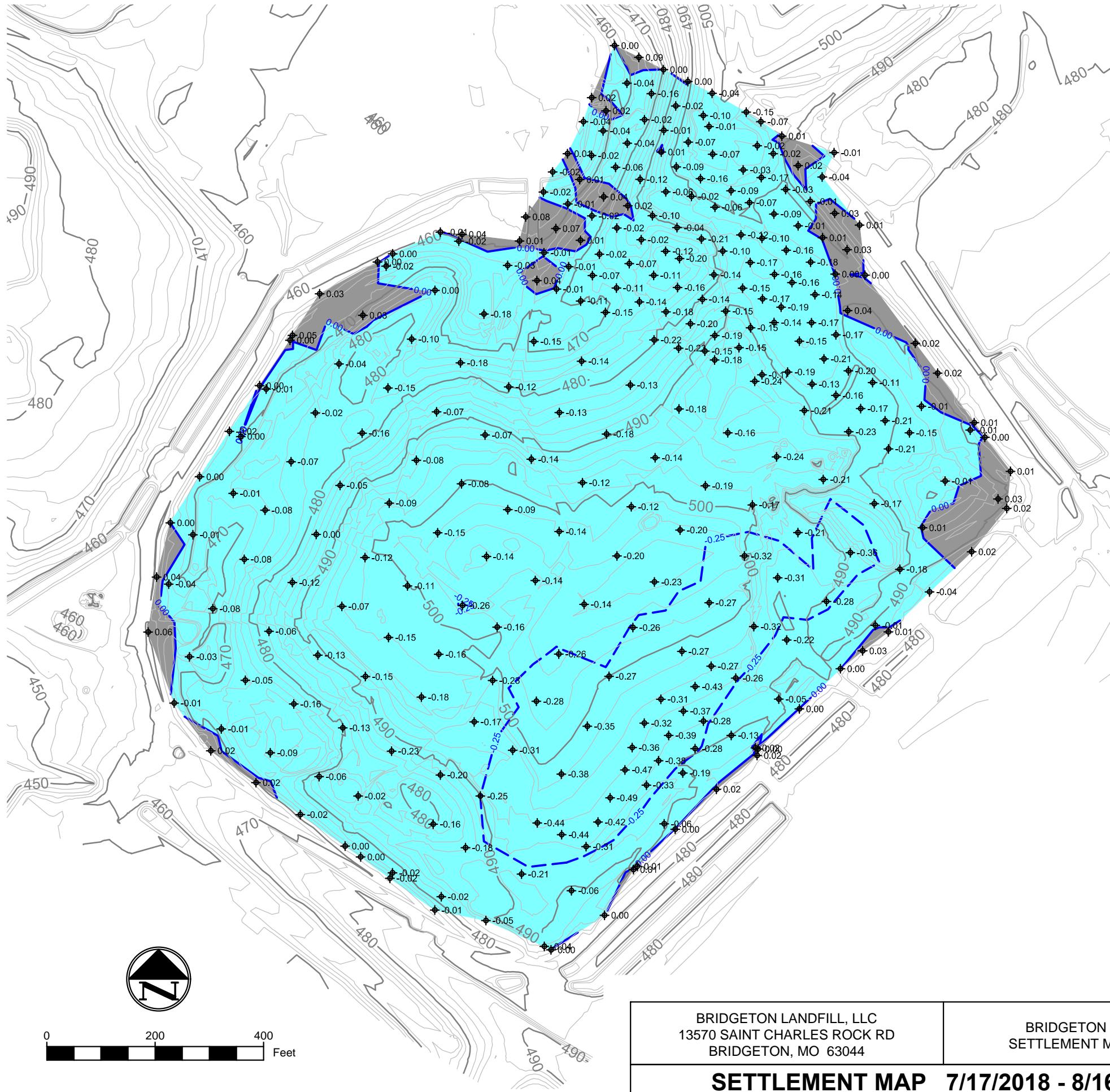
Wellfield Temperature - Bridgeton Landfill

Well Name					Temp Trend	Comments
	May 2018	June 2018	July 2018	August 2018		
GEW-227	--	--	--	205.4		
GEW-228	--	--	--	200.8		
GEW-229	--	--	--	121.1		
GEW-230	--	--	--	174.7		
GEW-231	--	--	--	190.9		
GEW-1A	95.4	97.2	111.0	--		
GEW-2S	83.9	87.9	96.0	87.5		
GIW-01	173.1	174.2	173.1	172.1		
GIW-02	99.4	109.5	111.2	104.3		
GIW-03	94.6	104.6	106.2	98.4		
GIW-04	98.4	102.1	110.8	99.9		
GIW-05	87.7	101.3	104.0	97.2		
GIW-06	92.4	106.0	107.8	99.9		
GIW-07	91.9	103.3	109.0	99.6		
GIW-08	94.5	115.5	113.7	110.8		
GIW-09	95.5	108.5	107.2	106.8		
GIW-10	96.5	103.0	103.0	105.7		
GIW-11	99.4	106.1	105.7	101.6		
GIW-12	96.7	105.9	107.0	96.7		
GIW-13	91.5	102.4	108.3	99.6		
LCS-1D	114.3	139.4	80.0	86.1		
LCS-2D	84.6	88.8	71.6	81.4		
LCS-3D	96.8	89.5	72.3	82.3		
LCS-4B	--	--	--	--		
LCS-5A	102.8	103.3	106.2	102.1		
LCS-5B	149.5	148.8	150.6	150.9		
LCS-6B	111.2	107.8	112.1	118.9		
SEW-002	92.2	109.2	108.2	101.6		
SEW-003	115.5	123.1	126.0	122.9		
T-56	71.4	79.3	85.7	86.8		

-- = Indicates no data available.

ATTACHMENT E

SETTLEMENT FRONT MAP



Thickness Map				
Range	Minimum Depth	Maximum Depth	2D Area (Sq. Ft.)	Color
1	-5.00	-4.00	0.00	Dark Blue
2	-4.00	-3.00	0.00	Medium Blue
3	-3.00	-2.00	0.00	Cyan
4	-2.00	-1.00	0.00	Light Cyan
5	-1.00	0.00	1,438,406.86	White
6	0.00	1.00	99,569.60	Grey

LEGEND

- 12-1-2017 TOPOGRAPHY (2' CONTOUR)
- 12-2-2017 TOPOGRAPHY (10' CONTOUR)
- .25 MINOR ELEVATION CHANGE CONTOUR (0.25 FEET)
- .50 MAJOR ELEVATION CHANGE CONTOUR (0.50 FEET)
- .03 SPOT ELEVATION DIFFERENCE (7-17-2018 to 8-16-2018)
- *SETTLEMENT FRONT CONTOUR FOR AREA WITH 1.35' PER 30 DAYS FOR CURRENT PERIOD OF DAYS
- *NONE FOR AUGUST 2018

NOTES:

- EXISTING CONTOURS DEVELOPED FROM SITE AERIAL TOPOGRAPHIC SURVEY BY COOPER AERIAL SURVEYS CO. ON DECEMBER 1, 2017.
- FOR CLARITY, NOT ALL SITE FEATURES MAY BE SHOWN.
- ELEVATION DIFFERENCE DETERMINED BY SUBTRACTING SPOT ELEVATIONS SURVEYED ON 7-17-18 FROM SPOT ELEVATIONS SURVEYED ON 8-16-18.
- SURVEY POINTS WERE PERFORMED USING GPS METHODS.
- SETTLEMENT RANGE SURFACE WAS GENERATED FROM THE SPOT ELEVATION DIFFERENCES.
- ELEVATION DIFFERENCES THAT ARE SHOWN AS NEGATIVE INDICATE SPOTS OF SETTLEMENT.
- 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.

 Engineering for a Better World	AUGUST 2018	DRAWING NO.: 001
	DESIGNED BY: PML	
	APPROVED BY: DRF	
	REVISION DATE	

ATTACHMENT F

LIQUID CHARACTERIZATION DATA AND DISCHARGE LOG

Bridgeton Landfill - Leachate PreTreatment Plant

August 2018

Liquid Characterization Data

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

Hauled Disposal to MSD – Bissell Point

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

Direct Discharge to MSD

Date	Waste	Source	Quantity (gal)
8/1/2018			103,472
8/2/2018			99,192
8/3/2018			141,760
8/4/2018			208,272
8/5/2018			202,872
8/6/2018			201,336
8/7/2018			141,072
8/8/2018			95,384
8/9/2018			193,608
8/10/2018			175,976
8/11/2018			191,176
8/12/2018			178,744
8/13/2018			171,776
8/14/2018			126,584
8/15/2018			87,368
8/16/2018	LPTP Permeate	Through Tank AST 97k (MSD Sampling Point 013)	106,592
8/17/2018			191,696
8/18/2018			180,648
8/19/2018			181,704
8/20/2018			102,216
8/21/2018			80,144
8/22/2018			77,632
8/23/2018			151,848
8/24/2018			158,952
8/25/2018			189,864
8/26/2018			161,864
8/27/2018			188,848
8/28/2018			190,408
8/29/2018			174,208
8/30/2018			177,288
8/31/2018			179,448
Total			4,811,952

ATTACHMENT G

VOLUMES OF LEACHATE PROCESSED

Bridgeton Landfill - Leachate Volumes
August 2018

Total volume of leachate from the individual leachate collection sumps during the month. Additional non-LCS leachate was collected and the total volume was 1,757,683 gallons. Therefore, the total leachate collected was 2,264,482 gallons.

ID	Volume
LCS -1D	0
LCS-2D	0
LCS-3D	142,476
LCS-4B	0
LCS-5A	302,592
LCS-5B	59,200
LCS-6B	2,531