

Hartland Landfill – Landfill Gas Monitoring

2022 Report

Capital Regional District | Parks & Environmental Services, Environmental Protection



Prepared by
GeoEnvironmental Programs

Capital Regional District
625 Fisgard Street, Victoria, BC V8W 2S6
T: 250.360.3000
www.crd.bc.ca

November 2023

HARTLAND LANDFILL – LANDFILL GAS MONITORING 2022 REPORT

EXECUTIVE SUMMARY

Hartland Landfill provides solid waste disposal services for the Capital Regional District (CRD). The landfill is a multi-purpose facility providing collection services for recyclable materials, household hazardous waste, items covered by product stewardship, and disposal of municipal solid waste (MSW) and controlled waste. The site operates pursuant to an operational certificate under the *Environmental Management Act*, issued by the BC Ministry of Environment and Climate Change Strategy (ENV); and follows an operating plan required under the operational certificate.

The landfill footprint (Phase 1 + Phase 2) occupies 42.9 Ha with an estimated 8 M tonnes of municipal solid waste in place in 2022. When the landfill reaches planned final filling elevations in Phase 2, it is estimated to contain approximately 18 M tonnes of municipal solid waste. This report fulfills annual reporting requirements set out in the BC *Operational Certificate 12659* and the BC *Landfill Gas Management Regulation*. Landfill gas (LFG) collection/management at Hartland (described below) includes collection and utilization infrastructure, generation modelling and monitoring (utilization, perimeter gas probes, hotspot monitoring and speciation).

LFG collection and/or management at Hartland includes the following components:

- **Gas collection infrastructure**, including cover systems, collection pipes, wells, and blowers to facilitate gas collection and utilization.
- **LFG utilization facility** that generates electricity for the BC Hydro grid.
- **LFG monitoring system**, including collection system, hotspot and subsurface monitoring programs.
- **Methane production and gas generation modelling** rates given landfill waste volumes and decomposition rates.

GAS GENERATION, COLLECTION AND UTILIZATION

In 2022, the gas collection system consisted of 58 vertical wells, 86 horizontal wells, and 1 leachate horizontal gas well for a total of 145 wells. One non-productive well was removed from service, two horizontal wells were connected to the system and activated in completed lifts in Phase 2, Cell 3. The well field was balanced monthly in 2022, as recommended by the BC *Landfill Gas Management Facilities Design Guidelines*.

A fugitive emissions gas generation project was completed in 2020. The data were used to complete a comprehensive landfill gas mass balance for the site using three different landfill gas generation models. Report findings confirm that the current ENV model overestimates landfill gas generation and fugitive emissions at Hartland, while an alternative model (UBCi) more accurately estimates gas generation. Therefore, this model was used again in 2022, alongside the ENV model. Results of the UBCi model demonstrate a collection efficiency of 81%, whereas the ENV model reports 70% for the same period. According to the UBCi model (which is supported by empirical mass balance data), Hartland Landfill is meeting and exceeding the 75% collection efficiency requirement set out in the *Landfill Gas Management Regulation*.

Table ES1 Modelled Methane Generation and Collection Efficiency 2022

Year	Modelled Annual Methane Generated ENV (tonnes/year)	Modelled Annual Methane Generated UBCi (tonnes/year)	Measured Annual Gas Capture (tonnes/year)	Collection Efficiency (%) ENV Model	Collection Efficiency (%) UBCi Model
2022	8,325	7,283	5,864	70%	81%

MONITORING

Hartland Landfill has several monitoring programs to assess the effectiveness of the LFG collection infrastructure. The following summarizes the components of the program:

- 1. Collection and utilization system monitoring** to evaluate changes in gas quality over time and to document data for gas collection and gas utilization to assess collection efficiency and total emissions from the landfill.
- 2. Monitoring of subsurface perimeter and building foundation probes** to assess the potential for subsurface LFG migration at the eastern landfill boundary and at on-site buildings for compliance with *BC Landfill Criteria*, and for worker and public health and safety.
- 3. Surface emissions and hotspot monitoring** to verify the effectiveness of cover and the LFG collection system in order to identify health and safety risks associated with fugitive LFG emissions.
- 4. LFG Speciation** to assess the composition of gas, including volatile organic compounds, sulphur gases and typical LFGs, in order to calculate ambient dilution concentrations for health and safety, and infrastructure integrity purposes.

COMPLIANCE SUMMARY

Table ES2 has been prepared to summarize the results of LFG monitoring programs, whether the results comply with requirements, actions taken to address non-compliance, and recommendations.

Table ES2 LFG Compliance Summary 2022

Program	Compliance Location	Criteria	Findings	Mitigation/Actions	Recommendations
Perimeter Probe Monitoring	Probes GP-1A, 1B, 2A, 2B, 3A, 3B, 11A, 11B, 12A and 12B	Methane must not exceed 5% in subsurface soils (<i>BC Landfill Criteria for Municipal Solid Waste & BC Landfill Gas Management Facilities Design Guidelines</i>)	No exceedances Low risk of sub-surface gas migration to adjacent properties	None	Continue quarterly monitoring.
Building Foundation Probe Monitoring	Probes GP-4A, 5A, 6A, 6B, 7A, 7B, 8A, 9A, 13A, 14A, 17A, 18A	Maximum 1% methane in any on-site facility (<i>BC Landfill Criteria for Municipal Solid Waste & BC Landfill Gas Management Facilities Design Guidelines</i>)	No exceedances Low risk of subsurface gas migration to adjacent building	None	Continue quarterly monitoring.
Ambient Grid Monitoring	N/A	100 ppm total hydrocarbon (THC), as methane (CRD internal guideline)	11 grid locations >100 ppm No cover system failures suspected in the closed area of Phase 1	Investigated hot spots and mitigated, where possible.	Continue annual monitoring.
Hot Spot Monitoring	N/A	1,000 ppm THC (CRD internal guideline)	One new hot spot (z-points) >1,000 ppm Currently 22 locations for hot spot investigation	Added new locations of hot spots to the monitoring program.	Continue annual monitoring. Investigate mitigation options.
Well Field Monitoring and Balancing	N/A	Monitor monthly. Oxygen 2.5% - gas optimization and reduction of fire potential (<i>BC Landfill Gas Management Facilities Design Guidelines</i>)	Monitoring completed monthly; Oxygen did not exceed 2.5%	None	Continue monthly monitoring at minimum.
Gas Collection	N/A	75% gas collection efficiency target by the end of 2016, as per <i>Landfill Gas Management Plan</i>	Site specific model (UBCi) estimated collection efficiency at 81%. ENV model estimated collection efficiency at 70%.	<i>Landfill Gas Management Plan</i> submitted to ENV.	Continue to implement the gas management plan and optimize methane and nitrogen, oxygen levels in the well field

HARTLAND LANDFILL – LANDFILL GAS MONITORING 2022 REPORT

Table of Contents

Executive Summary	i
1.0 Introduction	1
2.0 Site description	1
3.0 Regulatory framework.....	1
3.1 LFG Management Regulation	2
3.2 WorkSafeBC	2
3.3 BC Landfill Criteria for Municipal Solid Waste	2
4.0 Health and Safety	2
5.0 LFG Generation	3
5.1 Waste Quantity	3
5.2 Waste Composition.....	3
5.3 Gas Generation Modelling.....	4
6.0 LFG Collection and monitoring Infrastructure	5
6.1 Gas Extraction Wells	5
6.2 Gas Well Field Operation and Monitoring.....	7
7.0 LFG utilization and collection efficiency.....	10
7.1.1 Gas Generation, Quantification and Modelling Study.....	16
7.1.2 Destruction Devices and Usage	16
7.1.3 LFG Management Plan Implementation Status.....	17
7.1.4 Future Projects.....	18
Renewable Natural Gas Project	18
Installation of Well Auto Tuning Devices	18
Installation of Continuous Surface Emission Monitoring Devices	18
8.0 Operational Performance.....	18
9.0 Monitoring Programs	20
9.1 Subsurface Gas Monitoring – Perimeter and Foundation Probes.....	22
9.1.1 Perimeter Probes	22
9.1.2 Foundation Probes.....	22
9.2 Surface Emissions and Hotspot Sampling	26
10.0 Conclusions and Recommendations	30
11.0 References	31
12.0 Report Signoff	32

List of Tables

Table 1	Waste Composition 1980 to Present; and Projection to 2027	4
Table 2	Estimated Methane Generation by Year at Hartland Landfill	4
Table 3	Number and Type of Gas Wells Installed or Operating (2015-2022)	5
Table 4	Gas Wells with the Highest Collection 2022	8
Table 5	LFG System Collection Efficiency 2010-2022 ENV Model	12
Table 6	LFG Collection System Efficiency 2015-2022 UBCi Model	12
Table 7	LFG Flows to Destruction Devices (2015-2022)	16
Table 8	Summary of 2022 Blower Downtime by Month	19
Table 9	Generator Performance 2022.....	19
Table 10	Summary of LFG Monitoring Programs	20
Table 11	Average Gas Concentrations in Subsurface Perimeter Probes 2016-2022	23
Table 12	Maximum Gas Concentrations in Perimeter Probes	23
Table 13	Average Gas Concentrations in Subsurface Foundation Probes 2016-2022	25
Table 14	Maximum Gas Concentrations in Foundation Probes.....	26
Table 15	Summary of Grid Sampling Results 2022	26
Table 16	Summary of Hotspot Results 2022.....	26
Table 17	LFG Compliance Summary	29

List of Figures

Figure 1	Annual Waste Tonnages Received or Estimated for Hartland Landfill from 1980-2022...	3
Figure 2	Hartland LFG Collection Infrastructure	6
Figure 3	Gas Collection in 2022 by Individual Well	9
Figure 4	Hartland LFG Plant.....	11
Figure 5	Fugitive GHG Emission at Hartland Landfill 2015-2022 (UBCi model).....	14
Figure 6	Collection Efficiency Estimates 2015-2022 (UBCi model)	15
Figure 7	Location of Gas Probes	24
Figure 8	Hartland Landfill Ambient Air Monitoring Results, August 2022	27
Figure 9	Historical Hotspot Locations.....	28

List of Appendices

Appendix A	Gas Generation Model Inputs
Appendix B	Well Field Data
Appendix C	Gas Collection Data
Appendix D	Subsurface Perimeter and Foundation Probe Monitoring
Appendix E	Grid and Hotspot Monitoring
Appendix F	Upcoming Project: RNG Facility

HARTLAND LANDFILL – LANDFILL GAS MONITORING 2022 REPORT

1.0 INTRODUCTION

Hartland Landfill provides solid waste disposal services for the Capital Regional District (CRD). The landfill is a multi-purpose facility providing collection services for recyclable materials, household hazardous waste, extended producer responsibility products, salvageable items, as well as disposal services for municipal solid waste and controlled waste. Landfill operations are guided by the *Hartland Landfill Design, Operations and Closure Plan – Update*, the *BC Operational Certificate 12659* issued by the BC Ministry of Environment and Climate Change Strategy (ENV), and the CRD's *Solid Waste Management Plan*.

Landfill gas (LFG) is primarily composed of methane, carbon dioxide and nitrogen, with small amounts of water vapour, oxygen, and trace gases. Trace gases include hydrogen sulphide, ammonia, nitrous oxide, volatile organic compounds and chlorofluorocarbons. Risks associated with LFG include asphyxiation, flammability (between 5% and 15% methane by volume), toxicity, odour, and greenhouse gas (GHG) emissions.

The objective of an LFG collection system is to reduce GHGs through the destruction of collected methane, mitigate fugitive emissions, and reduce the potential for subsurface, lateral gas migration. Ongoing monitoring is conducted at the landfill to assess the effectiveness of these controls, and includes gas generation modelling, gas capture assessment, and ambient and subsurface monitoring.

This report is prepared to assess operational needs and performance, meet regulatory reporting requirements and to inform the public regarding LFG management at Hartland. This report meets the reporting requirements specified in the *BC Operational Certificate 12659* and the *BC Landfill Gas Management Regulation* for annual reporting of gas collection and management.

2.0 SITE DESCRIPTION

The Hartland Landfill is situated on 320 hectares within the District of Saanich. Mount Work Regional Park is located to the west, parkland and the Heal's Rifle Range lies to the north, residential properties lie to the east, and undeveloped CRD property is located to the south.

The climate in the area is classified as "Cool Mediterranean" due to warm, dry summers and cool, wet winters. Annual precipitation is around 800-1,000 mm per year. The site is surrounded by bedrock; discontinuous bedrock fractures have been identified.

The CRD took over operation of the landfill site in 1985. Prior to that, it was privately owned and operated. The landfill footprint (Phase 1 + Phase 2) occupies 42.9 Ha with an estimated 7.3 M tonnes of MSW in place as of the end of September 2021. The average annual disposal rate for the last five years is approximately 165,670 tonnes which comprises residential, commercial and industrial wastes.

The landfill has two operational areas: Phase 1 was operational between the 1950s and 1997 and has final cover. Phase 2 comprises the current active area of the landfill, which began in 1997. Phase 1 is unlined and covered with a combination geomembrane/clay cap. Phase 2 was constructed within a former lake basin (now referred to as the Phase 2 basin); it is partially lined and relies on hydraulic gradients to contain leachate. Development of the Hartland Landfill is guided conceptually by the cell development and filling plan, updated in 2022.

3.0 REGULATORY FRAMEWORK

There are a number of provincial and federal regulations that apply to LFG management, emissions management and reporting. Key regulations are listed below.

3.1 LFG Management Regulation

The BC *Landfill Gas Management Regulation* requires landfills that produce 1,000 tonnes of methane per year have a qualified professional prepare an LFG management plan. According to the regulation, the *Landfill Gas Management Plan* must be prepared in accordance with the BC *Landfill Gas Management Facilities Design Guidelines*, 2010 ('the Guidelines') and include:

- a description of existing or planned methods or maintenance practices and processes for LFG management on the site;
- a plan for installation, operation and maintenance of LFG management facilities (including contingencies for planned or emergency shutdowns); and
- recommendations for optimizing LFG collection to meet a 75% collection efficiency target four years after implementation.

The Guidelines specify a set of design and performance objectives/standards regarding LFG management and operations, including gas collection and composition; extraction and destruction infrastructure; and gas migration and assessment.

3.2 WorkSafeBC

Many of the compounds in LFG, particularly methane, hydrogen sulphide and individual volatile organic compounds, have worker exposure limits set out within WorkSafeBC regulations. The Hartland Landfill must comply with these limits.

3.3 BC Landfill Criteria for Municipal Solid Waste

The BC *Landfill Criteria for Municipal Solid Waste* (2016) stipulates compliance with the *Landfill Gas Management Regulation* and the Guidelines described above. As well, the landfill must be managed to ensure there is no public threat or nuisance/odour. Annual reporting and compliance review is a requirement under Hartland Landfill's *Operational Certificate 12659*. A full compliance report for all Operational Certificate requirements is provided in the 2022 Hartland Landfill Annual Operations Report.

4.0 HEALTH AND SAFETY

LFG is flammable, toxic and poses an asphyxiation risk to landfill employees and contractors on site. Specifically:

- LFG can accumulate in confined spaces or low-lying area with poor air circulation, which can pose an asphyxiation risk due to the displacement of oxygen.
- Both trace gases and major gas constituents can result in acute toxicity if exposure occurs at high enough concentrations.
- Trace gases, usually associated with sulphur compounds, can create odours.
- Methane is explosive at concentrations between 5 and 15%. It is also a GHG with 25 times the global warming potential of carbon dioxide.

There is also potential for gas to laterally migrate off site. When gas pressure builds up in the landfill, gas migrates via cracks, soil pores, and/or fractures to equalize with the surrounding atmosphere. This includes migrating through permeable cover systems or subsurface migration toward adjacent properties. The main objective of an LFG collection system is to mitigate the above risks and reduce the potential for subsurface, lateral gas migration. However, while lateral movement can be mitigated with LFG collection and control, there will still be fugitive LFG emissions on site. A number of factors influence this, such as atmospheric pressure, groundwater level, gas pressure in the refuse mass, and permeability of cover systems. Gas collection system operation and utilization is discussed in Sections 6.0 and 7.0, and monitoring programs are discussed in Section 9.0.

5.0 LFG GENERATION

Decomposition of refuse creates LFG; the composition and amount of gas generated varies based on factors, such as amount, type and age of waste, as well as environmental conditions, such as temperature and moisture content. LFG composition and generation rates are discussed in Sections 7.0 and 9.0.

Peak gas generation occurs during the first one to three years after disposal. Initially, decomposition of waste is an aerobic process and produces mainly carbon dioxide. As oxygen is depleted, the decomposition occurs under anaerobic conditions. The total waste input and waste composition affects overall gas generation rates. For clarity, it is important to note that gas production is the total amount of gas predicted to be produced by the landfill given waste composition, volume of existing waste in place and site-specific meteorological conditions.

5.1 Waste Quantity

The quantity of LFG production is dependent on the amount and type of waste received. In 2022, the Hartland Landfill received 201,981 tonnes of waste, which included 180,004 tonnes of general refuse, 17,832 tonnes of controlled waste and 4,145 tonnes of asbestos.

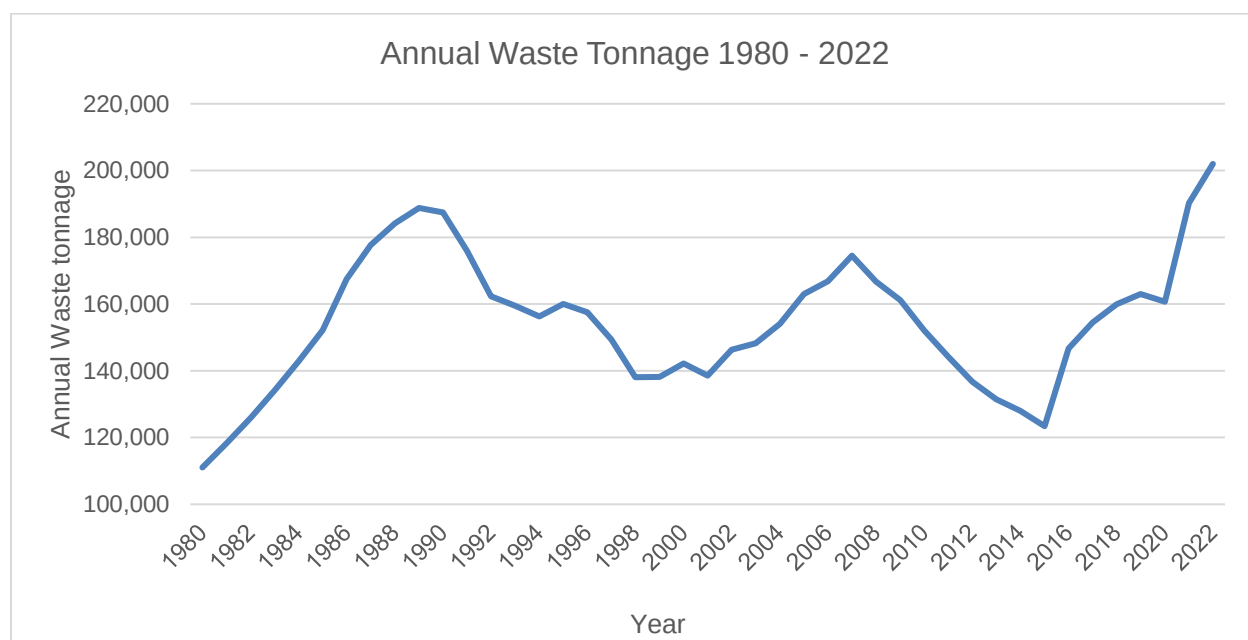


Figure 1 Annual Waste Tonnages Received or Estimated for Hartland Landfill from 1980-2022

5.2 Waste Composition

Waste composition is used to calculate methane generation rates in order to estimate overall LFG generation. Waste composition study results are included in Table 1 and with the gas generation data in Appendix A, including methane generation potential, a summary of waste sources and diversion, as required under the *BC Landfill Gas Management Regulation*.

The Waste composition study conducted by Tetrattech (2022) does not quantify controlled waste. Controlled waste is classified by the CRD as wastes that, due to environmental or health and safety considerations, require special handling. Controlled waste deposited at the site is measured by scale and classified by type. In the previous annual reports, controlled waste was assumed to be mostly composed of relatively inert material. For the 2022 report, controlled waste data was categorized as described below for three consecutive years (2020 through 2022).

For the purpose of this report, and on consultant's recommendation, the following assumptions were applied to categorize controlled waste decomposability:

- All asbestos and demolition wastes are relatively inert.
- Anything with a rock/sand nature or contaminated soil is relatively inert.
- Anything with unknown composition is categorized as Miscellaneous (50% moderately decomposable and 50% relatively inert).
- Waste sludge and pumping from sewage treatment are decomposable.

Controlled waste composition is attributed to each of the waste composition categories (relatively inert, moderately decomposable and decomposable waste) in the models. Table 1 indicates the waste composition used since 1980.

Table 1 Waste Composition 1980 to Present; and Projection to 2027

Date Range	Relatively Inert	Moderately Decomposable	Decomposable
1980 to 1995	33.7%	24.9%	41.4%
1996 to 2000	33.9%	40.5%	25.6%
2001 to 2004	26.6%	39.6%	33.8%
2005 to 2009	33.2%	37.0%	29.9%
2010 to 2013	31.5%	39.1%	29.4%
2014 to 2019	36.5%	41.3%	22.2%
2020-2021	36.8%	42.1%	21.1%
2022-2027	40.9%	42.4%	16.7%

5.3 Gas Generation Modelling

LFG generation rates are estimated using the ENV model stipulated by the BC *Landfill Gas Management Regulation*. Additional modelling was completed in 2020 after a comprehensive landfill gas quantification project supported the use of the UBCi model as a more accurate representation of gas generation for Hartland Landfill Details on modelling inputs and methodology for the ENV model and UBCi model and the landfill gas quantification project are included in Appendix A1 through A6.

Table 2 Estimated Methane Generation by Year at Hartland Landfill

Year	Annual Methane Generation (tonnes/yr) UBCi model	Annual Methane Generation (tonnes/yr) ENV model
2015	5,294	8,103
2016	4,923	8,038
2017	5,377	8,032
2018	5,060	8,056
2019	5,182	8,101
2020	5,289	8,157
2021	5,611	8,192
2022	5,865	8,325

6.0 LFG COLLECTION AND MONITORING INFRASTRUCTURE

Systems to control and monitor fugitive LFG emissions have been implemented at Hartland Landfill. The objective of these controls is to:

- protect employee and public health and safety
- prevent migration of gas off-property or into on-site buildings
- reduce GHG
- capture gas for energy recovery
- control odour

The original LFG management system was installed in 1990 and upgraded in 1996. Under these early LFG systems, collected methane was destroyed via candlestick flare. Since 2004, LFG has been used to generate electricity. The current LFG management system consists of:

- An extraction well network, including vertical and horizontal wells.
- A collection system incorporating branch, lateral and header pipes to convey the collected LFG from the extraction network to the LFG utilization facility or flares.
- An LFG destruction facility with moisture separators, centrifugal blowers, flares, piping and electrical service.
- A 1.6-MW generator for LFG utilization.
- An LFG monitoring program.
- A subsurface gas migration monitoring network that includes gas monitoring probes located adjacent to the eastern property boundary and the perimeter of on-site building foundations.

6.1 Gas Extraction Wells

Table 3 shows the number and type of gas wells installed and operating over the last six years. A complete summary of all gas wells, including installation and deactivation dates, is included in Appendix B. In 2022, two wells were activated: HLGW0078 and HLGW0084; and HLGW0056 was decommissioned. Other than the decommissioned well, all wells were read to monitor gas concentrations at some point during 2022.

Table 3 Number and Type of Gas Wells Installed or Operating (2015-2022)

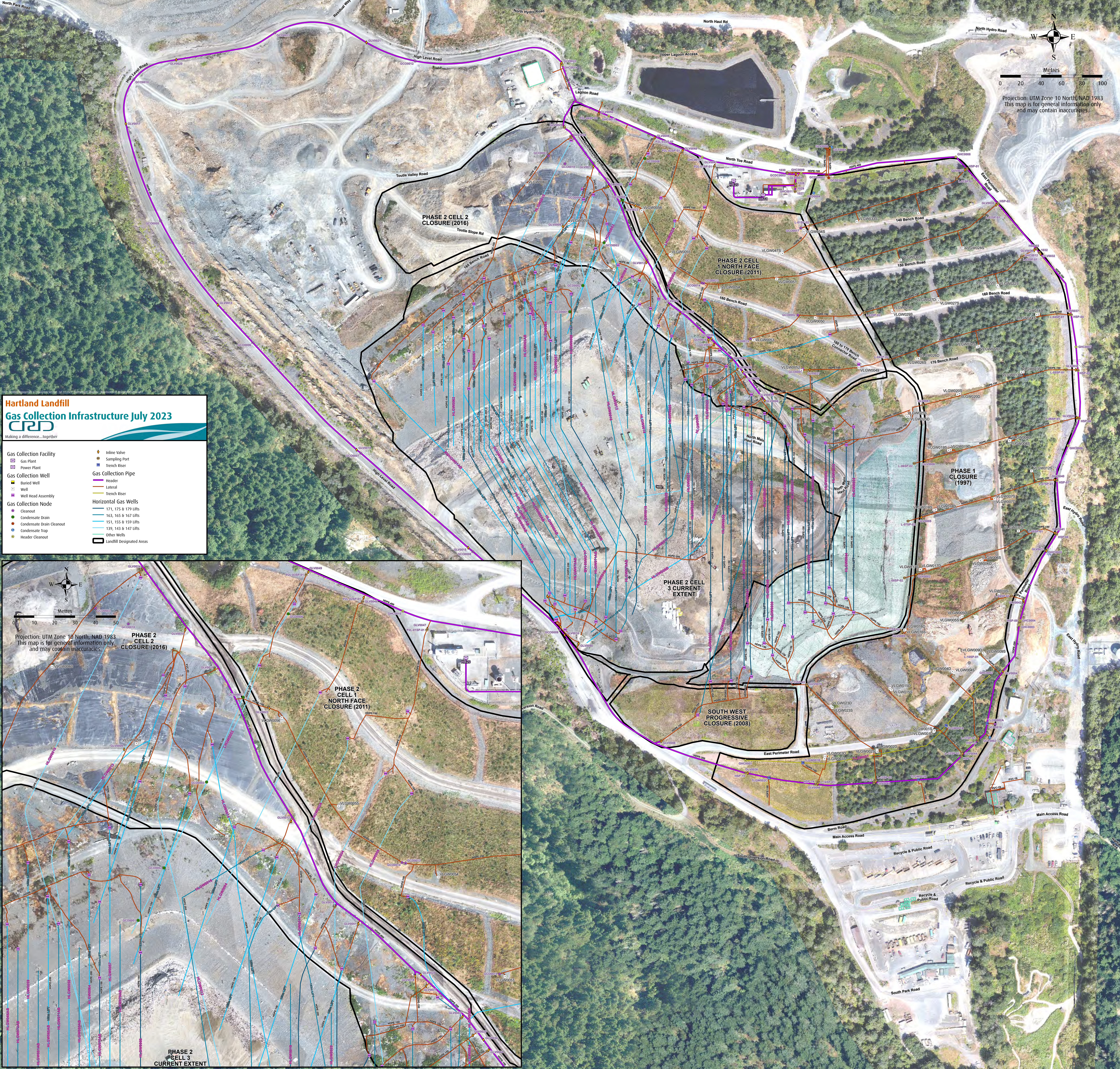
Type of Gas Well	2017	2018	2019	2020	2021	2022
Vertical gas wells operating	67	63	60	60	58	58
Horizontal gas wells operating	62	69	78	78	84	86
Leachate horizontal gas wells operating	12	9	8	6	6	1
Leachate gas trench operating	0	0	0	0	0	0
Wells installed, but not connected ¹	5	15	7	15	7	25
Total	141	141	146	144	148	145

¹ The total number of wells (does count wells currently installed, but not connected the gas collection system yet).

See Figure 2 for the general location and layout of the LFG infrastructure.

Since 2011, the density of horizontal wells has increased from 45-50 m to 20 m on center. Wells are placed on each vertical lift, approximately every 4 m, with each offset from the lower trench alignment. All new horizontal wells over 150 m in length are connected to laterals at both ends (where feasible). By the end of 2021, six new horizontal wells were activated (in Cell 3).

Current vertical well design includes dual zone shallow and deep wells extending approximately 16 m and 30 m into the waste, respectively. Vertical well saturation with leachate has complicated gas extraction and, as a result, no further vertical wells have been installed since the 2012 implementation of the *Landfill Gas Management Plan*.



Hartland Landfill

Gas Collection Infrastructure July 2023

CRD

Making a difference...together

Gas Collection Facility

Gas Plant

Power Plant

Gas Collection Well

Buried Well

Well

Well Head Assembly

Gas Collection Node

Cleanout

Condensate Drain

Condensate Drain Cleanout

Condensate Trap

Header Cleanout

Gas Collection Pipe

Header

Lateral

Trench Riser

Horizontal Gas Wells

171, 175 & 179 Lifts

163, 165 & 167 Lifts

151, 155 & 159 Lifts

139, 143 & 147 Lifts

Other Wells

Landfill Designated Areas

6.2 Gas Well Field Operation and Monitoring

CRD staff monitor gas wells for methane, carbon dioxide, carbon monoxide, oxygen, balance gas, static pressure, differential pressure, temperature and flow on a monthly basis. The well field must be measured and balanced at least once per month and more often if there are changes in gas composition, or if there are fluctuations in the system vacuum. There are many factors that impact gas generation, so frequent well adjustments are critical to minimize oxygen, and optimize flow and methane content. Ideally, constant vacuum is applied at a well so that gas is drawn at approximately the same rate that it is being generated (a target of >50% methane and <3% oxygen is desirable). A comprehensive summary of gas concentration by well is provided in Appendix C. For 2022, on average, the LFG at the gas plant was comprised of 56.4% methane and 0.3% oxygen.

Data from the well field, including individual well gas flows, is provided in Appendices B2 and B3. The well field was balanced 12 times in 2022 on a monthly basis (specific wells are checked more often to optimize gas extraction), as recommended by the *BC Landfill Gas Management Facilities Design Guidelines*.

Table 4 shows that the nine most productive wells contribute approximately 41% of the total gas volume. Figure 3 depicts gas collection by well as it contributes to the total gas collected.

Table 4 Gas Wells with the Highest Collection 2022

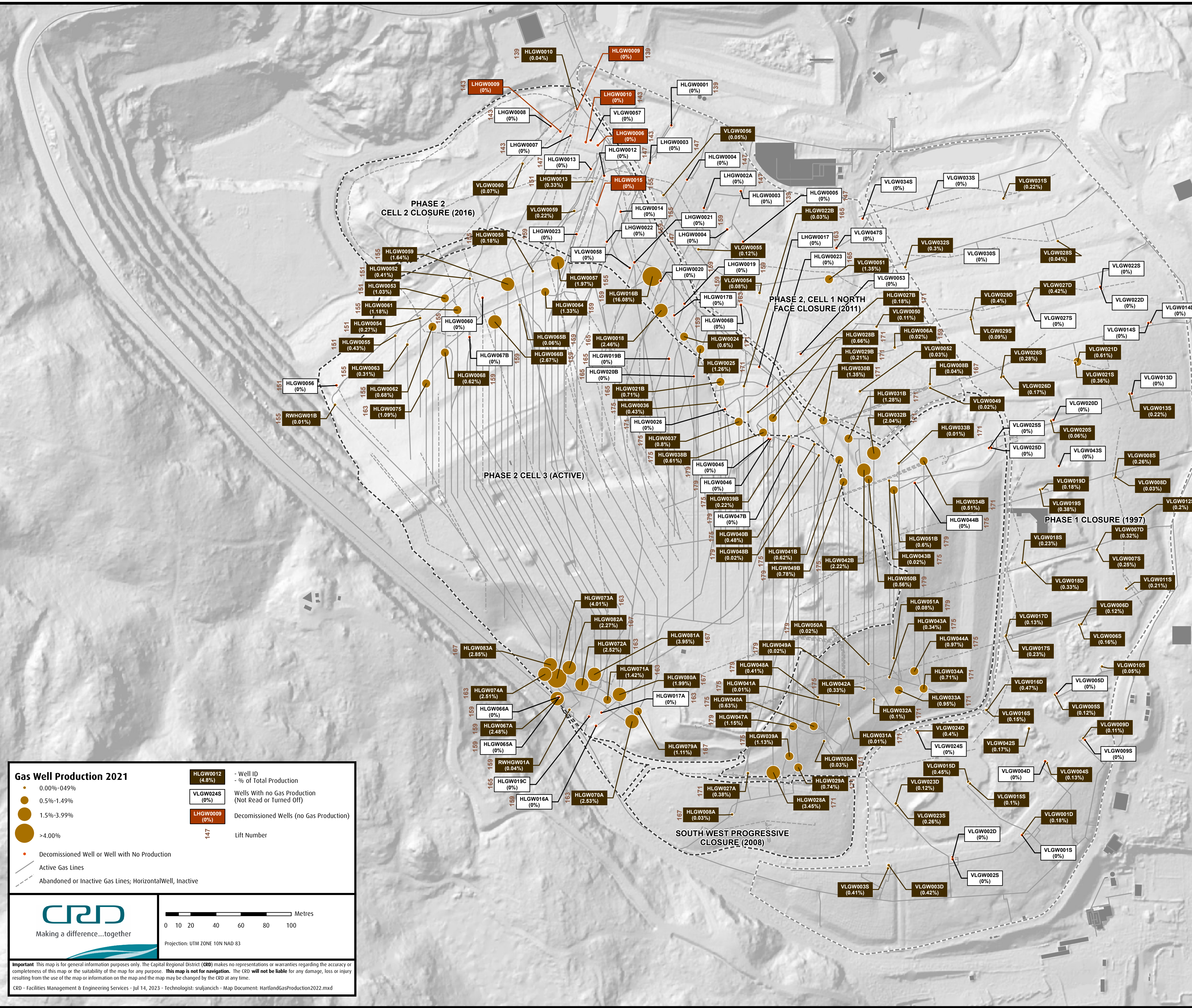
Name	Refuse Lift (mASL)	Year Activated	Average Methane (% by vol)	Average Flow (scfm)	Months in Operation	Methane Annual Flow (scfm)	Methane Flow (m ³)	Energy (GJ)	Well Production (% of Total)	Cumulative Total (%)
HLGW016B	163	2012	55.58	146.91	12	42,895,165	1,214,662	43,606	16%	16%
HLGW073A	163	2019	56.68	35.92	12	10,693,131	302,797	10,870	4%	20%
HLGW081A	167	2019	56.16	35.76	12	10,548,939	298,714	10,724	4%	24%
HLGW028A	171	2017	55.52	31.61	12	9,218,119	261,029	9,371	3%	27%
HLGW083A	167	2019	56.25	25.75	12	7,608,816	215,459	7,735	3%	30%
HLGW066B	159	2018	54.09	25.04	12	7,115,590	201,492	7,234	3%	33%
HLGW070A	163	2019	55.94	23.00	12	6,758,971	191,394	6,871	3%	36%
HLGW072A	163	2019	56.35	24.75	11	6,717,577	190,222	6,829	3%	38%
HLGW074A	163	2019	51.54	24.72	12	6,692,150	189,502	6,803	3%	41%

If a gas well does not produce enough methane, the valve is often turned down or off. Well production is reviewed monthly during well field balancing events. Wells with poor quality or no gas may be monitored over time for improvements before being removed from the program. It is recommended that older, non-producing wells be removed from the monitoring program and labelled as 'inactive' after 18 months.

HARTLAND LANDFILL

GAS COLLECTION IN 2022

BY INDIVIDUAL WELL



7.0 LFG UTILIZATION AND COLLECTION EFFICIENCY

The volume of collected LFG is measured by flow meters at the LFG plant and recorded on the CRD SCADA system. The data is compiled to determine collection and utilization rates, and then compared to the generation model to estimate the collection efficiency of the system. LFG collection refers to all gas drawn into the gas plant, while LFG utilization refers only to the gas used to generate electricity. Table 5 shows a summary of gas collection, utilization and overall collection efficiency. Figures in the following section illustrate the collection efficiency for the last several years (2010-2022) and the full set of data is provided in Appendix C1.

The LFG utilization facility shown in Figure 4 consists of six major components:

1. **Conditioning Skid:** Receives the LFG from the CRD collection/blower system. The conditioning skid cools the gas and reduces moisture, which drains into the condensate collection system. It also reduces the amount of siloxane, which increases wear and tear on generator components.
2. **Refrigeration Plant:** Provides coolant to the conditioning skid by circulating it, as required, to maintain the LFG at 2°C.
3. **Engine:** 20-cylinder, 2,200-HP Caterpillar. The engine runs a direct drive 1,200-rpm, 1.6-MW generator. Electricity produced is fed into the BC Hydro grid.
4. **Transformer:** The unit converts 600 V to 25 kV.
5. **Switch Gear:** Monitors stability of the line input to the BC Hydro grid.
6. **Master Control Building:** Houses the controls that interconnect the utilization facility with the collection system. It also provides system operation controls, such as continuous quality, flow rate and pressure monitoring. The CRD has upgraded its system controls to communicate with the utilization facility.

Gas is drawn into the facility by the blowers and passed through the conditioning skid. An automated valve maintains the required gas pressure for the generator, while excess gas is fed back to the candlestick flare. Gas is only directed to the groundflare during extended periods of generator downtime, during times of generator maintenance or BC Hydro power outages.

Figure 4 Hartland LFG Plant

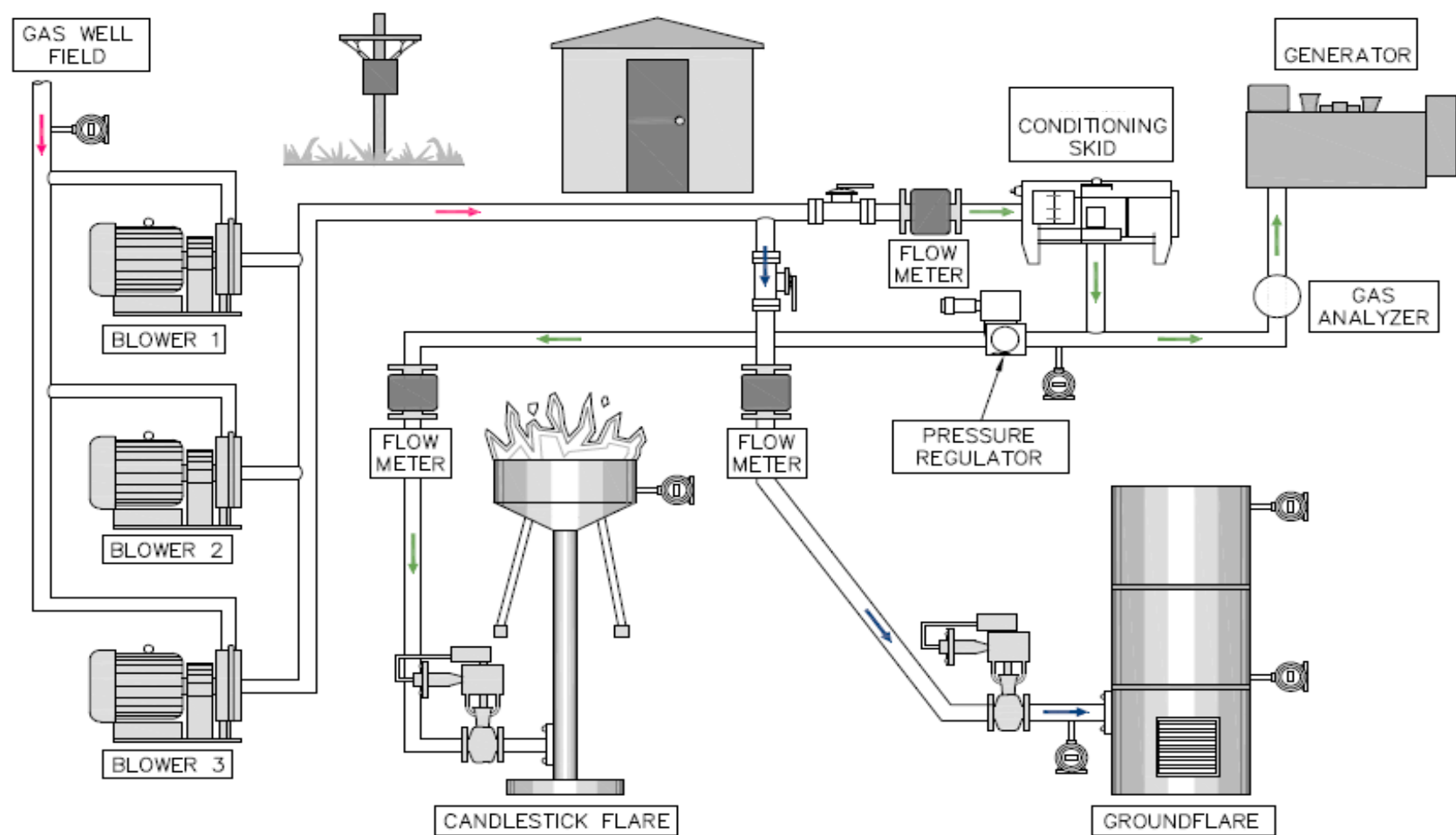


Table 5 LFG System Collection Efficiency 2010-2022 ENV Model

Year	Modelled Methane generation (tonnes/year)	Measured Methane (tonnes/year)	Collection Efficiency (%) ENV Model	GHG Emission (tonnes/year CO ₂ e)	GHG Emission (tonnes/year CO ₂ e) ¹ with biological oxidation
2010	8,054	2,664	32.4	155,829	116,872
2011	8,125	2,835	34.3	152,379	114,284
2012	8,163	4,045	48.8	118,945	89,208
2013	8,170	4,817	58.2	97,019	72,764
2014	8,158	4,596	56.4	100,211	75,158
2015	8,103	5,294	65.6	77,722	58,292
2016	8,038	4,923	61.8	85,064	63,798
2017	8,032	5,377	67.7	71,868	53,901
2018	8,056	5,060	64.0	79,780	59,835
2019	8,101	5,182	65.5	76,532	57,399
2020	8,157	5,289	66.7	74,060	55,545
2021	8,192	5,611	68.5	72,268	54,201
2022	8,325	5,865	70.5	68,880	51,660

¹ Assuming 25% biological oxidation. Please see Appendix A6 US EPA Oxidation Table Reference for Cover System Capture

Table 6 LFG Collection System Efficiency 2015-2022 UBCi Model

Year	Modelled Methane generation (tonnes/year)	Measured Methane (tonnes/year)	Collection Efficiency (%) UBCi Model	GHG Emission (tonnes/year CO ₂ e) ¹	GHG Emission (tonnes/year CO ₂ e) ² with biological oxidation
2015	7,239	5,294	73	54,440	40,830
2016	7,135	4,923	69	61,919	46,439
2017	7,100	5,377	76	48,250	36,187
2018	7,101	5,060	71	57,139	42,855
2019	7,123	5,182	73	54,337	40,753
2020	7,151	5,289	74	52,135	39,102
2021	7,167	5,611	78	43,545	32,659
2022	7,283	5,865	81	39,699	29,774

² Assuming 25% biological oxidation. Please see Appendix A6 US EPA Oxidation Table Reference for Cover System Capture

The data above present collection efficiency using the ENV gas generation model (Table 5), as stipulated in the *Landfill Gas Management Facilities Design Guidelines*, and the UBCi model (Table 6). In 2020, landfill gas emissions were measured across the site and a methane mass balance was completed. Data was compared to three landfill gas generation models (including the required ENV model) and collection efficiency was calculated. Gas generation results from the UBCi model correlate closely with the methane mass balance and result in a higher collection efficiency. The UBCi model was used to retroactively calculate collection efficiency back to 2014. More detail on this project is provided in the next section (7.1.1).

In 2022, collection efficiency using the ENV model and UBCi model was calculated at 70% and 81%, with total uncollected (fugitive) GHG emissions estimated at 51,660 and 29,774 tonnes CO₂e, respectively (Figure 5). Gas collection varies as a result of refuse age, well installation/operation, and well balancing activity.

Overall, the following observations can be made regarding gas production and collection at Hartland:

- Phase 1 gas production is depleting. Waste in this area of the landfill has been in place for more than 30 years and a decline in gas production is expected.
- There is decreased gas production in some high producing wells in Phase 2, which is expected due to age of refuse and advanced methanogenic processes.
- Activation of gas wells in Cell 3 required sufficient refuse in place to prevent oxygen intrusion. Wells in Cell 3 are now producing sufficient gas. More wells will be brought online in 2023.
- Gas collection could be improved with connection of wells on the north side of Cell 3. These wells are ready to be connected and likely producing gas; however connection has been delayed due to the impending construction of Cells 4, 5 and 6.

Figure 5 Fugitive GHG Emission at Hartland Landfill 2015-2022 (UBCi model)

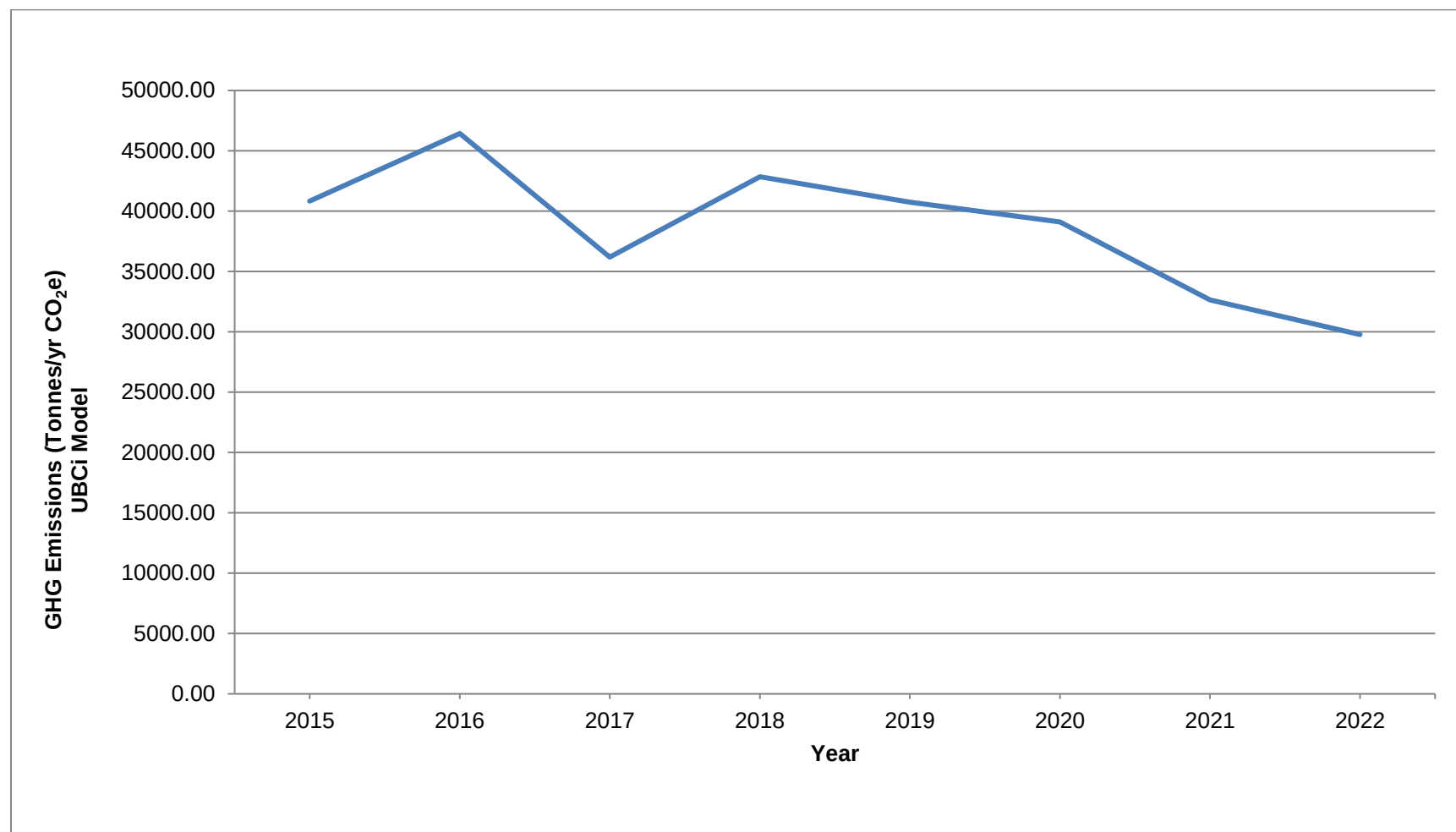
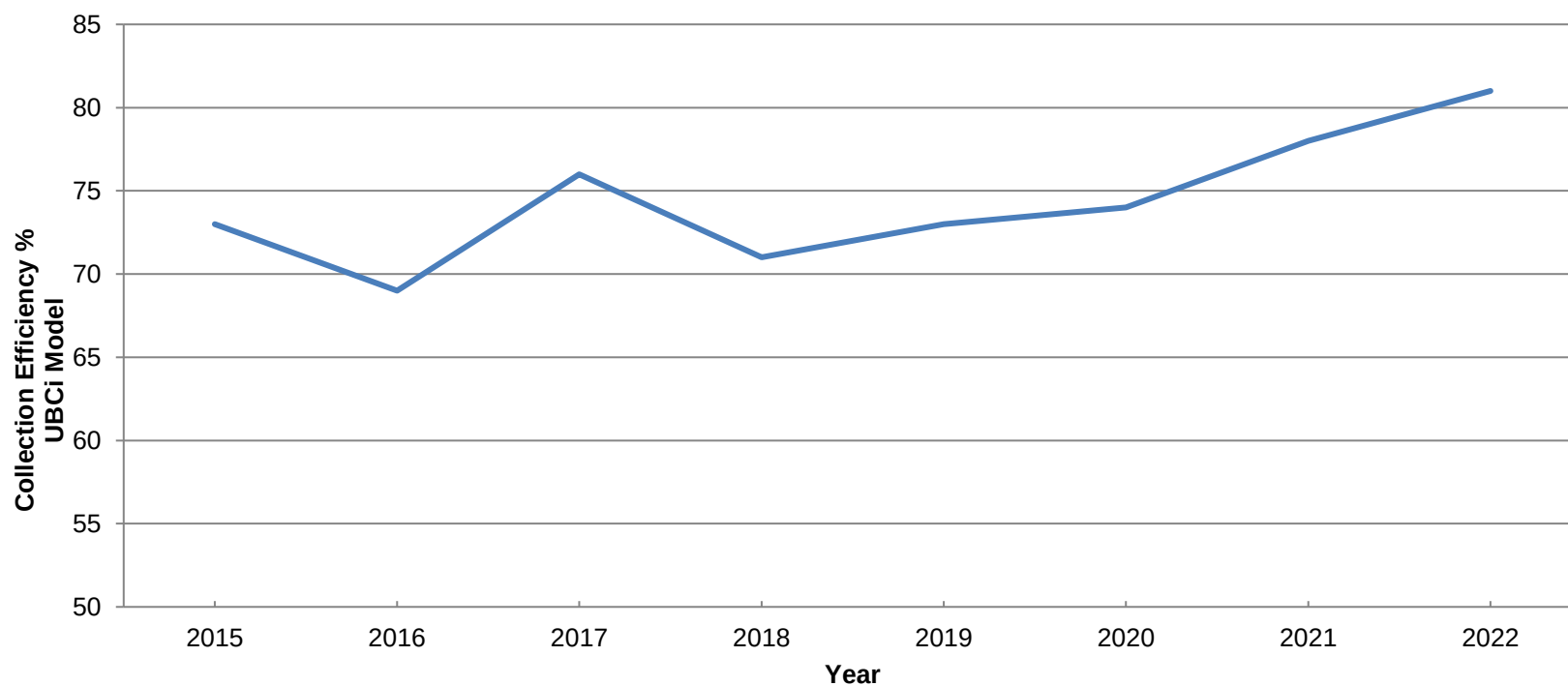


Figure 6 Collection Efficiency Estimates 2015-2022 (UBCi model)



7.1.1 Gas Generation, Quantification and Modelling Study

Fugitive emissions at Hartland were empirically measured during two field events in 2020 (June and October). The data were used to complete a comprehensive landfill gas mass balance for the site across three different landfill gas generation models. Report findings confirm that the current ENV model overestimates landfill gas generation and fugitive emissions at Hartland, while the UBCi model more accurately estimates gas generation. Consequently, the calculated gas collection efficiency is higher for the UBCi model. According to the UBCi model, supported by empirical, mass balance data, Hartland Landfill is exceeding the 75% collection efficiency requirement set out in the *BC Landfill Gas Management Regulation*. The full report is provided in Appendix A. The analysis also found that current landfill cover systems were estimated to biologically oxidize 29% of the total fugitive emissions in 2020. For the 2022 report, based on the advice of our consultant, we are assuming 25% biological oxidation through the landfill cover based on the US EPA Oxidation Table (Appendix A).

The report also identified additional strategies that can be taken by CRD to increase collection efficiency and biological oxidization, including enhancements to the existing landfill gas collection system and application of an engineered biocover system on both closed and operational phases of the landfill. CRD staff and the consultant will be working on improving or designing alternative ways to address fugitive emissions across the landfill.

7.1.2 Destruction Devices and Usage

Table 7 shows the average gas collected from 2014-2022 and flows through destruction devices (generator, candlestick or groundflare). Flaring of gas occurs when gas collection exceeds generator capacity or during generator downtime.

The *BC Landfill Gas Management Facilities Design Guidelines* specify that a candlestick flare should not be used as a primary combustion device but can be utilized as a backup combustion device when flows exceed the capacity of other approved devices. As a result, 50% or more of the total LFG collected should be directed through high efficiency destruction devices (groundflare or generator). Since 2009, the generator and groundflare have been the primary destruction devices. In 2022, a total of 57% of the gas was directed through approved destruction devices.

Table 7 LFG Flows to Destruction Devices (2015-2022)

Annual Average	Year							
	2015	2016	2017	2018	2019	2020	2021	2022
Gas Collected (scfm)*	1,085.5	1,003.3	1,101.8	1,037.1	1,062.2	1,084.0	1,150.1	1,201.7
Gas Burned by Generator (scfm)*	318.9	263.9	467.2	534.6	439.3	439.3	443.4	384.7
Gas Burned by Candlestick Flare (scfm)*	304.0	313.6	461.1	469.5	394.6	394.6	520.2	480.1
Gas Burned by Groundflare (scfm)*	464.1	430.0	176.6	33.0	228.3	228.3	127.6	200.5
Total Gas Flared	70.8%	74.1%	57.9%	48.5%	58.6%	57.5%	56.3%	56.6%
% through candlestick	28.01%	31.26%	41.85%	45.27%	37.15%	37.15%	45.23%	39.95%

*Normalized to 50% methane

7.1.3 LFG Management Plan Implementation Status

The CRD has implemented the conceptual design in the *Landfill Gas Management Plan*. However, since the plan was prepared, some operational changes have occurred, which are summarized below:

2012	Per the <i>Landfill Gas Management Plan</i> , alignment of horizontal wells changed from east-west to north-south due to the master fill plan cell phasing and progression.
2012/2013	Relocation and reconfiguration of controlled waste disposal areas. Controlled waste, initially landfilled in clay-lined cells, is now trenched into refuse. Landfilling was conducted over the controlled waste area expanding the available footprint for Cell 2. This benefits overall collection in that it allows gas wells to be installed in controlled waste areas that would otherwise be inappropriate due to clay.
2014	Installation of vertical gas wells has been delayed pending further review of efficacy due to leachate inundation or minimal gas production. Vertical gas wells installed in recent closed areas (2012) were not productive due to density of horizontal wells and overlapping areas-of-influence.
2014	Since implementation of the <i>Landfill Gas Management Plan</i> , horizontal well installation depths have been reduced (made shallower). The proposed deeper wells were intended to accelerate activation; however, this was not actualized, and the deeper wells triggered odour and safety issues during installation. As a result, this part of the <i>Landfill Gas Management Plan</i> was revised to allow for shallow wells. The shallow wells have fewer health and safety considerations, are less expensive to install, and can be activated in the same timeframe, as deeper wells specified in the plan.
2015/2016	Filling plan sequencing has changed since the plan was prepared. These changes represent schedule variations rather than whole scale deviations from the <i>Landfill Gas Management Plan</i> . Changes include: Phase 2, Cell 2 vertical extension by two lifts to allow time for completion of the cliff quarry and construction of Cell 3.
2017	A bypass line valve was opened at the gas plant to reduce backpressure on the well field and increase gas flows to the plant. As a result, flows increased by 50-100 scfm.
2018	No significant changes to the system were made in 2018.
2019	No significant changes to the system were made, but additional Cell 3 wells are now coming online, which is consistent with the <i>Landfill Gas Management Plan</i> prediction that Cell 3 well activation may take up to five years.
2020	No significant changes to the system were made. LFG generation and emissions study was completed to confirm the effectiveness of the current collection infrastructure and well field balancing programs. Additional well field optimization projects are planned for 2021.
2021	CRD staff continue the well balancing efforts several times a month to optimize the methane generation in each well and subsequently improve the well field gas production (i.e., reducing nitrogen and oxygen content and increasing the methane production).
2022	No significant changes to the system were made. Additional well field optimization and biocover projects are planned for 2023. CRD staff will continue the well balancing efforts several times a month to optimize the methane generation in each well and subsequently improve the well field gas production (i.e., reducing nitrogen and oxygen content and increasing the methane production). Due to the current design and development of Cells 4, 5 and 6 in Phase 2, connection has been delayed for a number of collection wells already installed on the north slope of Cell 3. These wells will be connected during construction of Cells 4, 5, 6 in 2023. Additionally, the CRD is aiming to start updates to the landfill gas management plan for Hartland Landfill in 2023/2024 following completion of the design of the current cell developments.

¹ The gas wells will be monitored and adjusted several times a month, however, the results are reported once a month.

7.1.4 Future Projects

Renewable Natural Gas Project

Work is proceeding on the Renewable Natural Gas upgrading facility at Hartland Landfill. Construction to replace the existing landfill gas-to-energy facility is expected to begin in quarter 3 of 2023 and will take approximately one year to complete. A phasing plan will be in place during decommissioning and construction to ensure ongoing gas destruction in accordance with the Landfill Gas Management Regulation. At this stage, the electricity generation function of the existing gas plant is scheduled to stop at the end of November 2023, however, operation of the groundflare will continue following that, with only 3 planned flare shutdowns (each less than 24 hours) in 2024.

The expected design capacity is maximum 2,000 scfm into the biogas upgrading facility. The facility is designed to meet or exceed the CRD Biomethane Specifications under the range of LFG characteristics outlined in Appendix F1. General layout and isometric view of the biogas upgrading facility in addition to some high level information associated with enclosed flare, candlestick flare, and blower are provided in Appendix F2 through F4.

Installation of Well Auto Tuning Devices

Procurement is underway for installing 12 landfill gas well autotuning devices to conduct a pilot study on the feasibility of this innovative technology. Automated well tuning devices are designed to optimize well field performance by automatically adjusting the extraction rate of each well in the field. These devices can monitor and provide data at a considerably higher frequency (e.g., multiple times a day – depending on the device and the design). These devices use sensors to measure the vacuum and flow rate at each well, and then adjust the extraction rate of each well accordingly to achieve optimal performance. Automated well tuning devices can optimize LFG extraction rates ensuring that the vacuum across the entire well field is balanced, and LFG is collected efficiently. As a result, this will reduce the amount of methane released into the atmosphere, thus reducing greenhouse gas (GHG) emissions. This pilot is expected to begin in the fourth quarter of 2023.

Installation of Continuous Surface Emission Monitoring Devices

The CRD is currently partnering with a potential vendor to install 26 continuous methane surface emission measurement devices at different locations of Hartland Landfill. Each device will be equipped with methane sensors and the default ability to monitor meteorological data using anemometer, temperature, pressure, and humidity sensors. As part of this partnership, the CRD will provide in-kind contributions such as access to the site and provide input to improve and validate the accuracy of this innovative technology; and in return, CRD will get the surface methane emission data at Hartland Landfill that will inform the future decisions in preparation for the new federal landfill gas regulations coming into effect in 2024.

8.0 OPERATIONAL PERFORMANCE

Detailed landfill operational updates and changes are outlined in the *Hartland Landfill 2022 Operations Report*. There were no significant changes to the operation of the LFG system in 2022. The gas collection system operates continuously, except when there is a power failure or alarms that result in system shutdown.

Table 8 summarizes collection system downtime (i.e., no vacuum applied on the collection system), approximately seven days. All downtime can be attributed to power outages and planned/unplanned maintenance.

Table 9 summarizes the 2022 generator performance, including electricity production, which compares actual operating hours to available operating hours for each month.

Table 8 Summary of 2022 Blower Downtime by Month

Month	Downtime (hours)
January	41.94
February	0.00
March	24.52
April	0.00
May	0.00
June	1.49
July	3.09
August	25.52
September	0.00
October	72.10
November	0.00
December	0.47
Total	169.12 (7.05 days)

Table 9 Generator Performance 2022

Month	Engine Run Hours	Electricity Generated (MW-hour) ¹	Production (%)
January	462	1,011	85%
February	300	639	59%
March	365	537	45%
April	673	824	72%
May	714	1,039	87%
June	712	1,078	94%
July	687	1,027	86%
August	550	943	79%
September	406	517	45%
October	419	461	39%
November	705	698	61%
December	703	987	83%
Average	558	814	70%

¹ Reported by BC Hydro

9.0 MONITORING PROGRAMS

Annual monitoring is conducted to evaluate LFG collection and control system performance. Monitoring includes both operational monitoring, e.g., generator performance monitoring and environmental monitoring (e.g., gas quality in surface probes). This section and Table 10 summarize the LFG monitoring activities.

Table 10 Summary of LFG Monitoring Programs

Task & Objectives	Frequency	Primary Parameters	Criteria	Action if Criteria Exceeded	Monitoring By
1. Perimeter subsurface probe monitoring					
To detect potential subsurface LFG migrating off site	Quarterly at perimeter probes	CH ₄ , CO ₂ , O ₂ , pressure and/or vacuum	LEL for methane (5.0%)	Increase sampling frequency. Initiate off-site sampling (see Task 7 below). Evaluate effectiveness of remedial measures.	EPro Staff
2. Building foundation probes					
To detect potential subsurface LFG migration into on-site building foundations	Quarterly at foundation probes	CH ₄ , CO ₂ , O ₂ , pressure and/or vacuum	20% of LEL 10% of LEL – CRD internal standard	Initiate appropriate remedial action.	EPro Staff
3. On-site ambient grid sampling					
To assess on-site LFG concentrations at known grid locations across the landfill surface	Once per year	THC as methane and H ₂ S	100 ppm as THC (methane)	Initiate investigation of remedial measures. Identify locations >100 ppm THC for Task 4.	EPro Staff
4. On-site ambient hotspot monitoring					
To identify localized sources of LFG, or releases that could create potential health, safety, environmental or operational problems	Once per year	THC as methane and H ₂ S	12,500 ppm/1.25% THC (25% of the LEL) 5 ppm H ₂ S	Initiate investigation of remedial measures. Identify locations with THC >1,000 ppm or H ₂ S >5 ppm as Z points (hotspots). Personal gas detectors required in high-risk areas.	EPro Staff

Task & Objectives	Frequency	Primary Parameters	Criteria	Action if Criteria Exceeded	Monitoring By
5. Gas well field monitoring					
Monitor the concentrations and gas flows from all the wells connected to the gas collection system	Minimum of monthly	Temperature, vacuum, flow rate, CH ₄ , CO ₂ , O ₂	Maintain gas flow and methane content, control oxygen intake	Adjust wellhead vacuum.	Hartland Staff
6. Blower, flare and generator station monitoring					
Monitor the performance of the moisture separators, blowers and flare and/or generation station	Continuous	Temperature, pressure, gas flow rate, CH ₄ , O ₂	Operational	Adjust well field if outside operational criteria.	Hartland Staff
7. Off-site properties					
To measure concentrations of gases in the event of LFG migrating off site	Task 1 exceedance	THC and H ₂ S	Detectable above air quality guidelines and WorkSafeBC criteria	Initiate appropriate remedial action.	Hartland Staff
8. On-site building gas monitoring					
To monitor methane and H ₂ S levels to protect workers in on-site buildings	Task 2 exceedance	Methane and H ₂ S	20% of the LEL (1% CH ₄) – the Guidelines 10 ppm H ₂ S – WorkSafeBC	Initiate appropriate remedial action.	Hartland Staff
9. LFG speciation					
To measure concentrations of compounds in the LFG at the inlet to the gas conditioning skid and power generation station	Once every two years	VOC and H ₂ S	WorkSafeBC criteria for individual compounds in ambient air	Initiate Task 10 if calculated ambient concentrations exceed WorkSafeBC limits.	EPro Staff
10. On-site ambient air quality measurement					
Measure ambient VOC	Task 9 exceedance	VOC and H ₂ S	WorkSafeBC criteria for individual compounds in ambient air	Initiate remedial action.	EPro Staff
11. Generator performance evaluation					
Monitor the performance of the groundflare (stack test emissions)	Annual	Various	ENV Air Quality Objectives and WorkSafeBC criteria	Initiate remedial action.	EPro Staff

Notes:

EPro staff = Environmental Protection staff

LEL = lower explosive limit

VOC = volatile organic content

9.1 Subsurface Gas Monitoring – Perimeter and Foundation Probes

Perimeter probes and foundation/trench probes have been used at Hartland Landfill to monitor for subsurface gas migration since 1996. Perimeter and foundation probes are required in the BC *Landfill Criteria for Municipal Solid Waste* (2016). Quarterly monitoring is conducted in five eastern perimeter monitoring probes and 12 foundation monitoring probes (Figure 7). Through long-term improvements to the LFG collection system, LFG migration potential has been mitigated and there is no indication of gas migration off site. Although the risk is minimal, ongoing monitoring is required to meet regulatory requirements and to confirm worker and public health and safety. A complete monitoring methodology, probe locations, details, and data from the perimeter and building foundation probes are provided in Appendix D.

9.1.1 Perimeter Probes

All probes were monitored according to the standard operating procedures four times in 2022; data is presented in Table 11 and Table 13, maximum values are shown in Table 12. There was no detectable methane recorded in 2022. Consistent with historical data, CO₂ levels are slightly higher in the shallower 'B' probes than the deeper 'A' probes. Elevated carbon dioxide levels may give an early indication of the presence of LFG; however, no unusually high CO₂ levels were observed. Ongoing monitoring will continue to determine if any trends develop.

9.1.2 Foundation Probes

Foundation probes were monitored four times in 2022, which is in compliance with ENV requirements (see Table 13 and 14). Carbon dioxide levels were similar to previous years. There were no recorded exceedances of the ENV limit of 1.0% methane during the reporting period. Monitoring will continue to satisfy regulatory requirements and to determine if any trends develop.

Perimeter and foundation probe monitoring results for 2022 were in compliance with the ENV requirements. Methane was not detected. The data indicates minimal risk of subsurface methane migration to adjacent properties or buildings. Quarterly monitoring should continue, to meet regulatory requirements and to evaluate health and safety risks.

Table 11 Average Gas Concentrations in Subsurface Perimeter Probes 2016-2022

Probe	CH ₄ (%)							Probe	CO ₂ (%)							Probe	O ₂ (%)						
	2016	2017	2018	2019	2020	2021	2022		2016	2017	2018	2019	2020	2021	2022		2016	2017	2018	2019	2020	2021	2022
GP-1A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-1A	0.1	0.0	0.0	0.0	0.0	0.1	0.2	GP-1A	20.6	20.3	20.3	20.8	20.8	21.5	20.2
GP-1B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-1B	1.5	0.9	0.8	1.5	2.5	3.0	3.1	GP-1B	18.9	19.3	19.4	19.1	19.1	16.1	15.4
GP-2A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-2A	0.1	0.0	0.0	0.0	0.0	0.1	0.2	GP-2A	20.4	20.4	20.2	20.6	20.8	21.6	20.1
GP-2B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-2B	3.8	1.6	3.1	3.8	4.3	2.2	4.7	GP-2B	13.2	15.6	13.9	12.5	15.7	16.8	9.7
GP-3A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-3A	1.8	1.8	1.4	1.9	1.5	1.9	1.8	GP-3A	14.6	12.8	14.7	13.8	15.5	18.5	13.0
GP-3B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-3B	4.3	3.9	3.9	5.9	6.1	5.0	3.8	GP-3B	15.0	16.2	15.4	15.5	15.3	14.9	15.4
GP-11A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-11A	0.1	0.1	0.0	0.0	0.0	0.1	0.2	GP-11A	20.6	20.3	20.3	20.8	20.9	21.5	20.4
GP-11B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-11B	0.8	1.4	1.1	1.4	2.1	2.0	11.0	GP-11B	19.9	19.2	19.5	19.8	18.6	19.5	18.4
GP-12A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-12A	1.2	2.0	2.0	1.3	2.3	1.8	11.7	GP-12A	15.9	13.4	13.6	16.4	13.5	15.3	14.2
GP-12B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-12B	6.1	4.8	4.9	7.3	7.0	5.2	8.3	GP-12B	11.3	12.9	12.9	9.0	10.5	12.9	8.2

Table 12 Maximum Gas Concentrations in Perimeter Probes

Probe	CH ₄ (%)	CO ₂ (%)
GP-1A	0.00	0.10
GP-1B	0.00	3.10
GP-2A	0.00	0.10
GP-2B	0.00	5.50
GP-3A	0.00	2.20
GP-3B	0.00	8.40
GP-11A	0.00	0.10
GP-11B	0.00	2.40
GP-12A	0.00	5.40
GP-12B	0.00	9.00

Figure 7 Location of Gas Probes

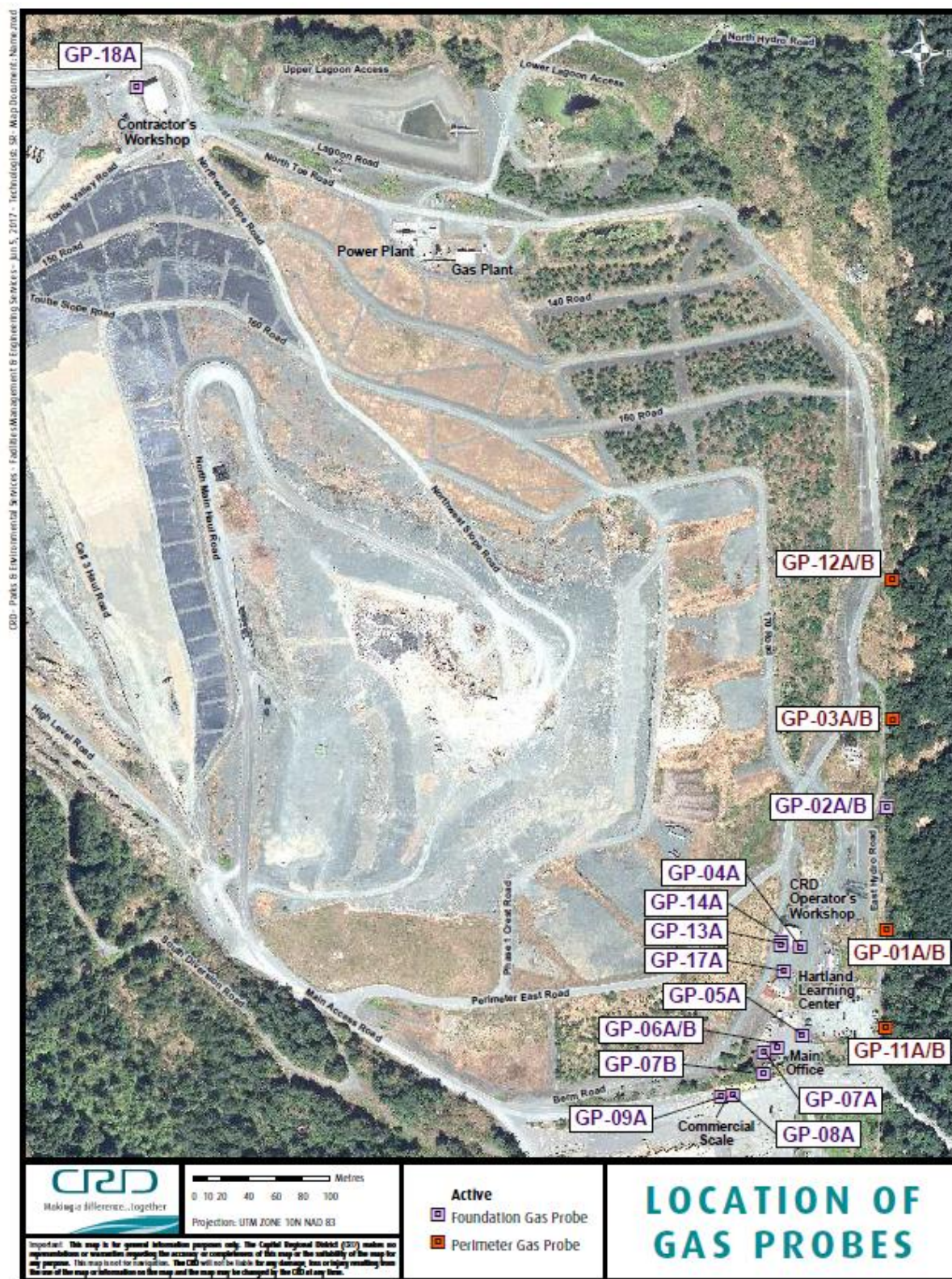


Table 13 Average Gas Concentrations in Subsurface Foundation Probes 2016-2022

Probe	CH ₄ (%)							Probe	CO ₂ (%)							Probe	O ₂ (%)						
	2016	2017	2018	2019	2020	2021	2022		2016	2017	2018	2019	2020	2021	2022		2016	2017	2018	2019	2020	2021	2022
GP-4A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-4A	1.7	2.1	0.1	0.0	2.9	1.1	2.1	GP-4A	18.4	19.4	20.8	21.0	18.3	20.8	18.4
GP-5A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-5A	0.8	0.7	0.7	0.6	0.8	0.8	0.6	GP-5A	19.9	19.8	19.7	20.2	19.9	21.0	20.0
GP-6A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-6A	0.5	1.0	1.0	0.8	0.8	1.3	0.4	GP-6A	19.8	19.1	19.4	20.0	20.0	20.3	20.1
GP-6B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-6B	0.8	0.7	0.7	0.5	0.9	1.5	0.8	GP-6B	19.6	19.6	19.6	20.3	19.8	20.2	19.8
GP-7A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-7A	0.2	0.2	0.3	0.3	0.2	0.5	0.3	GP-7A	20.5	20.1	20.1	20.6	20.6	16.8	20.6
GP-7B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-7B	0.1	0.1	0.1	0.2	0.2	0.3	0.2	GP-7B	20.6	20.3	20.3	20.7	20.7	21.6	20.7
GP-8A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-8A	0.2	0.2	0.1	0.2	0.2	0.3	0.2	GP-8A	20.5	20.3	20.4	20.6	20.7	21.7	20.7
GP-9A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-9A	0.2	0.2	0.1	0.2	0.2	0.2	0.2	GP-9A	20.4	20.1	20.3	20.7	20.7	21.7	20.6
GP-10A	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	GP-10A	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	GP-10A	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹
GP-10B	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	GP-10B	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	GP-10B	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹
GP-10C	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	GP-10C	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	GP-10C	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹
GP-10D	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	GP-10D	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	GP-10D	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹	n/a ¹
GP-13A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-13A	2.0	3.3	2.8	2.4	2.8	2.4	11.8	GP-13A	18.1	16.8	17.3	18.5	17.6	19.0	16.0
GP-14A	0.0	0.0	0.0	0.0	0.0	0.0	n/a ¹	GP-14A	0.9	1.1	0.5	0.8	0.6	0.7	n/a ¹	GP-14A	19.6	19.1	20.0	20.4	19.9	20.3	n/a ¹
GP-17A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-17A	0.1	0.7	0.2	0.1	0.2	0.2	10.9	GP-17A	20.3	19.6	20.0	20.6	20.7	21.7	20.0
GP-18A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	GP-18A	0.2	0.3	0.3	0.3	0.2	0.2	10.7	GP-18A	19.7	19.4	19.2	20.0	20.2	21.0	20.5

Notes:
¹The building associated with these probes has been removed. New building has been constructed and monitored using probe 18A
GP-17A: probe for Hartland Learning Centre (constructed in 2011)
GP-18A: probe for new contractors workshop (constructed in 2011)

Table 14 Maximum Gas Concentrations in Foundation Probes

Probe	CH ₄ (%)	CO ₂ (%)
GP-04A	0.0	3.8
GP-05A	0.0	1.3
GP-06A	0.0	1.3
GP-06B	0.0	1.6
GP-07A	0.0	0.4
GP-07B	0.0	0.3
GP-08A	0.0	0.2
GP-09A	0.0	0.3
GP-10A	n/a ¹	n/a ¹
GP-10B	n/a ¹	n/a ¹
GP-10C	n/a ¹	n/a ¹
GP-10D	n/a ¹	n/a ¹
GP-13A	0.0	6.0
GP-14A	0.0	1.0
GP-17A	0.0	0.4
GP-18A	0.0	0.3

¹ The building associated with these probes has been removed. New building has been constructed and monitored using probe 18A

9.2 Surface Emissions and Hotspot Sampling

Fugitive emissions can occur from advection and/or diffusion via soil pores, gaps and defective cover materials and are monitored routinely through surface monitoring. This monitoring assesses landfill closure integrity, supports worker health and safety, informs operational or capital planning, and supports optimal LFG collection. This monitoring is a simple and low cost means to assess methane and non-methane emissions. Although hotspot locations (also known as Z-points) change over time, they are usually located at breaks or seams of cover systems and near side slopes in Phase 2, where gas collection is a challenge. The locations of all grid points and hotspots, as of August 2022, are shown in Figure 8. A summary of the results is shown in Table 15 and Table 16.

A historical summary of all Z-points is provided in Appendix E. At the end of 2022, there was a total of 26 Z-points identified. There were no elevated hydrogen sulphide concentrations. The absence of hotspots in Phase 1 indicates that the cover and gas collection system in the permanent closure is functioning. Annual monitoring should continue. Hotspots have decreased significantly since the implementation of the *Landfill Gas Management Plan* in 2012.

Table 15 Summary of Grid Sampling Results 2022

Survey date	August
Grid points monitored	366
# Grid points >100 ppm THC	19

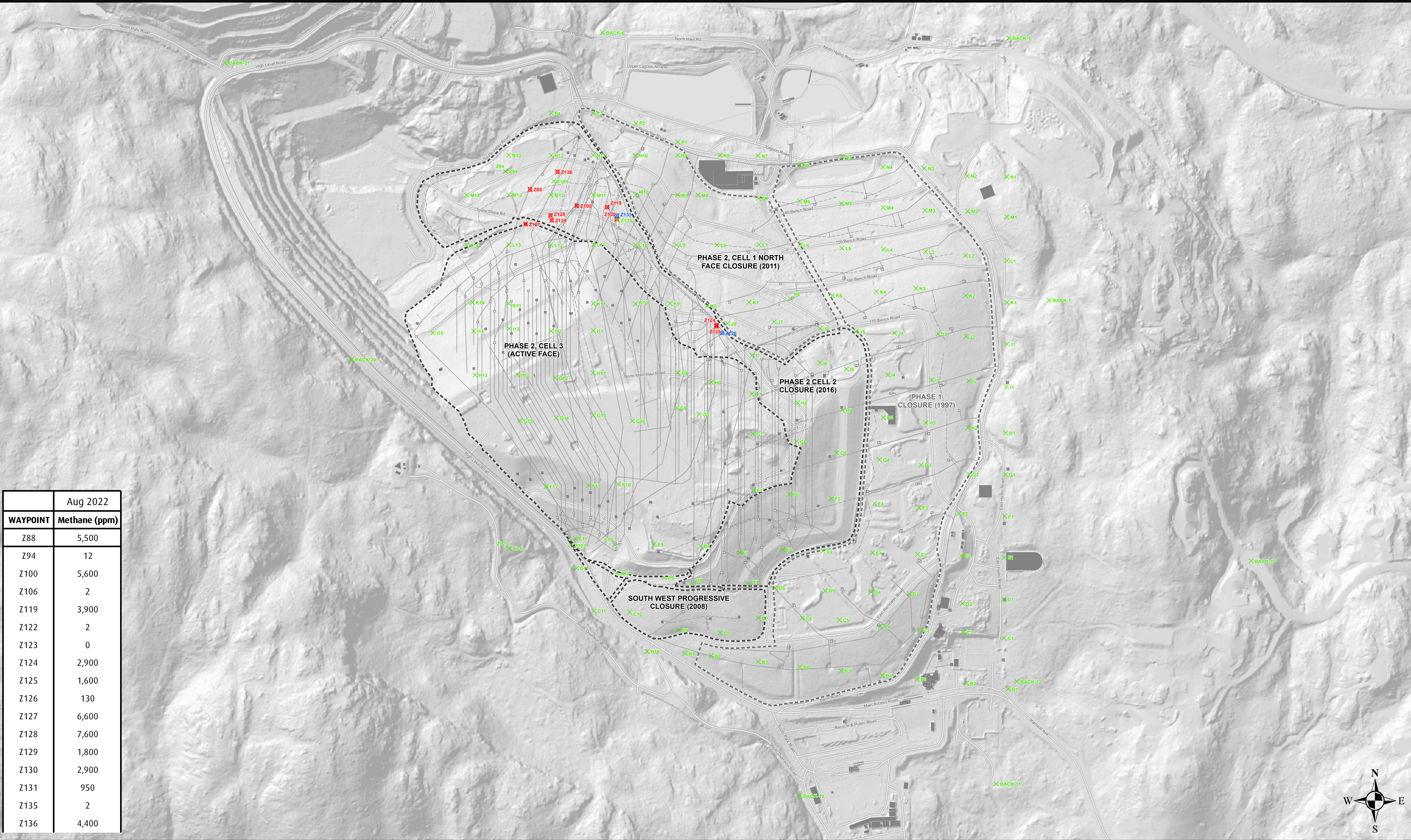
¹ Does not include discontinued, and grid points in Active Face and Controlled Waste areas, where the waypoints could not be accessed at the time of the survey

Table 16 Summary of Hotspot Results 2022

Survey date	August
Total # hotspots ¹	24
New hotspots at end of survey	1
Hotspots discontinued ²	2
Maximum CH ₄ (ppm)	7,600

¹ Total number of hotspots at the end of the survey date

² Hotspots discontinued at the end of the survey date



	Aug 2022
WAYPOINT	Methane (ppm)
Z88	5,500
Z94	12
Z100	5,600
Z106	2
Z119	3,900
Z122	2
Z123	0
Z124	2,900
Z125	1,600
Z126	130
Z127	6,600
Z128	7,600
Z129	1,800
Z130	2,900
Z131	950
Z135	2
Z136	4,400



Making a difference...together

0 20 40 60 80 100 Metres

Projection: UTM ZONE 10N NAD 83

Important: This map is for general information purposes only. The Capital Regional District (CRD) makes no representations or warranties regarding the accuracy or completeness of this map or the suitability of the map for any purpose. **This map is not for navigation.** The CRD will not be liable for any damage, loss or injury resulting from the use of the map or information on the map and the map may be changed by the CRD at any time.

Combustible Gas Result
(parts per million)

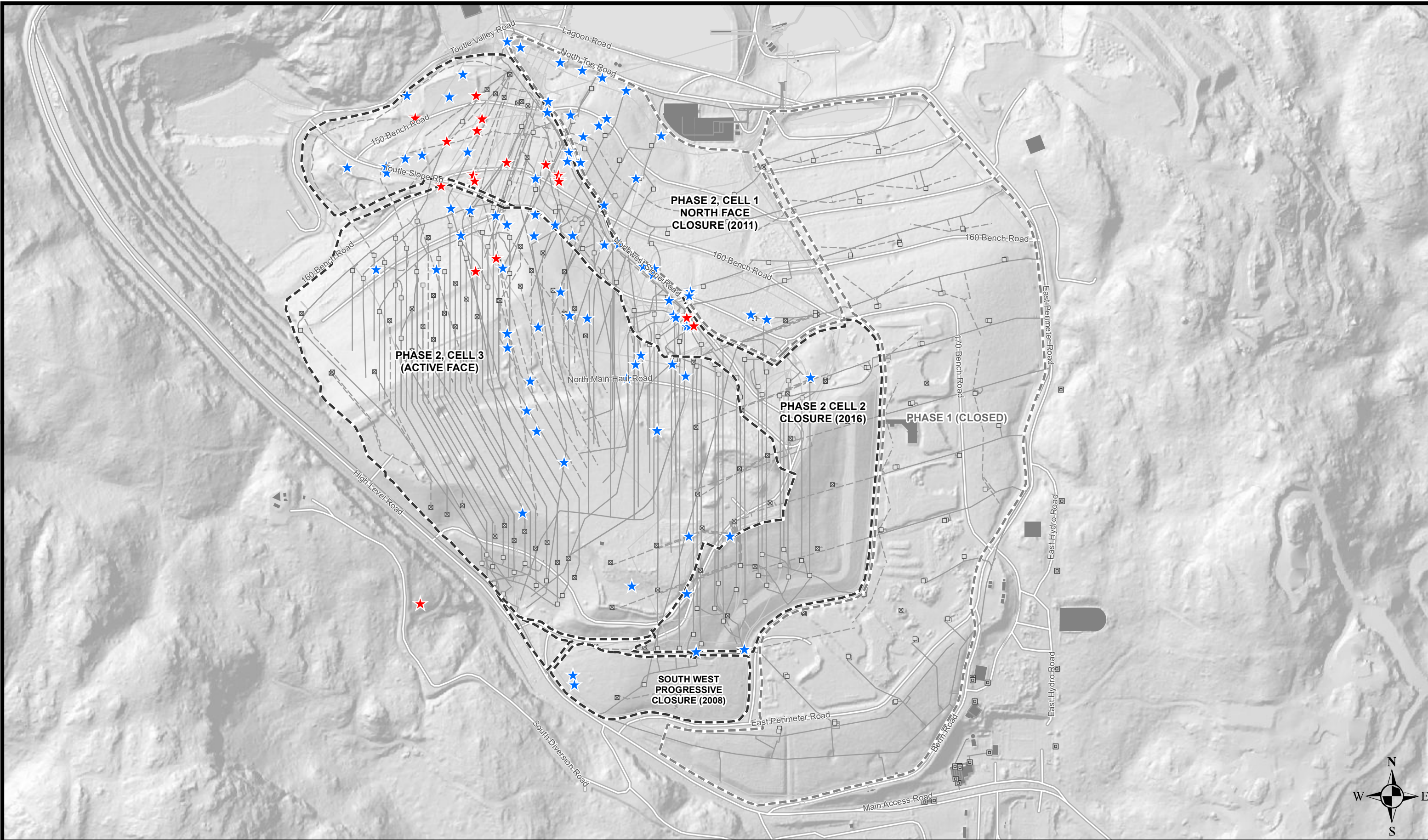
- 0-99 ppm
- 100-999 ppm
- 1,000-12,499 ppm
- >12,500 ppm

- Gas Probes
- Active Gas Wells
- Abandoned or Inactive Gas Wells
- Active Gas Lines
- Abandoned or Inactive Gas Lines

- Leachate Collection Lines
- Roads

- Final Closure Areas
- Progressive Closure Areas
- Structures
- Water Bodies

HARTLAND LANDFILL AMBIENT AIR MONITORING RESULTS - AUG 2022



0 20 40 60 80 100

Metres

Projection: UTM ZONE 10N NAD 83

Important This map is for general information purposes only. The Capital Regional District (CRD) makes no representations or warranties regarding the accuracy or completeness of this map or the suitability of the map for any purpose. **This map is not for navigation.** The CRD will not be liable for any damage, loss or injury resulting from the use of the map or information on the map and the map may be changed by the CRD at any time.

★ Historical Z-Spot Locations (Active)	— Active Gas Lines	⬮ Final Closure Areas
★ Historical Z-Spot Locations (Inactive)	- - Abandoned or Inactive Gas Lines	⬮ Progressive Closure Areas
⊠ Gas Probes	— Leachate Collection Lines	■ Structures
□ Active Gas Wells	— Roads	☁ Water Bodies
⊠ Abandoned or Inactive Gas Wells		

HISTORICAL Z-POINT LOCATIONS

The following table summarizes LFG monitoring results, compliance, mitigation actions and recommendations.

Table 17 LFG Compliance Summary

Program	Compliance Location	Criteria	Findings	Mitigation/Actions	Recommendations
Perimeter Probe Monitoring	Probes GP-1A, 1B, 2A, 2B, 3A, 3B, 11A, 11B, 12A and 12B	Methane must not exceed 5% in subsurface soils (BC <i>Landfill Criteria for Municipal Solid Waste & BC Landfill Gas Management Facilities Design Guidelines</i>)	No exceedances Low risk of sub-surface gas migration to adjacent properties	None	Continue quarterly monitoring.
Building Foundation Probe Monitoring	Probes GP- 4A, 5A, 6A, 6B, 7A, 7B, 8A, 9A, 13A, 14A, 17A, 18A	Maximum 1% methane in any on-site facility (BC <i>Landfill Criteria for Municipal Solid Waste & BC Landfill Gas Management Facilities Design Guidelines</i>)	No exceedances Low risk of subsurface gas migration to adjacent building	None	Continue quarterly monitoring.
Ambient Grid Monitoring	N/A	100 ppm total hydrocarbon (THC), as methane (CRD internal guideline)	11 grid locations >100 ppm No cover system failures suspected in the closed area of Phase 1	Investigated hot spots and mitigated, where possible.	Continue annual monitoring.
Hot Spot Monitoring	N/A	1,000 ppm THC (CRD internal guideline)	One new hot spot (z-points) >1,000 ppm Currently 22 locations for hot spot investigation	Added new locations of hot spots to the monitoring program.	Continue annual monitoring. Investigate mitigation options.
Well Field Monitoring and Balancing	N/A	Monitor monthly. Oxygen 2.5% - gas optimization and reduction of fire potential (BC <i>Landfill Gas Management Facilities Design Guidelines</i>)	Monitoring completed monthly; Oxygen did not exceed 2.5%	None	Continue monthly monitoring at minimum.
Gas Collection	N/A	75% gas collection efficiency target by the end of 2016, as per <i>Landfill Gas Management Plan</i>	Site specific model (UBCi) estimated collection efficiency at 81%. ENV model estimated collection efficiency at 70%.	<i>Landfill Gas Management Plan</i> submitted to ENV.	Continue to implement the gas management plan and optimize methane and nitrogen, oxygen levels in the well field

10.0 CONCLUSIONS AND RECOMMENDATIONS

The following section presents the key findings and recommendations developed from the 2022 LFG monitoring programs at the Hartland Landfill.

GAS GENERATION

Hartland Landfill generates greater than 1,000 tonnes of methane per year and is subject to the BC *Landfill Gas Management Regulation*. In 2022, according to the ENV model the Hartland Landfill is estimated to have generated 8,325 of methane tonnes/year or the equivalent of approximately 233,100 tonnes CO₂e. Of this total, 68,880 tonnes of CO₂e were uncaptured (fugitive emissions). Though not recognized under the regulation, alternative gas modeling using the UBCi model, shows CO₂e emissions (39,699 tonnes CO₂e) to be substantially less than the ENV model.

GAS GENERATION, COLLECTION AND UTILIZATION

In 2022, the gas extraction network consisted of 145 wells that captured an average of 1,202 scfm of LFG. Well field balancing was completed at least monthly to optimize collection. Well field monitoring and balancing should continue at least monthly, as recommended by the BC *Landfill Gas Management Facilities Design Guidelines*.

At the end of 2022, the efficiency was 70% according to the ENV model. Empirical data and methane mass balance indicates that an alternative gas generation (UBCi) more accurately estimates overall gas production for Hartland. Using this model, collection efficiency in 2022 is estimated to be 81%. The CRD continues to follow the *Landfill Gas Management Plan* design specifications for reaching 75% collection efficiency. Staff continue to monitor and adjust the well field to maximize collection and optimize key gas constituents (methane and nitrogen) in accordance with the Guidelines.

OPERATIONAL PERFORMANCE

The gas plant experienced seven days worth of downtime (i.e., no vacuum applied to the well field) due to power outages and unforeseen events. A back-up generator was installed in August 2020 as back-up power to minimize blower downtime and ensure continuous destruction of landfill gas.

MONITORING

No methane concentrations were observed during foundation and perimeter probe monitoring and, as a result, there is little risk of lateral LFG migration. This monitoring is a regulatory requirement and should continue on a quarterly schedule.

During the 2022 surface emissions grid monitoring, 11 grid locations with methane concentrations >100 ppm were identified. Currently there are 22 locations monitored for hot spot investigation.

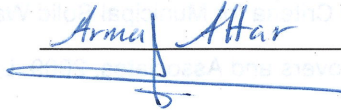
11.0 REFERENCES

- A. Lanfranco & Associates Inc., 2014, 2016, Hartland Landfill Powerhouse Emission Monitoring Report
- BC Ministry of Environment, Conestoga-Rovers and Associates, 2010. Landfill Gas Management Facilities Design Guidelines
- BC Ministry of Environment, 2009. Landfill Management Regulation
- BC Ministry of Environment, 2016. Landfill Criteria for Municipal Solid Waste
- BC Ministry of Environment, Conestoga-Rovers and Associates, 2009. Landfill Gas Generation Assessment Procedures Guidelines
- Capital Regional District, 2000 to 2019. Environmental Resource Management Annual Reports
- Cameron Advisory Services, 1990. Capital Regional District Solid Waste Stream Analysis.
- Capital Regional District, Cameron Advisory Services, 1996. Capital Regional District Solid Waste Stream Analysis Final Report
- Conestoga-Rovers and Associates, 2011. Hartland Landfill Long Term Landfill Gas Management Plan
- Envirochem Services Ltd., 2010. Review of the Hartland Landfill Gas Monitoring Program and Gas Collected in 2009
- Ministry of Environment. Operational Certificate 12659 issued to Capital Regional District
- SCS Engineers, 2010. Assessment of the Landfill Gas Collection System Hartland Landfill
- SENES Consultants Ltd., 2004. Air Quality Impact Assessment Hartland Landfill
- Source Test Limited, 2009, 2010, 2011. Hartland Landfill Powerhouse Emission Report
- Source Test Limited, 2009, 2010, 2011, 2012, 2013. Hartland Landfill Gas Test Results
- Sperling Hansen Associates, 2007. Hartland Landfill Phase 2 Long Term Leachate Management Plan
- Sperling Hansen Associates, 2001. Capital Regional District Solid Waste Stream Composition
- Sperling Hansen Associates, 2005. Capital Regional District Solid Waste Stream Composition Study, 2004-2005
- Sperling Hansen Associates, 2010. Capital Regional District Solid Waste Composition Study 2009-2010 Final Report
- Sperling Hansen Associates, 2022. Hartland Landfill Design, Operating and Closure Plan Update.
- Tetra Tech EBA Inc., 2016, 2016 Solid Waste Stream Composition Study

12.0 REPORT SIGNOFF

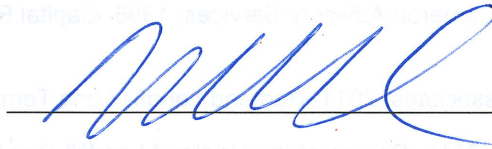
Prepared by:

Arma Attar, M.Sc.
Environmental Contaminants Officer



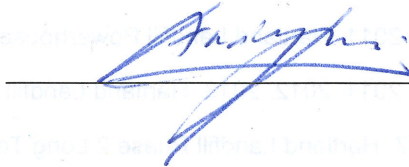
Reviewed by:

Kelly Tradewell, BSc
Supervisor, GeoEnvironmental Programs



Certified/Approved by:

Andy Liu, P.Eng., QEP., CEM
Manager, Environmental Engineering



APPENDIX A

Hartland Landfill Gas Generation Model Inputs

A1	Inputs for Generating Methane Capture Efficiency Models
A2-a	All 2019 Controlled Waste Data
A2-b	Summary of 2019 Controlled Waste Data
A2-c	All 2020 Controlled Waste Data
A2-d	Summary of 2020 Controlled Waste Data
A2-e	All 2021 Controlled Waste Data
A2-f	Summary of 2021 Controlled Waste Data
A2-g	Controlled Waste Composition Used in 2022 Modelling
A2-h	Summary of 2022 Controlled Waste Data
A2-i	Controlled Waste Composition Summary
A3-a	Waste Composition Input to ENV Model
A3-b	Waste Composition Input to UBCi Model
A4-a	Summary of the Inputs to ENV model
A4-b	Results of the ENV Model
A5	Results of the UBCi Model
A6	US EPA Oxidation Table Reference for Cover System Capture

Appendix A Hartland Landfill Gas Generation Model Inputs

A1 Inputs for Generating Methane Capture Efficiency Models

Variables		Relatively Inert	Moderately Decomposable	Decomposable
Gas Production potential (m ³ CH ₄ /tonne), Lo =		20	120	160
Waste Composition, 1980 to	1995	0.336	0.248	0.414
Waste Composition, 1996 to	2000	0.338	0.405	0.256
Waste Composition, 2001 to	2004	0.266	0.396	0.337
Waste Composition, 2005 to	2009	0.331	0.369	0.298
Waste Composition, 2010 to	2013	0.314	0.391	0.294
Waste Composition, 2014 to	future	0.327	0.427	0.201
Lag time before start of gas production, lag =	1	Year		
Historical Data Used (years)	38			
1st Year of Historical Data Used	1980			
4 Years after reporting year	2024			
methane (by volume)	0.5			
carbon dioxide (by volume)	0.5			
methane (density)	0.6557	kg/m ³	(25°C,1ATM)	
carbon dioxide (density)	1.7988	kg/m ³	(25°C,1ATM)	

Appendix A Continued

Appendix A2-a All 2019 Controlled Waste Data

Type	Tonnes	Classification	Misc	Liquid Waste	Screenings	Soil	Asbestos
Out of region asbestos	9.170	Inert					9.170
Spoiled food	2,264.110	Decomposable	2,264.110				
Contaminated drywall	0.650	Inert	0.650				
Contaminated soils	28.490	Inert				28.490	
Dead animals	48.680	Decomposable	48.680				
Fibre optic cable	14.300	Inert	14.300				
Food processing waste	58.840	Decomposable	58.840				
Health hazard waste	166.920	Miscellaneous	166.920				
Miscellaneous controlled waste	90.420	Miscellaneous	90.420				
Pumpings	22.470	Moderately Decomposable		22.470			
Pumpings (sewage)	503.450	Moderately Decomposable		503.450			
Pumpings (drainage sumps)	838.980	Moderately Decomposable		838.980			
Vehicle washing facility waste	16.300	Inert		16.300			
Sewage screenings	1,053.630	Moderately Decomposable			1,053.630		
Spent charcoal	87.780	Moderately Decomposable	87.780				
Waste asbestos	3,804.270	Inert					3,804.270
Sewage sludge	6,084.980	Moderately Decomposable			6,084.980		
Animal fecal waste	33.380	Decomposable	33.380				
Surface coating waste	197.740	Inert	197.740				
Knotweed	0.700	Decomposable	0.700				
	15,325.260		2,963.520	1,381.200	7,138.610	28.490	3,813.440

Appendix A, continued

Appendix A2-b Summary of 2019 Controlled Waste Data

Type	Sum of Tonnes
Decomposable	2,405.71
animal fecal waste	33.38
dead animals	48.68
food processing waste	58.84
knotweed	0.7
spoiled food	2,264.11
Inert	4,070.92
contaminated drywall	0.65
contaminated soils	28.49
fibre optic cable	14.3
out of region asbestos	9.17
surface coating waste	197.74
vehicle washing facility waste	16.3
waste asbestos	3,804.27
Miscellaneous	257.34
health hazard waste	166.92
miscellaneous controlled waste	90.42
Moderately Decomposable	8,591.29
pumpings	22.47
pumpings (drainage sumps)	838.98
pumpings (sewage)	503.45
sewage screenings	1,053.63
sewage sludge	6,084.98
spent charcoal	87.78
Grand Total	15,325.26

Appendix A, continued

Appendix A2-c All 2020 Controlled Waste Data

Type	Tonnes	Classification	Misc	Liquid Waste	Screenings	Soil	Asbestos
Sewage screenings	7.710	moderately decomposable	7.710				
Out of region asbestos	30.860	inert					30.860
Spoiled food	43.340	decomposable	43.340				
Contaminated drywall	0.140	inert	0.140				
Contaminated soils	27.310	inert				27.310	
Dead animals	52.240	decomposable	52.240				
Fibre optic cable	17.640	inert	17.640				
Food processing waste	65.360	decomposable	65.360				
Health hazard waste	87.660	miscellaneous	87.660				
Miscellaneous controlled waste	496.850	miscellaneous	496.850				
Pumpings (sewage)	285.400	moderately decomposable		285.400			
Pumpings residual sludge		moderately decomposable		0.000			
Pumpings (drainage sumps)	735.380	moderately decomposable		735.380			
Sewage screenings	1,033.100	moderately decomposable			1,033.100		
Spent charcoal	27.070	decomposable	27.070				
Waste asbestos	3,061.690	inert					3,061.690
Sewage sludge	10,199.640	moderately decomposable			10,199.640		
Animal fecal waste	30.710	decomposable	30.710				
Surface coating waste	67.290	inert	67.290				
Knotweed	11.860	decomposable	11.860				
Vermiculite	0.260	decomposable	0.260				
International waste	17.910	miscellaneous	17.910				
	16,299.420		926.040	1,020.780	11,232.740	27.310	3,092.550

Appendix A, continued

Appendix A2-d Summary of 2020 Controlled Waste Data

Type	Sum of Tonnes
Decomposable	230.84
animal fecal waste	30.71
dead animals	52.24
food processing waste	65.36
knotweed	11.86
vermiculite	0.26
spent charcoal	27.07
spoiled food	43.34
Inert	3,204.93
contaminated drywall	0.14
contaminated soils	27.31
fibre optic cable	17.64
out of region asbestos	30.86
surface coating waste	67.29
waste asbestos	3,061.69
Miscellaneous	602.42
health hazard waste	87.66
international waste	17.91
miscellaneous controlled waste	496.85
Moderately decomposable	12,261.23
pumpings (drainage sumps)	735.38
pumpings (sewage)	285.4
pumpings residual sludge	
sewage screenings	1,040.81
sewage sludge	10,199.64
Grand Total	16,299.42

Appendix A, continued

Appendix A2-e All 2021 Controlled Waste Data

Type	Tonnes	Classification	Misc	Liquid Waste	Screenings	Soil	Asbestos
Out of region asbestos	64.320	Inert					64.320
Film plastic out		Inert					
Mattress recycle		Inert					
Spoiled food	72.570	Decomposable	72.570				
Contaminated drywall	0.540	Inert	0.540				
Contaminated soils	27.620	Inert				27.620	
Dead animals	76.850	Decomposable	76.850				
Fibre optic cable	44.900	Inert	44.900				
Food processing waste	25.590	Decomposable	25.590				
Health hazard waste	67.660	Miscellaneous	67.660				
Miscellaneous controlled waste	127.540	Miscellaneous	127.540				
Pumpings	40.660	Moderate Decomposable		40.660			
Pumpings (sewage)	3,040.190	Moderate Decomposable		3,040.190			
Pumpings residual sludge		Moderate Decomposable		0.000			
Pumpings (drainage sumps)	830.750	Moderate Decomposable		830.750			
Vehicle washing facility waste		Inert		0.000			
Sewage screenings	1,913.300	Moderate Decomposable			1,913.300		
Sharps	-	Inert	0.000				
Soot	1.640	Decomposable	1.640				
Spent charcoal	31.190	Decomposable	31.190				
Waste asbestos	4,069.300	Inert					4,069.300
Sewage sludge	13,414.890	Moderate Decomposable		13,414.890			
Animal fecal waste	39.360	Decomposable	39.360				
Surface coating waste	116.750	Inert	116.750				
Knotweed	25.920	Decomposable	25.920				
Vermiculite	0.210	Inert	0.210				
International waste	22.010	Miscellaneous	22.010				
Totals	24,053.760		652.730	17,326.490	1,913.300	27.620	4,133.620

Appendix A, continued

Appendix A2-f Summary of 2021 Controlled Waste Data

Type	Sum of Tonnes
Decomposable	273.12
animal fecal waste	39.36
dead animals	76.85
food processing waste	25.59
knotweed	25.92
soot	1.64
spent charcoal	31.19
spoiled food	72.57
Inert	4,323.64
contaminated drywall	0.54
contaminated soils	27.62
fibre optic cable	44.9
film plastic out	
mattress recycle	
vermiculite	0.21
out of region asbestos	64.32
sharps	0
surface coating waste	116.75
Vehicle washing facility waste	
waste asbestos	4069.3
Miscellaneous	217.21
health hazard waste	67.66
international waste	22.01
miscellaneous controlled waste	127.54
Moderate Decomposable	19,239.79
pumpings	40.66
pumpings (drainage sumps)	830.75
pumpings (sewage)	3,040.19
pumpings residual sludge	
sewage screenings	1,913.3
sewage sludge	13,414.89
Grand Total	24,053.76

Appendix A2-g Controlled Waste Composition Used in 2022 Modelling

Year	Controlled Waste Composition		
	Relatively Inert	Moderately Decomposable	Decomposable
2014 to 2019	27.4%	56.9%	15.7%
2020	21.5%	77.1%	1.4%
2021	18.43%	80.43%	1.14%
2022	28%	70%	2%

Appendix A, continued

Appendix A2-h Summary of 2022 Controlled Waste Data

Type	Sum of Tonnes
Decomposable	334.39
animal fecal waste	43.16
dead animals	52.58
food processing waste	30.35
knotweed	23.30
soot	0.04
spent charcoal	62.85
spoiled food	122.11
Inert	4,220.42
contaminated drywall	0
contaminated soils	58.48
fibre optic cable	16.92
out of region asbestos	575.37
waste asbestos	3,569.65
Inert	62.46
sharps	0.00
surface coating waste	57.88
vehicle washing facility waste	4.58
Miscellaneous	3,810.08
health hazard waste	47.88
international waste	2,863.47
miscellaneous controlled waste	637.88
non-hazardous solids, soil, sand	260.85
Moderate Decomposable	13,549.96
pumpings (drainage sumps)	709.09
pumpings (sewage)	517.97
pumpings residual sludge	6.35
sewage screenings	1,906.67
sewage sludge	10,409.88
Grand Total	21,977.31

Appendix A, continued

Appendix A2-i Controlled Waste Composition Summary

Year	Decomposable (tonne)	Decomposable %	Moderately Decomp- osable (tonne)	Moderately Decomp- osable %	Inert (tonne)	Inert %	Miscellaneous (tonne)	Miscellaneous %	Total (tonne)
2019	2,405.71	15.7%	8,591.29	56.1%	4,070.92	27%	257.34	2%	15,326.24
2020	230.84	1.4%	12,261.23	75.2%	3,204.93	20%	602.42	4%	16,300.38
2021	273.12	1.1%	19,239.79	80.0%	4,323.64	18%	217.21	1%	24,054.75
2022	334.39	2%	13,549.96	62%	4,282.88	19%	3,810.08	0.173364256	21,978.1366

Year	Controlled Waste Composition			Total
	Relatively Inert	Moderately Decomposable	Decomposable	
2014 to 2019	27.4%	56.9%	15.7%	100.0%
2020	21.5%	77.1%	1.4%	100.0%
2021	18.43%	80.43%	1.14%	100.0%
2022	28%	70%	2%	100.0%

Appendix A, continued

Appendix A3-a Waste Composition Input to ENV Model

The ENV model waste composition for MSW is as follow, however, the overall waste composition depends on tonnages of MSW and Controlled waste.

	Relatively Inert	Moderately Decomposable	Decomposable
1981 - 2013	35.1%	37.2%	27.7%
2014 - 2015	35.8%	39.8%	24.4%
2016 - 2021	36.8%	42.1%	21.1%
2022 - 2027	40.9%	42.4%	16.7%

Waste Characterization Summary: For “current condition” scenario, using the 2010 and 2016 waste compositions report by Tetra Tech in their 2016 report, three different compositions were developed grouping the waste components into the categories required by the ENV Model. In calculation of each category’s percentages we made the following assumptions based on the details provided in Tetra Tech’s report.

- Moderately Decomposable: Including wood waste, paper, textile, 20% of “composite products”, and 50% of “other” (to account for diapers),
- Decomposable: Including food waste and yard waste.

Appendix A, continued

Appendix A3-b Waste Composition Input to UBCi Model

UBCi Model waste composition (categories) for MSW are as follows:

		UBCiModel - Input DOC used for Hartland Advanced LFG Modeling							
		Food	Garden	Paper	Wood	Textile	Nappies	Inerts	Total
MSW	Up to 2013	21.7%	6.0%	15.5%	12.5%	5.6%	3.9%	34.9%	100.00%
	2014 & 2015	20.6%	3.8%	15.5%	14.9%	5.9%	3.8%	35.5%	100.00%
	2016 to 2021	19.5%	1.6%	15.4%	17.4%	6.3%	3.7%	36.1%	100.00%
	2022 to Future	13.6%	3.1%	14.2%	19.3%	5.5%	3.7%	40.5%	100.00%

Appendix A, continued

Appendix A4-a Summary of the Inputs to ENV Model

Year of Report	2022	
Annual Tonnage in Preceding Year	190,209	(tonnes/year)
Total waste in Place in the Preceding Year	6,439,767	(tonnes/year)
Methane generation in the Preceding Year	8,192	(tonnes CH ₄ /year)
Next Five Years	Waste Tonnage	Methane Generation
	(tonnes)	(tonnes CH ₄ /year)
2022	201,980	8,325
2023	204,202	8,418
2024	206,448	8,517
2025	208,719	8,621
2026	211,015	8,729

Appendix A, continued

Appendix A4-b Results of the ENV Model

				Waste Tonnage			Methane Generation Rate, k			Annual	Annual
		Annual	Cumulative		Moderately			Moderately		Methane	Landfill Gas
Year	Year	Tonnage	Waste-in-place	Relatively Inert	Decomposable	Decomposable	Relatively Inert	Decomposable	Decomposable	Production	Production
	Number	(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)	(year ⁻¹)	(year ⁻¹)	(year ⁻¹)	(tonnes/yr)	(m ³ /hr)
1980	1	111,037	111,037	38,974	41,306	30,757	0.02	0.04	0.09	0	-
1981	2	118,253	229,290	41,507	43,990	32,756	0.02	0.04	0.09	431	150
1982	3	125,941	355,231	44,205	46,850	34,886	0.02	0.04	0.09	859	299
1983	4	134,127	489,358	47,079	49,895	37,153	0.02	0.04	0.09	1,287	448
1984	5	142,845	632,203	50,139	53,138	39,568	0.02	0.04	0.09	1,717	598
1985	6	152,130	784,333	53,398	56,592	42,140	0.02	0.04	0.09	2,152	749
1986	7	167,473	951,806	58,783	62,300	46,390	0.02	0.04	0.09	2,593	903
1987	8	177,686	1,129,492	62,368	66,099	49,219	0.02	0.04	0.09	3,063	1,067
1988	9	184,193	1,313,685	64,652	68,520	51,021	0.02	0.04	0.09	3,541	1,233
1989	10	188,750	1,502,435	66,251	70,215	52,284	0.02	0.04	0.09	4,012	1,397
1990	11	187,476	1,689,911	65,804	69,741	51,931	0.02	0.04	0.09	4,469	1,556
1991	12	175,957	1,865,868	61,761	65,456	48,740	0.02	0.04	0.09	4,891	1,703
1992	13	162,328	2,028,196	56,977	60,386	44,965	0.02	0.04	0.09	5,240	1,824
1993	14	159,430	2,187,626	55,960	59,308	44,162	0.02	0.04	0.09	5,513	1,920
1994	15	156,285	2,343,911	54,856	58,138	43,291	0.02	0.04	0.09	5,759	2,005
1995	16	159,993	2,503,904	56,158	59,517	44,318	0.02	0.04	0.09	5,977	2,081
1996	17	157,527	2,661,431	55,292	58,600	43,635	0.02	0.04	0.09	6,196	2,157
1997	18	149,430	2,810,861	52,450	55,588	41,392	0.02	0.04	0.09	6,392	2,226
1998	19	138,080	2,948,941	48,466	51,366	38,248	0.02	0.04	0.09	6,545	2,279
1999	20	138,174	3,087,115	48,499	51,401	38,274	0.02	0.04	0.09	6,646	2,314
2000	21	142,239	3,229,354	49,926	52,913	39,400	0.02	0.04	0.09	6,742	2,347
2001	22	138,533	3,367,887	48,625	51,534	38,374	0.02	0.04	0.09	6,849	2,385
2002	23	146,325	3,514,212	51,360	54,433	40,532	0.02	0.04	0.09	6,936	2,415
2003	24	148,225	3,662,437	52,027	55,140	41,058	0.02	0.04	0.09	7,049	2,454

Appendix A, continued

				Waste Tonnage			Methane Generation Rate, k			Annual	Annual
		Annual	Cumulative		Moderately			Moderately		Methane	Landfill Gas
Year	Year	Tonnage	Waste-in-place	Relatively Inert	Decomposable	Decomposable	Relatively Inert	Decomposable	Decomposable	Production	Production
	Number	(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)	(year ⁻¹)	(year ⁻¹)	(year ⁻¹)	(tonnes/yr)	(m ³ /hr)
2004	25	154,113	3,816,550	54,094	57,330	42,689	0.02	0.04	0.09	7,163	2,494
2005	26	163,040	3,979,590	57,227	60,651	45,162	0.02	0.04	0.09	7,294	2,540
2006	27	166,820	4,146,410	58,554	62,057	46,209	0.02	0.04	0.09	7,452	2,595
2007	28	174,537	4,320,947	61,262	64,928	48,347	0.02	0.04	0.09	7,616	2,652
2008	29	166,722	4,487,669	58,519	62,021	46,182	0.02	0.04	0.09	7,799	2,716
2009	30	161,194	4,648,863	56,579	59,964	44,651	0.02	0.04	0.09	7,942	2,765
2010	31	152,062	4,800,925	53,374	56,567	42,121	0.02	0.04	0.09	8,054	2,804
2011	32	144,180	4,945,105	50,607	53,635	39,938	0.02	0.04	0.09	8,125	2,829
2012	33	136,763	5,081,868	48,004	50,876	37,883	0.02	0.04	0.09	8,163	2,842
2013	34	131,418	5,213,286	46,128	48,887	36,403	0.02	0.04	0.09	8,170	2,845
2014	35	128,045	5,341,331	45,177	52,311	30,557	0.02	0.04	0.09	8,158	2,841
2015	36	123,381	5,464,712	43,252	50,976	29,153	0.02	0.04	0.09	8,103	2,822
2016	37	146,705	5,611,417	52,809	63,618	30,278	0.02	0.04	0.09	8,038	2,799
2017	38	154,472	5,765,889	55,592	67,007	31,873	0.02	0.04	0.09	8,032	2,797
2018	39	159,942	5,925,831	57,589	69,335	33,018	0.02	0.04	0.09	8,056	2,805
2019	40	163,002	6,088,833	58,544	70,892	33,566	0.02	0.04	0.09	8,101	2,821
2020	41	160,727	6,249,560	56,654	73,371	30,702	0.02	0.04	0.09	8,157	2,840
2021	42	190,209	6,439,769	65,578	89,299	35,332	0.02	0.04	0.09	8,192	2,852
2022	43	201,980	6,641,747	79,887	91,698	30,395	0.02	0.04	0.09	8,325	2,899
2023	44	204,202	6,845,949	80,797	92,639	30,766	0.02	0.04	0.09	8,418	2,931
2024	45	206,448	7,052,397	81,717	93,590	31,141	0.02	0.04	0.09	8,517	2,965
2025	46	208,719	7,261,117	82,646	94,552	31,520	0.02	0.04	0.09	8,621	3,002
2026	47	211,015	7,472,132	83,586	95,525	31,904	0.02	0.04	0.09	8,729	3,039
2027	48	213,336	7,685,468	84,537	96,508	32,292	0.02	0.04	0.09	8,842	3,079

Appendix A, continued

Appendix A4-b Results of the ENV Model (continued)

Waste Type	Methane Generation Potential L_0 (m ³ methane/tonne)	Methane Generation Rate (k) Values
Relatively Inert	20	0.02
Moderately Decomposable	120	0.04
Decomposable	160	0.09

Appendix A5 Results of the UBCi Model

Year	Captured LFG, CH ₄			Generation Estimate (tonnes/year)		Methane Capture Efficiency	
	SCFM, LFG (at 50% CH ₄)	m ³ /hr (CH ₄)	tonnes/yr (CH ₄)	UBCi Model	ENV AR Tool	UBCi Model	ENV AR Tool
2022	1,201.7	1,020.9	5,863.7	7,283.0	8,325.1	81%	70%

Notes:

methane (density) - 1atm, 25C	0.6557	kg/m ³ (ENV AR Tool)
-------------------------------	--------	---------------------------------

Appendix A6 US EPA Oxidation Table Reference for Cover System Capture

Conditions (C1 to C7)	CH ₄ Oxidation Fraction
I. For all reporting years prior to 2013 reporting year	
C1. For all landfills regardless of cover type or methane flux	0.10
II. For 2013 reporting year and all subsequent years	
C2. For landfills that have a geomembrane (synthetic) cover or other non-soil barrier meeting the definition of final cover with less than 300 mm of cover soil for greater than 50% of the landfill area containing waste	0.0
C3. For landfills that do not meet the conditions in C2 above and for which you elect not to determine CH ₄ flux	0.10
C4. For landfills that do not meet the conditions in C2 or C3 above and that do not have final cover, or intermediate or interim cover ^a for greater than 50% of the landfill area containing waste	0.10
C5. For landfills that do not meet the conditions in C2 or C3 above and that have final cover, or intermediate or interim cover ^a for greater than 50% of the landfill area containing waste and for which the CH ₄ flux rate ^b is less than 10 grams per square meter per day (g/m ² /d)	0.35
C6. For landfills that do not meet the conditions in C2 or C3 above and that have final cover or intermediate or interim cover ^a for greater than 50% of the landfill area containing waste and for which the CH ₄ flux rate ^b is 10 to 70 g/m ² /d	0.25
C7: For landfills that do not meet the conditions in C2 or C3 above and that have final cover or intermediate or interim cover ^a for greater than 50% of the landfill area containing waste and for which the CH ₄ flux rate ^b is greater than 70 g/m ² /d	0.1
^a Where a landfill is located in a state that does not have an intermediate or interim cover requirement, the landfill must have soil cover of 12 inches (300 mm) or greater in order to use an oxidation fraction of 0.25 or 0.35. ^b Methane flux rate (in grams per square meter per day; g/m ² /d) is the mass flow rate of methane per unit area at the bottom of the surface soil prior to any oxidation and is calculated as follows: For Equation HH-5 of this subpart, or for Equation TT-6 of subpart TT of this part, $MF = K \times G_{CH_4} / SArea$ For Equation HH-6 of this subpart, $MF = K \times \left(G_{CH_4} - \sum_{n=1}^N R_n \right) / SArea$ For Equations HH-7 of this subpart, $MF = K \times \left(\frac{1}{CE} \sum_{n=1}^N \left[\frac{R_n}{f_{rec,n}} \right] \right) / SArea$ For Equation HH-8 of this subpart, $MF = K \times \left(\frac{1}{CE} \left\{ \sum_{n=1}^N \left[\frac{R_n}{f_{rec,n}} \right] \right\} - \sum_{n=1}^N R_n \right) / SArea$ Where: MF = Methane flux rate from the landfill in the reporting year (g/m ² /d). K = unit conversion factor = 10 ⁶ /365 (g/metric ton per days/year) or 10 ⁶ /366 for a leap year. SArea = The surface area of the landfill containing waste at the beginning of the reporting year (m ²). G _{CH₄} = Modeled methane generation rate in reporting year from Equation HH-1 of this subpart or Equation TT-1 of subpart TT of this part, as applicable, except for application with Equation HH-6 of this subpart (metric tons CH ₄). For application with Equation HH-6 of this subpart, the greater of the modeled methane generation rate in reporting year from Equation HH-1 of this subpart or Equation TT-1 of this part, as applicable, and the quantity of recovered CH ₄ from Equation HH-4 of this subpart (metric tons CH ₄).	

Appendix A, continued

CE = Collection efficiency estimated at landfill, taking into account system coverage, operation, and cover system materials from Table HH-3 of this subpart. If area by soil cover type information is not available, use default value of 0.75 (CE4 in table HH-3 of this subpart) for all areas under active influence of the collection system.

N = Number of landfill gas measurement locations (associated with a destruction device or gas sent off-site). If a single monitoring location is used to monitor volumetric flow and CH₄ concentration of the recovered gas sent to one or multiple destruction devices, then N = 1.

Rⁿ = Quantity of recovered CH₄ from Equation HH-4 of this subpart for the nth measurement location (metric tons).

f^{Rec,n} = Fraction of hours the recovery system associated with the nth measurement location was operating (annual operating hours/8760 hours per year or annual operating hours/8784 hours per year for a leap year).

APPENDIX B

Hartland Landfill Well Field Data

- B1 Hartland Landfill Gas Well Operation
- B2 Hartland Landfill Gas Well Field Data
- B3 Hartland Landfill Gas Well Field Data Summary

Appendix B1 Hartland Landfill Gas Well Operation

Operating Year(s) for Gas Wells Hartland Landfill Capital Regional District																																	
Well Information						Gas Well Readings																											
Old Well Name	New Well Name	Lift (mASL)	Installation Date	Activation Date	Deactivati on Date	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Comments	
BLGW0001			2002	2003	2005						x	x	x	IA																	Deactivated 2005		
BLGW0002			2002	2003	2005						x	x	x	IA																	Deactivated 2005		
BLGW0003			2002	2003	2007						x	x	x	x	x	IA															Deactivated 2007		
BLGW0004			2002	2003	2007						x	x	x	x	x	IA															Deactivated 2007		
BLGW0005			2002	2003	2007						x	x	x	x	x	IA															Deactivated 2007		
BLGW0006			2002	2003	2007						x	x	x	x	x	IA															Deactivated 2007		
BLGW0007			2002	2003	2007						x	x	x	x	x	IA															Deactivated 2007		
BLGW0008			2002	2003	2004						x	x	IA																		Deactivated 2004		
BLGW0009			2002	2003	2004						x	x	IA																		Deactivated 2004		
BLGW0010			2002	2003	2004						x	x	IA																		Deactivated 2004		
BLGW0011			2002	2003	2004						x	x	IA																		Deactivated 2004		
BLGW0012			2002	2003	2004						x	x	IA																		Deactivated 2004		
BLGW0013			2002	2003	2004						x	x	IA																		Deactivated 2004		
BLGW0014			2002	2003	2004						x	x	IA																		Deactivated 2004		
BLGW0015			2002	2003	2004						x	x	IA																		Deactivated 2004		
BLGW0016			2002	2003	2008						x	x	x	x	x	x	IA														Deactivated 2008		
BLGW0017			2002	2003	2008						x	x	x	x	x	x	IA														Deactivated 2008		
BLGW0018			2002	2003	2008						x	x	x	x	x	x	IA														Deactivated 2008		
BLGW0019			2002	2003	2006						x	x	x	x	IA																Deactivated 2006		
BLGW0020			2002	2003	2006						x	x	x	x	IA																Deactivated 2006		
BLGW0021			2002	2003	2006						x	x	x	x	IA																Converted to vertical well OLGW0048s		
LHGW0001	LHGW0001		1999	2003	2011						x	x	x	x	x	x	x	x	x	IA											Abandoned May 2011		
LHGW002A	LHGW002A	147	1999	2007											x	x	x	x	x	x	x	x	x	x	x	x	x	IA	IA			Disconnected for Cell 1 closure - reconnected in Dec2012	
LHGW002B	LHGW002B		1999	2007	2011								x	x	x	x	x	x	x	IA												Abandoned in May 2011	
LHGW0003	LHGW0003	147	1999	2003							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	IA	IA			Disconnected for Cell 1 closure reconnected Jan2013	
LHGW0004	LHGW0004	147	1999	2003							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				
LHGW0005																																	
LHGW0006	LHGW0006	143	2008	2009	2014												x	x	x	x	x	x	IA									Abandoned May 2014	
LHGW0007	LHGW0007	143	2008	2009													x	x	x	x	x	x	x	x	x	IA						no readings 2017-2018 - no production	
LHGW0008	LHGW0008	143	2008	2009													x	x	x	x	x	x	x	x	x	IA						no readings 2017-2018 - no production	
LHGW0009	LHGW0009	143	2012	2012	2014															x	x	x	IA									Start Feb 2012 - abandoned May 2014	

Operating Year(s) for Gas Wells Hartland Landfill Capital Regional District																																	
Well Information						Gas Well Readings																											
Old Well Name	New Well Name	Lift (mASL)	Installation Date	Activation Date	Deactivati on Date	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Comments	
LHGW0010	LHGW0010	143	2011	2012	2014															x	x	x	IA									Start Feb 2012, was 11 - abandoned May 2014	
LHGW0017	LHGW0017	163	2014	2012																x	x	x	x	x	x	IA						start January 2012 / no readings 2017-2018 - no production	
LHGW0019	LHGW0019	---	2014	2014																		x	x	x	x	x	x	x	x			Started May 2014	
LHGW0020	LHGW0020	159	2014	2014																		x	x	x	x	x	x	x	x			Started May 2014	
LHGW0021	LHGW0021	159	2014	2014																		x	x	x	x	x	IA					Started May 2014	
LHGW0022	LHGW0022	159	2014	2014																		x	x	x	x	x	x	x	x			Started May 2014	
LHGW0023	LHGW0023	159	2011	2011															x	x	x	x	x	x	x	x	x	x	x			start september 2011, was 21	
OHW0001	HLGW0001	139	1999	2001					x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			Disconnected for Cell 1 closure - reconnected Jan2013
OHW0002	HLGW0002		1999	2001	2011				x	x	x	x	x	x	x	x	x	x	x	IA													Abandoned may 2011
OHW0003	HLGW0003	139	1999	2003							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			Disconnected for Cell 1 closure - reconnected Jan2013
OHW0004	HLGW0004	147	1999	2003							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	IA							Disconnected for Cell 1 closure - reconnected Jan2013 / no readings 2017-2018 - no production
OHW0005	HLGW0005	147	1999	2003							x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			Disconnected for Cell 1 closure - reconnected Jan2013
OHW0006A	HLGW006A	159	1999	2005									x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
OHW0006B	HLGW006B	159	1999	2005									x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			Disconnected for Cell 1 closure - reconnected Jan2013
OHW0007	HLGW0007		1999	2005	2011								x	x	x	x	x	x	x	IA													Abandoned in May 2011
OHW0008A	HLGW008A	143	1999	2006										x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x			Disconnected for Cell 1 closure - reconnected Jan2013
OHW0008B	HLGW008B	143	1999	2006										x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			Disconnected for Cell 1 closure - reconnected Jan2013
OHW0009	HLGW0009	139	2007	2008	2014										x	x	x	x	x	x	x	x	IA										Disconnected for Cell 1 closure - reconnected Jan2013 - abandoned May 2014
OHW0010	HLGW0010	139	2007	2008											x	x	x	x	x	x	x	x	x	x	x	IA							Disconnected for Cell 1 closure - reconnected Jan2013 / no readings 2017-2018 - no production
OHW0011	HLGW0011		2007	2008											x	x	x	x	x	x	x	x	x	x	x	IA							Disconnected for Cell 1 closure - reconnected Jan2013 / no readings 2017-2018 - no production
OHW0012	HLGW0012	147		2010														x	x	x	x	x	x	x	x	x	x	x	x	x			
OHW0013	HLGW0013	147		2010														x	x	x	x	x	x	x	x	x	x	x	x	x			
OHW0014	HLGW0014	155		2011															x	x	x	x	x	x	x	x	x	x	x	x			
OHW0015	HLGW0015	155		2011	2014															x	x	x	x	IA									abandoned May 2014
	HLGW016A	159	2012	2012																	x	x	x	x	x	IA							Started Dec 2012 / no readings 2017-2018 - no production
OHW0016 /HLGW0016	HLGW016B	163	2012	2012																	x	x	x	x	x	x	x	x	x	x			Started Jan 2012

Appendix B1, continued

Operating Year(s) for Gas Wells Hartland Landfill Capital Regional District																																
Well Information						Gas Well Readings																										
Old Well Name	New Well Name	Lift (mASL)	Installation Date	Activation Date	Deactivati on Date	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Comments
	HLGW017A	163	2012	2013																x	x	x	x	x	x	x	x	IA	IA	IA		Started Dec 2012
OHGW0017/ HLGW0017	HLGW017B	163	2012	2012																x	x	x	x	x	x	x	x	x	x	x		Started Jan 2012
	HLGW0018	165	2012	2013																	x	x	x	x	x	x	x	x	x	x		Started Jan2013
	HLGW019B	165	2013	2013	2022																x	x	x	x	x	IA						Started Jan 2013 / no readings 2017-2018 - no production - Decommissioned
	HLGW019C	165	2012	2012	2020															x	x	x	x	x	x	x	x	IA	IA	IA		Started Dec 2012 - decomissioned July 2020
	HLGW020B	165	2013	2013																	x	x	x	x	x	IA						Started Jan 2013 / no readings 2017-2018 - no production
	HLGW021B	165	2013	2013																	x	x	x	x	x	x	x	x	x	x		Started Jan 2013
	HLGW022B	165	2013	2013																	x	x	x	x	x	x	x	x	x	x		Started Jan 2013
Previously HLGW0023	HLGW023B	165	2013	2013																	x	x	x	x	x	x	x	x	x	x		Started Jan 2013
	HLGW024B	171	2014	2016																			x	x	x	x	x	x	x	x		Activated 2016
	HLGW025B	171	2014	2016																			x	x	x	x	x	x	x	x		Activated 2016
	HLGW026B	171	2014	2015																			x	x	x	x	x	x	x	x		Started Jan 2015
	HLGW027A	171	2014	2017																					x	x	x	x	x	x		activated 2017
	HLGW027B	171	2014	2015																			x	x	x	x	x	x	x	x		Started Jan 2015
	HLGW028B	171	2014	2015																			x	x	x	x	x	x	x	x		Activated Jan 2015
	HLGW028A	171	2014	2017																					x	x	x	x	x	x		
	HLGW029B	171	2014	2015																			x	x	x	x	x	x	x	x		Activated Jan 2015
	HLGW029A	171	2014	2017																					x	x	x	x	x	x		
	HLGW030A	171	2013	2014																		x	x	x	x	x	x	x	x	x		Activated Jan 2014 temp disconnected Jun2016 for cell 3/ reactivated Oct2017
	HLGW030B	171	2013	2014																		x	x	x	x	x	x	x	x	x		Activated Jan 2014
	HLGW031A	171	2013	2014																		x	x	x	x	x	x	x	x	x		Activated Jan 2014 temp disconnected Jun2016 for cell 3 / reactivated Oct2017
	HLGW031B	171	2013	2014																		x	x	x	x	x	x	x	x	x		Activated Jan 2014
	HLGW032A	171	2013	2014																		x	x	x	x	x	x	x	x	x		Activated Jan 2014 temp disconnected Jun2016 for cell 3/ reactivated Oct2017
	HLGW032B	171	2013	2014																		x	x	x	x	x	x	x	x	x		Activated Jan 2014
	HLGW033A	171	2013	2014																		x	x	x	x	x	x	x	x	x		Activated Jan 2014 temp disconnected Jun2016 for cell 3 / reactivated Oct2017
	HLGW033B	171	2013	2014																		x	x	x	x	x	x	x	x	x		Activated Jan 2014
	HLGW034A	171	2013	2014																		x	x	x	x	x	x	x	x	x		Activated Jan 2014 temp disconnected Jun2016 for cell 3 / reactivated Oct2017

Operating Year(s) for Gas Wells Hartland Landfill Capital Regional District																																	
Well Information						Gas Well Readings																											
Old Well Name	New Well Name	Lift (mASL)	Installation Date	Activation Date	Deactivati on Date	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Comments	
	HLGW034B	171	2013	2014																		x	x	x	x	x	x	x	x		Activated Jan 2014		
	HLGW035A	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---					Wells not installed	
	HLGW035B	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---					Wells not installed	
	HLGW036B	175	2015	2017																					x	x	x					Installed 2015 - Temp connection Jan2017	
	HLGW037B	175	2015	2017																					x	x	x	x	x	x			
	HLGW038B	175	2015	2017																					x	x	x	x	x	x		Installed 2015 - Temp connection Jan2017	
	HLGW039A	175	2015	2017																					x	x	x	x	x	x			
	HLGW039B	175	2015	2017																					x	x	x	x	x	x		Installed 2015 - Temp connection Jan2017	
	HLGW040A	175	2015	2017																					x	x	x	x	x	x			
	HLGW040B	175	2015	2018																							x	x	x	x	x		Activated Jan 2018
	HLGW041A	175	2015	2017																					x	x	x	x	x	x			
	HLGW041B	175	2015	2017																					x	x	x	x	x	x			
	HLGW042A	175	2015	2017																					x	x	x	x	x	x			
	HLGW042B	175	2015	2017																					x	x	x	x	x	x		Installed 2015 - Temp Activated Jan2017	
	HLGW043A	175	2015	2017																					x	x	x	x	x	x			
	HLGW043B	175	2015	2017																					x	x	x	x	x	x		Installed 2015 - Temp Activated Jan2017	
	HLGW044A	179	2015	2017																					x	x	x	x	x	x			
	HLGW044B	179	2015	2017																					x	x	x	x	x	x		Installed 2015 - Temp Activated Jan2017	
	HLGW045A	179	2016	2019																				I			x	IA	IA	IA		Activated April 2019	
	HLGW045B	179	2016	2018																				I		x	x	x	x	x		Activated Jan 2018	
	HLGW046A	179	2016	2019																				I			x	IA	IA	IA		Activated April 2019	
	HLGW046B	179	2016	2018																				I		x	x	x	x	x		Activated Jan 2018	
	HLGW047A	179	2016	2017																					x	x	x	x	x	x			
	HLGW047B	179	2016	2018																				I		x	x	x	x	x		Activated Jan 2018	
	HLGW048A	179	2016	2017																					x	x	x	x	x	x			
	HLGW048B	179	2016	2018																				I		x	x	x	x	x		Activated Jan 2018	
	HLGW049A	179	2016	2017																					x	x	x	IA	IA	IA			
	HLGW049B	179	2016	2018																				I		x	x	x	x	x		Activated Jan 2018	
	HLGW050A	179	2016	2017																					x	x	x	x	x	x			
	HLGW050B	179	2016	2018																				I		x	x	x	x	x		Activated Jan 2018	
	HLGW051A	179	2016	2017																					x	x	x	x	x	x			
	HLGW051B	179	2016	2017																				I	x	x	x	x	x	x			
	HLGW0052	151	2017	2018																							x	x	x	x	x		Activated July 2018
	HLGW0053	151(3)	2017	2018																							x	x	x	x	x		Activated July 2018
	HLGW0054	151(3)	2017	2018																							x	x	x	x	x		Activated July 2018

Appendix B1, continued

Operating Year(s) for Gas Wells Hartland Landfill Capital Regional District																																		
Well Information						Gas Well Readings																												
Old Well Name	New Well Name	Lift (mASL)	Installation Date	Activation Date	Deactivati on Date	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Comments		
	HLGW0055	151(3)	2017	2018																						x	x	x	x	x		Activated July 2018		
	HLGW0056	151(3)	2017	2018																						x	x	IA	IA	IA		Activated August 2018		
	HLGW0057	155(3)	2018	2019																							x	x	x	x		Activated April 2019		
	HLGW0058	155(3)	2018	2019																							x	x	x	x		Activated April 2019		
	HLGW0059	155(3)	2018	2019																							x	x	x	x		Activated April 2019		
	HLGW0060	155(3)	2018	2019																							x	x	x	x		Activated April 2019		
	HLGW0061	155(3)	2018	2019																							x	x	x	x		Activated April 2019		
	HLGW0062	155(3)	2018	2019																							x	x	x	x		Activated April 2019		
	HLGW0063	155(3)	2018	2019																							x	x	x	x		Activated April 2019		
	HLGW0064	155(3)	2018	2020																							---	---	---	---		Active May/June 2020		
	HLGW0065	159 (3)	2018	2020																								x	x	x		Active May/June 2020		
	HLGW0066	159 (3)	2018	2020																								x	x	x		Active May/June 2020		
	HLGW0067B	159 (3)	2018	2020																								x	x	x		Active May/June 2020		
	HLGW0068B	159 (3)	2018	2020																								x	x	x		Active May/June 2020		
	HLGW0069	159 (3)	2018	2020																								x	x	x		Active June 2020		
	HLGW0070A	163	2019	2021																									x	x				
	HLGW0070B	163	2019																													Awaiting wellhead tie in.		
	HLGW0071A	163	2019	2021																									x	x				
	HLGW0071B	163	2019																													Awaiting wellhead tie in.		
	HLGW0072A	163	2019	2021																									x	x				
	HLGW0072B	163	2019																													Awaiting wellhead tie in.		
	HLGW0073A	163	2019	2021																									x	x				
	HLGW0073B	163	2019																													Awaiting wellhead tie in.		
	HLGW0074A	163	2019	2021																									x	x				
	HLGW0074B	163	2019																													Awaiting wellhead tie in.		
	HLGW0075	163	2019	2021																									x	x		Activated July 2021		
	HLGW0076	167	2019	2023																														
	HLGW0077	167	2019	2023																														
	HLGW0078	167	2019	2022																										x		Activated in 2022		
	HLGW0079A	167	2019	2021																														
	HLGW0079B	167	2019																													Awaiting wellhead tie in.		
	HLGW0080A	167	2019	2021																														
	HLGW0080B	167	2019																													Awaiting wellhead tie in.		
	HLGW0081A	167	2019	2021																														
	HLGW0081B	167	2019																													Awaiting wellhead tie in.		

Operating Year(s) for Gas Wells Hartland Landfill Capital Regional District																																		
Well Information						Gas Well Readings																												
Old Well Name	New Well Name	Lift (mASL)	Installation Date	Activation Date	Deactivati on Date	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Comments		
	HLGW0082A	167	2019	2021																														
	HLGW0082B	167	2019																													Awaiting wellhead tie in.		
	HLGW0083	167	2019	2021																														
	RWHGW01A	155	2017	2020																								x	x	x		Rock Wall gas collectors - activated Nov 2020		
	RWHGW01B	155	2017	2020																								x	x	x		Rock Wall gas collectors - activated Nov 2020		
	HLGW0084	167	2019	2022																										x		Activated in 2022		
	HLGW0085	171	2020	2023																											x			
	HLGW0086	171	2020	2023																											x			
	HLGW0087	171	2020	2023																											x			
	HLGW0088A	171	2020	2023																											x			
	HLGW0088B	171	2020																													Awaiting wellhead tie in.		
	HLGW0089A	171	2020	2023																											x			
	HLGW0089B	171	2020																													Awaiting wellhead tie in.		
	HLGW0090A	171	2020																													Awaiting wellhead tie in.		
	HLGW0090B	171	2020																													Awaiting wellhead tie in.		
	HLGW0091A	171	2020																													Awaiting wellhead tie in.		
	HLGW0091B	171	2020																													Awaiting wellhead tie in.		
	HLGW0092A	171	2020																													Awaiting wellhead tie in.		
	HLGW0092B	171	2020																													Awaiting wellhead tie in.		
	HLGW0093A	171	2020	2023																											x			
	HLGW0093B	171	2020																													Awaiting wellhead tie in.		
	HLGW0094	171	2020																													Awaiting wellhead tie in.		
	HLGW0095	171	2020																													Awaiting wellhead tie in.		
	HLGW0096	175	2021																													Flange only - Awaiting wellhead tie in.		
	HLGW0097	175	2021																													Flange only - Awaiting wellhead tie in.		
	HLGW0098	175	2021																													Flange only - Awaiting wellhead tie in.		
	HLGW0099	175	2021																													Flange only - Awaiting wellhead tie in.		
	HLGW0100A	175	2021																													Flange only - Awaiting wellhead tie in.		
	HLGW0100B	175	2021																													Flange only - Awaiting wellhead tie in.		
	HLGW0101A	175	2021																													Flange only - Awaiting wellhead tie in.		
	HLGW0101B	175	2021																													Flange only - Awaiting wellhead tie in.		
	HLGW0102A	175	2021																													Flange only - Awaiting wellhead tie in.		
	HLGW0102B	175	2022																													Flange only - Awaiting wellhead tie in.		
	HLGW0103A	175	2022																													Flange only - Awaiting wellhead tie in.		
	HLGW0103B	175	2022																													Flange only - Awaiting wellhead tie in.		

Appendix B1, continued

Operating Year(s) for Gas Wells Hartland Landfill Capital Regional District																																		
Well Information						Gas Well Readings																												
Old Well Name	New Well Name	Lift (mASL)	Installation Date	Activation Date	Deactivati on Date	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Comments		
	HLGW0104A	175	2022																													Flange only - Awaiting wellhead tie in.		
	HLGW0104B	175	2022																													Flange only - Awaiting wellhead tie in.		
	HLGW0105A	175	2022																													Flange only - Awaiting wellhead tie in.		
	HLGW0105B	175	2022																													Flange only - Awaiting wellhead tie in.		
	HLGW0106A	175	2022																													Flange only - Awaiting wellhead tie in.		
	HLGW0106B	175	2022																													Flange only - Awaiting wellhead tie in.		
	HLGW0107A	179	2023																													Flange only - Awaiting wellhead tie in.		
	HLGW0107B	179	2023																													Flange only - Awaiting wellhead tie in.		
	HLGW0108A	179	2023																													Flange only - Awaiting wellhead tie in.		
	HLGW0108B	179	2023																													Flange only - Awaiting wellhead tie in.		
	HLGW0109A	179	2023																													Flange only - Awaiting wellhead tie in.		
	HLGW0109B	179	2023																													Flange only - Awaiting wellhead tie in.		
	HLGW0110A	179	2023																													Flange only - Awaiting wellhead tie in.		
	HLGW0110B	179	2023																													Flange only - Awaiting wellhead tie in.		
	HLGW0111A	179	2023																													Flange only - Awaiting wellhead tie in.		
	HLGW0111B	179	2023																													Flange only - Awaiting wellhead tie in.		
	HLGW0112A	179	2023																													Flange only - Awaiting wellhead tie in.		
	HLGW0112B	179	2023																													Flange only - Awaiting wellhead tie in.		
	HLGW0113A	179	2023																													Flange only - Awaiting wellhead tie in.		
	HLGW0113B	179	2023																													Flange only - Awaiting wellhead tie in.		
	HLGW0114A	179	2023																													Flange only - Awaiting wellhead tie in.		
	HLGW0114B	179	2023																													Flange only - Awaiting wellhead tie in.		
	Total		5	23																														
OLGT001A	TLGW001A		1996			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	IA									
OLGT001B	TLGW001B		1996			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	IA									
OLGT002A	TLGW002A		1996			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	IA									
OLGT002B	TLGW002B		1996			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	IA									
OLGT002C	TLGW002C		1996			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	IA									
OLGT0003					2002	x	x	x	x	x	IA																					Deactivated 2002		
OLGT0004					2002	x	x	x	x	x	IA																					Deactivated 2002		
OLGT0005					2002	x	x	x	x	x	IA																					Deactivated 2002		
OLGT0006					2002	x	x	x	x	x	IA																					Deactivated 2002		
OLGT0007					2002	x	x	x	x	x	IA																					Deactivated 2002		

Operating Year(s) for Gas Wells Hartland Landfill Capital Regional District																																	
Well Information						Gas Well Readings																											
Old Well Name	New Well Name	Lift (mASL)	Installation Date	Activation Date	Deactivati on Date	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Comments	
OLGT0008					2002	x	x	x	x	x	IA																				Deactivated 2002		
OLGT0009					2002	x	x	x	x	x	IA																				Deactivated 2002		
OLGT0010					2002	x	x	x	x	x	IA																				Deactivated 2002		
OLGT0011					2002	x	x	x	x	x	IA																				Deactivated 2002		
OLGT0012					2002	x	x	x	x	x	IA																				Deactivated 2002		
OLGT0013					2002	x	x	x	x	x	IA																				Deactivated 2002		
OLGT0014					2002	x	x	x	x	x	IA																				Deactivated 2002		
OLGT0015					2002	x	x	x	x	x	IA																				Deactivated 2002		
OLGT0016					2002	x	x	x	x	x	IA																				Deactivated 2002		
OLGT0017					2002	x	x	x	x	x	IA																				Deactivated 2002		
OLGT0018					2002	x	x	x	x	x	IA																				Deactivated 2002		
OLGT0019					2002	x	x	x	x	x	IA																				Deactivated 2002		
OLGW001D	VLGW001D	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	IA						no readings 2017-2018 - no production	
OLGW001S	VLGW001S	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	IA						no readings 2017-2018 - no production	
OLGW002D	VLGW002D	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	IA						no readings 2017-2018 - no production	
OLGW002S	VLGW002S	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	IA						no readings 2017-2018 - no production	
OLGW003D	VLGW003D	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
OLGW003S	VLGW003S	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
OLGW004D	VLGW004D	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	IA								
OLGW004S	VLGW004S	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x						
OLGW005D	VLGW005D	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	IA								
OLGW005S	VLGW005S	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
OLGW006D	VLGW006D	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
OLGW006S	VLGW006S	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
OLGW007D	VLGW007D	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
OLGW007S	VLGW007S	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
OLGW008D	VLGW008D	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
OLGW008S	VLGW008S	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
OLGW009D	VLGW009D	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
OLGW009S	VLGW009S	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
OLGW010S	VLGW010S	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
OLGW011S	VLGW011S	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
OLGW012S	VLGW012S	---	1996	1996		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
OLGW013D	VLGW013D	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			
OLGW013S	VLGW013S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			

Appendix B1, continued

Operating Year(s) for Gas Wells Hartland Landfill Capital Regional District																																			
Well Information						Gas Well Readings																													
Old Well Name	New Well Name	Lift (mASL)	Installation Date	Activation Date	Deactivati on Date	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Comments			
OLGW014D	VLGW014D	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	IA										
OLGW014S	VLGW014S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	IA										
OLGW015D	VLGW015D	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW015S	VLGW015S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW016D	VLGW016D	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW016S	VLGW016S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW017D	VLGW017D	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW017S	VLGW017S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW018D	VLGW018D	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW018S	VLGW018S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW019D	VLGW019D	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW019S	VLGW019S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW020D	VLGW020D	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW020S	VLGW020S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW021D	VLGW021D	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW021S	VLGW021S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW022D	VLGW022D	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW022S	VLGW022S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW023D	VLGW023D	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW023S	VLGW023S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW024D	VLGW024D	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW024S	VLGW024S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	IA										
OLGW025D	VLGW025D	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	IA										
OLGW025S	VLGW025S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		IA	IA	IA					
OLGW026D	VLGW026D	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW026S	VLGW026S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW027D	VLGW027D	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW027S	VLGW027S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW028S	VLGW028S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW029D	VLGW029D	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW029S	VLGW029S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW030S	VLGW030S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW031S	VLGW031S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW032S	VLGW032S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					
OLGW033S	VLGW033S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x					

Operating Year(s) for Gas Wells Hartland Landfill Capital Regional District																																		
Well Information						Gas Well Readings																												
Old Well Name	New Well Name	Lift (mASL)	Installation Date	Activation Date	Deactivati on Date	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Comments		
OLGW034S	VLGW034S	---	1997	1997		x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x				
OLGW035S		---	1997	1998	2004	x	x	x	x	x	x	x	IA																			Deactivated 2004		
OLGW035D		---	1997	1998	2004	x	x	x	x	x	x	x	IA																			Deactivated 2004		
OLGW036S		---	1997	1998	2004	x	x	x	x	x	x	x	IA																			Deactivated 2004		
OLGW036D		---	1997	1998	2004	x	x	x	x	x	x	x	IA																			Deactivated 2004		
OLGW037S		---	1997	1998	2005	x	x	x	x	x	x	x	x	IA																		Deactivated 2005		
OLGW037D		---	1997	1998	2005	x	x	x	x	x	x	x	x	IA																		Deactivated 2005		
OLGW038S		---	1997	1998	2004	x	x	x	x	x	x	x	IA																			Deactivated 2004		
OLGW038D		---	1997	1998	2004	x	x	x	x	x	x	x	IA																			Deactivated 2004		
OLGW039S		---	1997	1998	2004	x	x	x	x	x	x	x	IA																			Deactivated 2004		
OLGW039D		---	1997	1998	2004	x	x	x	x	x	x	x	IA																			Deactivated 2004		
OLGW040S		---	1997	1998	2004	x	x	x	x	x	x	x	IA																			Deactivated 2004		
OLGW040D		---	1997	1998	2004	x	x	x	x	x	x	x	IA																			Deactivated 2004		
OLGW041D		---	1997	1998	2008	x	x	x	x	x	x	x	x	x	x	x																Deactivated 2008		
OLGW041S		---	1997	1998	2008	x	x	x	x	x	x	x	x	x	x	x																Deactivated 2008		
OLGW042S	VLGW042S	---	2002	2003	2021						x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				Decommissioned 2021		
OLGW043S	VLGW043S	---	2002	2003	2021						x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x				Decommissioned 2021		
OLGW044S	VLGW044S	---	2002	2003	2011						x	x	x	x	x	x	x	x	x	IA												Abandoned in May 2011		
OLGW045S	VLGW045S	---	2002	2003	2011						x	x	x	x	x	x	x	x	x	IA												Abandoned in May 2011		
OLGW046S	VLGW046S	---	2002	2003	2011						x	x	x	x	x	x	x	x	x	IA												Abandoned in May 2011		
OLGW047S	VLGW047S	---	2002	2003	2021						x	x	x	x	x	x	x	x	x			x	x	x	x	x	IA					Decommissioned 2021		
OLGW048S	VLGW048S	---	2002	2002	2011										x	x	x	x	x	IA												Abandoned in May 2011		
OLGW049	VLGW0049	---	2011	2011															x	x	x	x	x	x	x	x	x	x	x	x				
OLGW050	VLGW0050	---	2011	2011															x	x	x	x	x	x	x	x	x	x	x	x				
OLGW051	VLGW0051	---	2011	2011															x	x	x	x	x	x	x	x	x	x	x	x				
OLGW052	VLGW0052	---	2011	2011															x	x	x	x	x	x	x	x	x	x	x	x				
OLGW053	VLGW0053	---	2011	2011															x	x	x	x	x	x	x	x	x	x	x	x				
OLGW054	VLGW0054	---	2011	2011															x	x	x	x	x	x	x	x	x	x	x	x				
OLGW055	VLGW0055	---	2011	2011															x	x	x	x	x	x	x	x	x	x	x	x				
OLGW056	VLGW0056	---	2011	2011															x	x	x	x	x	x	x	x	x	x	x	x				
OLGW057	VLGW0057	---	2011	2011															x	x	x	x	x	x	IA							Decommissioned 2021		
OLGW058	VLGW0058	---	2011	2011															x	x	x	x	x	x	x	x	x	x	x	x				
OLGW059	VLGW0059	---	2011	2011															x	x	x	x	x	x	x	x	x	x	x	x				
OLGW060	VLGW0060	---	2011	2011															x	x	x	x	x	x	x	x	x	x	x	x		73		

Appendix B1, continued

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Number of Active Wells	95	95	95	97	97	113	113	99	97	99	94	92	92	109	107	114	129	128	130	141	140	145	143	147	144
Number of Inactive Wells	0	0	0	0	0	17	0	18	4	3	5	3	0	0	8	0	0	5	0	12	13	2	9	9	25*

Notes:
The total number of the inactive wells is an approximate number as the design of the cells 4, 5, and 6 is currently being completed.

Appendix B2 2022 Hartland Landfill Gas Well Field Data

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW0001							
January							
February							
March							
April	2022-04-20	51.30	35.60	0.00	13.10	0.00	0.00
May	2022-05-26	24.70	25.40	0.10	49.80	0.00	0.00
June	2022-06-29	17.30	22.30	1.70	58.70	0.00	0.00
July							
August	2022-08-30	23.60	25.30	0.00	51.10	0.00	0.00
September							
October							
November							
December							
Average		29.2	27.2	0.5	43.2	0.0	0.0
HLGW0003							
January							
February	2022-02-28	48.80	31.80	2.00	17.40	0.00	0.00
March							
April	2022-04-20	54.70	34.50	1.00	9.80	0.00	0.00
May	2022-05-26	52.70	34.70	0.30	12.30	0.00	0.00
June	2022-06-29	31.60	26.50	2.80	39.10	0.00	0.00
July							
August	2022-08-30	30.80	27.50	2.30	39.40	0.00	0.00
September							
October							
November							
December							
Average		43.7	31.0	1.7	23.6	0.0	0.0
HLGW0004							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW0005							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							
HLGW006A							
January							
February							
March							
April							
May	2022-05-30	37.40	31.30	0.00	31.30	0.00	0.00
June	2022-06-28	39.00	31.00	0.00	30.00	0.00	0.00
July	2022-07-19	40.50	31.50	0.20	27.80	0.00	0.00
August	2022-08-29	42.00	33.50	0.00	24.50	0.00	0.00
September	2022-09-23	38.00	32.20	0.00	29.80	3.50	3.60
October	2022-10-25	37.80	33.10	0.00	29.10	0.00	0.00
November	2022-11-29	31.80	30.50	0.10	37.60	0.00	0.00
December	2022-12-15	30.80	30.30	0.00	38.90	0.00	0.00
Average		37.2	31.7	0.0	31.1	0.4	0.5
HLGW006B							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW008A							
January	2022-01-18	44.00	33.10	0.00	22.90	4.30	3.00
February	2022-02-15	42.20	32.40	0.00	25.40	0.00	0.00
March	2022-03-23	40.60	32.30	0.00	27.10	0.00	0.00
April	2022-04-12	42.30	32.60	0.10	25.00	0.00	0.00
May	2022-05-16	42.70	32.30	0.30	24.70	0.00	0.00
June	2022-06-28	45.20	32.90	0.10	21.80	0.00	0.00
July	2022-07-21	45.20	32.50	1.20	21.10	0.00	0.00
August	2022-08-16	45.50	33.90	0.00	20.60	0.00	0.00
September	2022-09-15	44.90	33.50	1.00	20.60	0.00	0.50
October	2022-10-13	42.80	33.80	0.00	23.40	0.00	2.80
November	2022-11-17	38.20	31.80	0.00	30.00	0.00	0.00
December	2022-12-14	32.60	30.60	0.00	36.80	0.00	0.00
Average		42.2	32.6	0.2	25.0	0.4	0.5
HLGW008B							
January	2022-01-19	42.00	33.20	<<<<	N/A	0.00	0.00
February	2022-02-28	37.50	29.30	0.40	32.80	0.00	0.00
March	2022-03-22	39.60	32.50	0.00	27.90	0.00	0.00
April	2022-04-21	41.30	32.50	0.10	26.10	0.00	0.00
May	2022-05-25	40.40	32.30	0.00	27.30	0.00	0.00
June	2022-06-28	43.60	32.60	0.20	23.60	0.00	0.00
July	2022-07-19	41.10	32.40	0.10	26.40	0.00	0.00
August	2022-08-24	46.00	35.30	0.00	18.70	0.00	1.90
September	2022-09-15	43.60	34.20	0.00	22.20	2.50	3.20
October	2022-10-07	40.40	32.50	0.00	27.10	2.80	0.00
November	2022-11-28	40.10	32.90	0.00	27.00	0.00	0.00
December							
Average		41.4	32.7	0.1	25.9	0.5	0.5
HLGW0009							
January	---	---	---	---	---	---	---
February	---	---	---	---	---	---	---
March	---	---	---	---	---	---	---
April	Decommissioned May 2014						
May	---	---	---	---	---	---	---
June	---	---	---	---	---	---	---
July	---	---	---	---	---	---	---
August	---	---	---	---	---	---	---
September	---	---	---	---	---	---	---
October	---	---	---	---	---	---	---
November	---	---	---	---	---	---	---
December	---	---	---	---	---	---	---
Average	---	---	---	---	---	---	---

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW0010							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October	2022-10-12	31.40	31.20	1.20	36.20	0.00	0.00
November	2022-11-30	35.90	33.40	1.70	29.00	6.40	0.00
December							
Average		33.7	32.3	1.5	32.6	3.2	0.0
HLGW0011							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							0.0
HLGW0012							
January							
February							
March							
April							
May	2022-05-18	27.70	22.20	9.00	41.10	0.00	0.40
June	2022-06-29	49.10	23.80	3.30	23.80	0.00	0.00
July	2022-07-22	49.30	35.60	0.10	15.00	0.00	0.00
August							
September							
October							
November							
December							
Average		42.0	27.2	4.1	26.6	0.0	0.1

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW0013							
January							
February							
March							
April							
May	2022-05-30	39.50	33.90	0.00	26.60	0.00	0.00
June	2022-06-29	32.40	31.20	0.40	36.00	0.00	0.00
July	2022-07-22	0.40	0.40	20.00	79.20	0.00	0.00
August							
September							
October							
November	2022-11-30	56.30	43.60	0.20	N/A	0.00	0.00
December							
Average		32.2	27.3	5.2	47.3	0.0	0.0
HLGW0014							
January							
February							
March							
April							
May	2022-05-30	8.20	14.10	9.70	68.00		
June							
July							
August							
September							
October							
November							
December							
Average		8.2	14.1	9.7	68.0		
HLGW0015							---
January	---	---	---	---	---	---	---
February	---	---	---	---	---	---	---
March	---	---	---	---	---	---	---
April	---	---	---	---	---	---	---
May	Decommissioned May 2014						
June	---	---	---	---	---	---	---
July	---	---	---	---	---	---	---
August	---	---	---	---	---	---	---
September	---	---	---	---	---	---	---
October	---	---	---	---	---	---	---
November	---	---	---	---	---	---	---
December	---	---	---	---	---	---	---
Average		0.0	0.0	0.0	0.0	0.0	0.0

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW016A							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average		0.0	0.0	0.0	0.0	0.0	0.0
HLGW016B							
January	2022-01-28	58.00	38.90	0.00	3.10	161.50	160.60
February	2022-02-14	58.50	39.20	0.00	2.30	160.90	166.90
March	2022-03-16	58.00	39.00	0.00	3.00	155.40	155.90
April	2022-04-12	55.20	38.90	0.00	5.90	204.60	201.30
May	2022-05-13	58.30	39.30	0.00	2.40	137.10	147.40
June	2022-06-21	54.30	38.00	0.10	7.60	147.50	147.80
July	2022-07-13	54.20	38.30	0.10	7.40	138.40	138.40
August	2022-08-09	54.70	38.60	0.00	6.70	131.80	131.80
September	2022-09-14	55.10	39.00	0.00	5.90	131.20	131.20
October	2022-10-07	55.20	38.20	0.00	6.60	107.80	105.10
November	2022-11-09	53.10	39.10	0.00	7.80	136.80	134.70
December	2022-12-12	52.40	38.30	0.30	9.00	149.90	140.50
Average		55.6	38.7	0.0	5.6	146.9	146.8
HLGW017A							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW017B							
January							
February							
March							
April							
May	2022-05-13	10.70	19.90	2.20	67.20	0.00	0.00
June	2022-06-30	6.00	18.70	1.40	73.90	0.00	0.00
July							
August							
September							
October							
November							
December							
Average		8.4	19.3	1.8	70.6	0.0	0.0
HLGW0018							
January	2022-01-28	59.10	40.10	0.00	0.80	24.80	24.90
February	2022-02-14	57.80	39.80	0.10	2.30	19.60	22.70
March	2022-03-15	56.20	40.00	0.00	3.80	26.20	26.20
April	2022-04-12	55.60	40.10	0.00	4.30	26.50	25.00
May	2022-05-13	58.40	40.00	0.00	1.60	22.20	23.40
June	2022-06-21	55.10	38.30	0.10	6.50	23.20	23.10
July	2022-07-13	53.30	38.50	0.10	8.10	24.00	22.60
August	2022-08-09	54.40	38.90	0.00	6.70	22.40	22.30
September	2022-09-14	54.70	39.30	0.00	6.00	23.30	23.40
October	2022-10-07	57.60	39.20	0.00	3.20	15.80	15.80
November	2022-11-09	50.20	38.90	0.00	10.90	22.80	18.90
December	2022-12-12	51.70	39.10	0.00	9.20	20.50	18.20
Average		55.3	39.4	0.0	5.3	22.6	22.2
HLGW019B							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW019C							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							
HLGW020B							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							
HLGW021B							
January	2022-01-28	57.30	38.40	0.50	3.80	11.40	8.80
February							
March	2022-03-16	54.50	38.80	0.30	6.40	10.30	8.60
April	2022-04-19	59.70	40.00	0.40		7.10	7.20
May	2022-05-17	59.10	40.80	0.20		2.20	5.00
June	2022-06-27	54.10	38.30	0.50	7.10	7.50	7.60
July	2022-07-15	57.10	39.30	0.70	2.90	6.00	6.10
August	2022-08-23	58.90	40.90	0.20	0.00	5.60	10.40
September	2022-09-16	49.80	37.80	0.50	11.90	7.50	4.60
October	2022-10-07	50.20	38.10	0.40	11.30	10.20	7.70
November	2022-11-09	58.80	41.20	0.10		4.00	7.00
December	2022-12-15	58.30	39.60	0.30	1.80	4.90	8.00
Average		56.2	39.4	0.4	5.7	7.0	7.4

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW022B							
January							
February	2022-02-15	25.10	36.00	1.90	37.00	0.00	0.00
March	2022-03-17	26.60	36.50	1.80	35.10	0.00	0.00
April	2022-04-19	28.50	33.10	1.40	37.00	0.00	0.00
May	2022-05-18	58.60	41.30	0.00	0.10	0.00	1.50
June	2022-06-27	35.30	35.10	0.10	29.50	0.00	0.00
July	2022-07-15	59.20	40.10	0.50	0.20	0.00	1.00
August	2022-08-24	56.60	40.80	0.00	2.60	0.00	2.10
September	2022-09-16	30.30	29.20	1.80	38.70	1.80	0.00
October	2022-10-13	57.80	41.60	0.60	0.00		1.50
November	2022-11-09	44.90	37.40	0.10	17.60	1.50	1.80
December	2022-12-15	43.20	35.60	0.00	21.20	0.00	0.00
Average		42.4	37.0	0.7	19.9	0.3	0.7
HLGW023B							
January							
February	2022-02-16	44.70	21.80	0.30	33.20	0.00	0.00
March	2022-03-17	42.20	23.50	0.20	34.10	0.00	0.00
April	2022-04-19	35.50	21.50	2.70	40.30	0.00	0.00
May	2022-05-30	3.60	17.20	6.30	72.90	0.00	0.00
June	2022-06-27	16.40	26.40	0.90	56.30	0.00	0.00
July	2022-07-15	11.80	16.30	9.10	62.80	0.00	0.00
August							
September							
October							
November							
December							
Average		25.7	21.1	3.3	49.9	0.0	0.0
HLGW024B							
January	2022-01-28	58.10	41.90	0.00	0.00	54.70	54.60
February	2022-02-14	56.60	41.80	0.00	1.60	111.40	111.20
March	2022-03-15	56.40	41.30	0.10	2.20	121.20	117.90
April	2022-04-12	57.30	41.60	0.00	1.10	120.10	120.10
May	2022-05-13	57.00	42.90	0.10	0.00	120.90	123.50
June	2022-06-21	57.00	41.90	0.30	0.80	121.60	119.10
July	2022-07-13	56.80	42.00	0.30	0.90	119.40	120.90
August	2022-08-09	57.60	42.20	0.10	0.10	114.40	115.30
September							
October							
November							
December							
Average		57.1	42.0	0.1	0.8	110.5	110.3

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW025B							
January	2022-01-28	55.70	39.80	0.00	4.50	24.30	25.10
February	2022-02-14	56.20	39.00	0.00	4.80	9.80	10.50
March	2022-03-15	56.20	39.00	0.10	4.70	27.00	27.10
April	2022-04-12	57.10	39.70	0.10	3.10	8.40	6.90
May	2022-05-13	54.90	40.90	0.20	4.00	24.90	24.40
June	2022-06-21	52.90	38.80	0.30	8.00	19.90	19.60
July	2022-07-13	53.10	38.20	0.50	8.20	10.70	11.00
August	2022-08-09	53.50	38.30	0.50	7.70	15.10	14.40
September							
October							
November							
December							
Average		55.0	39.2	0.2	5.6	17.5	17.4
HLGW026B							
January							
February	2022-02-16	53.10	18.80	2.70	25.40		0.00
March	2022-03-17	22.90	15.60	12.90	48.60	0.00	0.00
April	2022-04-19	11.80	6.90	17.90	63.40	0.00	0.00
May	2022-05-17	11.00	6.30	17.60	65.10	0.00	0.00
June	2022-06-27	17.70	12.10	12.30	57.90	0.00	0.00
July	2022-07-15	20.70	12.70	13.40	53.20	0.00	0.00
August	2022-08-23	56.60	36.80	0.80	5.80	0.00	2.80
September							
October							
November							
December							
Average		27.7	15.6	11.1	45.6	0.0	0.4
HLGW027A							
January	2022-01-18	53.90	38.20	0.00	7.90	10.70	5.60
February	2022-02-15	56.00	39.10	0.00	4.90	8.50	6.80
March	2022-03-21	52.10	37.80	0.40	9.70	3.60	3.00
April	2022-04-12	47.00	35.70	0.20	17.10	2.20	1.10
May	2022-05-16	6.50	4.60	18.30	70.60	0.00	0.00
June	2022-06-22	49.00	36.50	0.10	14.40	1.50	0.00
July	2022-07-15	46.10	35.40	0.30	18.20	0.00	0.00
August	2022-08-16	51.00	36.70	0.10	12.20	0.00	10.00
September	2022-09-14	37.90	33.00	0.10	29.00	18.10	3.90
October	2022-10-13	48.50	36.20	0.00	15.30	5.40	2.90
November	2022-11-17	39.80	33.40	0.00	26.80	0.00	1.80
December	2022-12-14	40.00	34.20	0.00	25.80	3.10	0.00
Average		44.0	33.4	1.6	21.0	4.4	2.9

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW027B							
January	2022-01-28	43.20	31.20	0.70	24.90	0.00	0.00
February	2022-02-15	55.40	38.10	0.00	6.50	3.20	2.20
March	2022-03-17	34.00	27.70	4.80	33.50	0.00	0.00
April	2022-04-19	56.30	38.00	0.00	5.70	0.00	1.90
May	2022-05-17	42.70	33.50	0.20	23.60	3.10	0.00
June	2022-06-27	50.30	36.70	0.30	12.70	8.30	6.70
July	2022-07-15	46.70	35.30	0.40	17.60	10.70	0.00
August	2022-08-23	47.50	34.20	1.70	16.60	0.00	0.00
September	2022-09-16	36.40	32.20	0.00	31.40	0.00	0.00
October	2022-10-20	51.90	37.60	0.00	10.50	0.00	1.50
November	2022-11-21	31.30	29.80	0.30	38.60	0.00	0.00
December	2022-12-15	23.50	27.10	0.80	48.60	0.00	0.00
Average		43.3	33.5	0.8	22.5	2.1	1.0
HLGW028A							
January	2022-01-18	58.10	39.20	0.00	2.70	35.00	27.50
February	2022-02-15	55.50	38.40	0.00	6.10	28.40	25.50
March	2022-03-21	56.80	39.10	0.00	4.10	28.50	27.90
April	2022-04-12	57.80	39.30	0.00	2.90	24.80	26.30
May	2022-05-16	58.50	39.00	0.10	2.40	27.60	31.20
June	2022-06-22	55.70	38.80	0.10	5.40	33.20	33.20
July	2022-07-15	53.50	37.90	0.20	8.40	38.10	38.20
August	2022-08-16	54.70	38.40	0.00	6.90	32.30	32.30
September	2022-09-14	55.00	39.00	0.00	6.00	32.10	31.70
October	2022-10-13	55.50	38.90	0.00	5.60	34.10	33.90
November	2022-11-17	53.10	38.00	0.00	8.90	30.60	30.80
December	2022-12-14	52.00	38.60	0.00	9.40	34.60	34.60
Average		55.5	38.7	0.0	5.7	31.6	31.1
HLGW028B							
January	2022-01-28	59.90	40.10	0.00	0.00	3.80	3.60
February	2022-02-15	56.70	39.70	0.00	3.60	9.80	9.40
March							
April	2022-04-12	59.20	39.80	0.10	0.90	2.70	3.40
May	2022-05-17	57.30	39.60	0.00	3.10	4.00	3.70
June	2022-06-27	57.80	39.00	0.10	3.10	5.30	5.40
July	2022-07-15	53.90	37.90	0.10	8.10	6.70	6.80
August	2022-08-30	58.30	40.40	0.00	1.30	7.90	9.50
September	2022-09-16	53.20	38.50	0.00	8.30	7.50	6.30
October	2022-10-27	58.70	41.30	0.00	0.00	4.60	7.50
November	2022-11-21	54.90	38.90	0.00	6.20	6.00	5.80
December	2022-12-15	54.60	38.70	0.00	6.70	12.20	11.40
Average		56.8	39.4	0.0	3.8	6.4	6.6

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW029A							
January	2022-01-18	59.70	40.10	0.20	0.00	1.90	2.80
February	2022-02-15	54.20	38.50	0.40	6.90	12.10	8.30
March	2022-03-21	52.60	38.10	0.60	8.70	8.50	7.60
April	2022-04-12	57.70	39.90	0.10	2.30	4.20	5.80
May	2022-05-16	55.40	38.20	0.90	5.50	5.20	5.90
June	2022-06-22	54.40	38.50	0.60	6.50	10.60	10.50
July	2022-07-25	52.90	38.40	0.40	8.30	15.20	15.00
August	2022-08-16	53.30	38.30	0.30	8.10	5.00	4.70
September	2022-09-14	55.20	39.60	0.20	5.00	3.90	4.80
October	2022-10-13	52.40	38.50	0.40	8.70	4.20	3.60
November	2022-11-30	56.60	40.70	0.20	2.50	3.30	3.80
December	2022-12-14	45.90	36.20	0.80	17.10	8.90	5.00
Average		54.2	38.8	0.4	6.6	6.9	6.5
HLGW029B							
January	2022-01-28	60.60	39.20	0.20	0.00	3.40	4.00
February							
March	2022-03-17	51.50	37.60	0.00	10.90	9.60	5.10
April	2022-04-12	45.40	36.10	0.40	18.10	2.70	2.50
May							
June							
July							
August	2022-08-30	59.50	40.50	0.00	0.00	0.00	2.10
September	2022-09-16	37.50	32.40	0.50	29.60	5.20	1.50
October	2022-10-27	53.80	39.20	0.10	6.90	3.10	2.20
November	2022-11-22	59.60	40.40	0.00	0.00	0.00	2.70
December	2022-12-15	36.50	31.90	0.00	31.60	1.50	0.00
Average		50.6	37.2	0.2	12.1	3.2	2.5
HLGW030A							
January							
February	2022-02-15	37.30	32.80	0.00	29.90	0.00	0.00
March							
April	2022-04-13	41.10	34.90	0.30	23.70	0.00	0.00
May	2022-05-16	40.40	33.20	0.20	26.20	0.00	0.00
June	2022-06-22	52.90	37.20	0.00	9.90	0.00	1.10
July	2022-07-21	44.60	34.70	0.10	20.60	4.40	0.00
August	2022-08-16	41.90	32.50	0.10	25.50	0.00	0.00
September	2022-09-15	29.40	29.90	0.00	40.70	0.00	0.00
October	2022-10-13	33.50	30.70	0.00	35.80	0.00	0.00
November	2022-11-17	34.50	31.50	0.00	34.00	0.00	0.00
December	2022-12-14		30.00	0.70		0.00	0.00
Average		39.5	32.7	0.1	27.4	0.4	0.1

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW030B							
January	2022-01-25	59.60	38.70	0.10	1.60	14.20	14.00
February	2022-02-15	55.70	38.50	0.00	5.80	13.30	11.80
March	2022-03-16	57.30	38.90	0.00	3.80	11.90	12.80
April	2022-04-12	58.40	39.50	0.00	2.10	7.80	7.90
May	2022-05-13	57.30	38.80	0.00	3.90	7.30	7.50
June	2022-06-27	55.20	37.70	0.20	6.90	9.30	8.80
July	2022-07-14	54.00	37.70	0.00	8.30	8.40	8.50
August	2022-08-12	56.90	39.20	0.00	3.90	9.40	9.70
September	2022-09-13	56.90	39.20	0.00	3.90	26.70	27.00
October	2022-10-14	54.50	38.10	0.00	7.40	8.20	7.90
November	2022-11-16	53.20	38.20	0.00	8.60	10.60	11.10
December	2022-12-14	43.30	35.30	0.30	21.10	21.80	10.20
Average		55.2	38.3	0.1	6.4	12.4	11.4
HLGW031A							
January							
February	2022-02-15	45.00	36.10	0.00	18.90	0.00	0.00
March							
April	2022-04-13	29.60	30.10	1.20	39.10	0.00	0.00
May	2022-05-16	60.30	39.70	0.00	0.00	0.00	1.60
June	2022-06-22	41.40	33.30	0.00	25.30	0.00	0.00
July	2022-07-21	18.60	23.00	1.70	56.70	0.00	0.00
August	2022-08-16	21.40	24.90	1.60	52.10	0.00	0.00
September	2022-09-15	27.20	29.00	0.30	43.50	0.00	0.00
October	2022-10-13	58.70	39.00	0.00	2.30	0.00	2.20
November	2022-11-17	8.60	17.20	6.70	67.50	2.20	0.00
December	2022-12-14	32.50	30.00	1.00	36.50	0.00	0.00
Average		34.3	30.2	1.3	34.2	0.2	0.4
HLGW031B							
January	2022-01-25	57.10	36.70	1.60	4.60	11.90	9.60
February	2022-02-15	60.30	39.70	0.00	0.00	11.10	15.20
March	2022-03-16	44.50	33.80	1.30	20.40	16.80	4.00
April	2022-04-12	59.50	39.40	0.70	0.40	17.10	22.40
May	2022-05-13	47.80	34.70	1.50	16.00	14.30	7.80
June	2022-06-27	48.00	35.20	1.00	15.80	12.10	7.50
July	2022-07-14	58.80	39.30	0.20	1.70	17.40	20.00
August	2022-08-12	52.70	37.80	0.00	9.50	10.30	10.40
September	2022-09-13	54.40	38.50	0.00	7.10	10.20	9.90
October	2022-10-14	59.90	39.40	0.10	0.60	3.30	6.50
November	2022-11-16	59.30	40.70	0.00	0.00	14.80	17.90
December	2022-12-14	40.20	33.60	0.90	25.30	6.90	1.50
Average		53.5	37.4	0.6	8.5	12.2	11.1

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW032A							
January							
February	2022-02-15	56.00	38.00	0.00	6.00	0.00	0.00
March	2022-03-21	59.70	40.30	0.00	0.00	0.00	2.40
April	2022-04-13	43.50	35.70	0.00	20.80	0.00	0.00
May	2022-05-16	60.10	39.80	0.00	0.10	0.00	2.50
June	2022-06-22	58.40	38.40	0.10	3.10	8.20	8.00
July	2022-07-21	34.60	30.30	0.30	34.80	4.70	0.00
August	2022-08-16	46.70	35.10	0.00	18.20	0.00	0.00
September	2022-09-15	43.30	33.30	1.70	21.70	0.00	0.00
October	2022-10-13	60.80	38.70	0.00	0.50	0.00	2.90
November	2022-11-18	48.70	35.80	0.00	15.50	0.00	0.00
December	2022-12-14	32.40	29.60	0.60	37.40	0.00	0.00
Average		49.5	35.9	0.2	14.4	1.2	1.4
HLGW032B							
January	2022-01-25	60.50	39.30	0.20	0.00	27.60	14.60
February	2022-02-15	58.40	38.60	0.40	2.60	15.60	16.10
March	2022-03-16	50.10	36.60	0.20	13.10	27.10	15.00
April	2022-04-12	60.10	39.80	0.00	0.10	19.20	24.20
May	2022-05-13	55.50	38.30	0.10	6.10	20.90	15.00
June	2022-06-23	58.60	38.90	0.20	2.30	13.20	16.10
July	2022-07-14	57.90	38.40	0.30	3.40	25.50	34.10
August	2022-08-12	60.10	39.20	0.20	0.50	15.80	19.70
September	2022-09-13	58.10	38.80	0.30	2.80	21.70	23.70
October	2022-10-14	60.70	39.10	0.20	0.00	7.00	8.60
November	2022-11-16	59.10	39.10	0.00	1.80	12.00	12.90
December	2022-12-14	42.40	33.60	1.00	23.00	13.20	6.60
Average		56.8	38.3	0.3	4.6	18.2	17.2
HLGW033A							
January	2022-01-18	59.80	40.20	0.00	0.00	8.60	11.70
February	2022-02-15	52.70	36.80	0.50	10.00	12.00	9.20
March	2022-03-21	59.70	39.50	0.00	0.80	9.10	11.40
April	2022-04-13	59.40	40.60	0.00	0.00	5.50	5.70
May	2022-05-16	49.70	34.90	1.30	14.10	12.60	8.30
June	2022-06-22	60.00	39.10	0.10	0.80	5.70	6.80
July	2022-07-21	58.30	38.60	0.10	3.00	8.00	10.80
August	2022-08-16	52.80	36.70	0.00	10.50	11.60	7.50
September	2022-09-15	59.90	39.90	0.20	0.00	6.60	6.90
October	2022-10-13	57.20	38.10	0.00	4.70	7.80	9.20
November	2022-11-18	60.20	39.80	0.00	0.00	6.40	8.40
December	2022-12-14	52.30	36.70	0.40	10.60	8.10	8.30
Average		56.8	38.4	0.2	4.5	8.5	8.7

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW033B							
January							
February	2022-02-15	18.40	26.60	3.50	51.50	0.00	0.00
March	2022-03-16	7.90	18.40	4.90	68.80	0.00	0.00
April	2022-04-12	59.90	40.10	0.10		0.00	3.20
May	2022-05-13	32.20	26.60	4.60	36.60	0.00	0.00
June	2022-06-23	59.90	38.30	0.20	1.60	0.00	1.10
July	2022-07-14	29.70	28.30	0.30	41.70	0.00	0.00
August	2022-08-12	10.70	19.00	3.70	66.60	1.80	0.00
September	2022-09-13	37.60	27.80	2.70	31.90	0.00	0.00
October	2022-10-19	14.30	22.00	1.20	62.50		
November	2022-11-16	43.70	34.20	0.00	22.10	0.00	0.00
December	2022-12-14	27.60	26.60	3.10	42.70	0.00	0.00
Average		31.1	28.0	2.2	42.6	0.2	0.4
HLGW034A							
January							
February	2022-02-15	54.90	36.50	0.00	8.60	2.50	2.20
March	2022-03-21	53.90	37.40	0.00	8.70	4.80	3.90
April	2022-04-13	60.50	39.10	0.00	0.40	5.30	6.80
May	2022-05-16	53.50	36.60	0.00	9.90	7.60	6.60
June	2022-06-22	60.20	38.40	0.00	1.40	7.50	10.30
July	2022-07-21	48.30	34.70	0.20	16.80	9.50	6.50
August	2022-08-16	60.30	38.40	0.00	1.30	7.00	9.00
September	2022-09-15	55.40	37.50	0.30	6.80	9.60	9.50
October	2022-10-13	51.70	35.90	0.00	12.40	8.80	7.40
November	2022-11-18	60.70	39.30	0.00	0.00	5.50	7.50
December	2022-12-14	46.40	34.70	0.20	18.70	10.10	5.00
Average		55.1	37.1	0.1	7.7	7.1	6.8
HLGW034B							
January	2022-01-25	58.10	37.50	0.00	4.40	10.20	10.20
February	2022-02-15	55.30	37.60	0.10	7.00	34.70	27.80
March	2022-03-16	50.00	35.30	0.80	13.90	11.60	7.60
April	2022-04-12	58.30	38.50	0.00	3.20	5.10	5.70
May	2022-05-13	28.00	26.00	2.30	43.70	3.30	1.00
June	2022-06-23	38.80	30.30	0.40	30.50	0.00	0.00
July	2022-07-14	26.60	24.40	2.50	46.50	0.00	0.00
August	2022-08-12	47.10	30.40	1.20	21.30	0.00	0.00
September	2022-09-13	37.30	29.90	1.00	31.80	0.00	0.00
October	2022-10-19	38.10	30.60	0.10	31.20		
November	2022-11-16	51.30	35.80	0.00	12.90	0.00	0.00
December	2022-12-14	36.00	30.40	1.70	31.90	0.00	0.00
Average		43.7	32.2	0.8	23.2	5.9	4.8

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW036B							
January	2022-01-28	53.30	42.60	0.00	4.10	9.70	9.60
February	2022-02-16	52.70	38.10	0.10	9.10	10.90	5.70
March	2022-03-17	55.60	38.60	0.10	5.70	3.60	5.00
April	2022-04-19	57.20	39.50	0.30	3.00	0.00	1.50
May	2022-05-18	53.80	44.10	0.10	2.00	3.60	4.80
June	2022-06-28	54.50	45.10	0.40	0.00	5.40	6.00
July	2022-07-15	54.90	44.80	0.20	0.10	8.40	8.30
August	2022-08-23	56.40	43.50	0.10	0.00	6.40	8.20
September							
October							
November							
December							
Average		54.8	42.0	0.2	3.0	6.0	6.1
HLGW037B							
January	2022-01-28	49.70	33.30	1.70	15.30	17.80	1.90
February	2022-02-15	60.40	39.60	0.00	0.00	22.90	28.80
March	2022-03-17	56.80	36.70	2.00	4.50	29.70	29.60
April							
May	2022-05-17	51.40	36.60	0.20	11.80	10.50	9.20
June							
July	2022-07-26	53.80	33.10	2.00	11.10	3.70	3.20
August	2022-08-23	55.60	39.90	0.20	4.30	4.80	4.70
September							
October							
November							
December							
Average		54.6	36.5	1.0	7.8	14.9	12.9
HLGW038B							
January	2022-01-28	59.50	40.50	0.00	0.00	4.80	4.60
February	2022-02-15	59.30	40.70	0.00	0.00	0.00	0.00
March	2022-03-17	60.10	39.50	0.40	0.00	2.80	2.80
April	2022-04-19	54.60	38.00	0.60	6.80	2.20	2.50
May	2022-05-17	53.90	37.40	0.50	8.20	5.20	3.70
June	2022-06-27	44.70	35.00	0.20	20.10	0.00	0.00
July	2022-07-15	39.30	33.00	0.80	26.90	26.60	0.00
August	2022-08-23	55.80	35.10	1.40	7.70	1.80	1.80
September	2022-09-16	52.50	38.60	0.70	8.20	3.20	4.50
October	2022-10-20	58.00	39.50	0.30	2.20	5.20	5.90
November	2022-11-21	59.50	40.50	0.00	0.00	8.00	13.00
December	2022-12-15	49.00	36.60	0.70	13.70	9.20	5.30
Average		53.9	37.9	0.5	7.8	5.8	3.7

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW039A							
January	2022-01-18	59.10	40.90	0.00	0.00	8.00	8.20
February	2022-02-15	59.60	40.40	0.00	0.00	8.30	10.20
March	2022-03-21	56.90	38.40	0.40	4.30	11.00	12.60
April	2022-04-12	57.00	38.60	0.30	4.10	32.20	32.30
May	2022-05-16	56.10	37.70	0.70	5.50	9.50	9.90
June	2022-06-22	60.30	39.60	0.10	0.00	5.60	6.40
July	2022-07-25	52.60	37.00	0.60	9.80	7.10	7.20
August	2022-08-16	46.90	34.50	1.20	17.40	8.60	5.80
September	2022-09-14	59.90	40.10	0.00	0.00	7.20	6.80
October	2022-10-13	60.10	39.90	0.00	0.00	5.70	9.60
November	2022-11-17	51.50	36.40	1.20	10.90	10.00	10.00
December	2022-12-15	55.20	37.70	0.60	6.50	9.40	9.30
Average		56.3	38.4	0.4	4.9	10.2	10.7
HLGW039B							
January	2022-01-28	52.10	27.00	4.30	16.60	0.00	0.00
February	2022-02-15	60.80	37.30	1.90	0.00	0.00	0.00
March	2022-03-17	62.20	36.70	1.10	0.00	0.00	2.70
April							
May							
June	2022-06-27	36.80	34.50	1.10	27.60	0.00	0.00
July	2022-07-22	49.30	32.50	3.20	15.00	5.50	0.00
August	2022-08-23	58.50	38.90	0.00	2.60	0.00	3.70
September	2022-09-16	31.70	34.80	0.50	33.00	6.40	0.00
October	2022-10-27	60.50	39.40	0.00	0.10		2.80
November	2022-11-22	58.10	38.40	0.00	3.50	3.60	5.90
December	2022-12-15	52.80	37.80	0.00	9.40	7.40	3.60
Average		52.3	35.7	1.2	10.8	2.5	1.9
HLGW040A							
January	2022-01-18	58.00	42.00	0.00	0.00	6.50	6.30
February	2022-02-15	59.30	40.70	0.00	0.00	6.40	17.10
March	2022-03-21	52.80	38.80	0.00	8.40	10.00	7.40
April	2022-04-13	53.00	38.50	0.00	8.50	2.40	2.40
May	2022-05-16	59.20	39.70	0.10	1.00	2.20	2.70
June	2022-06-22	57.30	38.60	0.10	4.00	7.80	7.70
July	2022-07-21	52.20	37.70	0.10	10.00	8.00	7.80
August	2022-08-17	53.30	38.20	0.00	8.50	7.60	7.20
September	2022-09-15	55.50	38.90	0.00	5.60	5.60	5.40
October	2022-10-13	56.00	38.90	0.00	5.10	7.00	6.60
November	2022-11-17	49.60	36.90	0.00	13.50	4.10	4.30
December	2022-12-15	44.30	35.00	0.30	20.40	2.90	1.50
Average		54.2	38.7	0.1	7.1	5.9	6.4

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW040B							
January	2022-01-28	53.50	35.70	0.40	10.40	2.10	5.80
February	2022-02-15	61.80	38.20	0.00	0.00	6.50	8.60
March	2022-03-17	61.30	38.60	0.10	0.00	6.90	11.30
April	2022-04-19	47.90	35.20	0.60	16.30	8.60	6.00
May	2022-05-17	56.20	38.00	0.20	5.60	6.30	6.00
June	2022-06-28	59.30	38.80	0.30	1.60	1.90	2.20
July	2022-07-22	54.30	39.00	0.20	6.50	6.20	6.00
August	2022-08-23	43.90	35.30	0.10	20.70	1.80	0.00
September	2022-09-16	52.10	38.40	0.00	9.50	4.10	3.60
October	2022-10-20	53.70	38.50	0.00	7.80	4.10	3.80
November	2022-11-21	60.50	39.50	0.00	0.00	1.90	3.20
December	2022-12-15	61.10	38.70	0.20	0.00	2.30	4.50
Average		55.5	37.8	0.2	6.5	4.4	5.1
HLGW041A							
January							
February	2022-02-15	47.30	36.90	0.00	15.80	0.00	0.00
March	2022-03-21	3.70	16.50	1.70	78.10	0.00	0.00
April	2022-04-13	8.40	17.80	6.40	67.40	0.00	0.00
May	2022-05-16	33.10	31.40	0.10	35.40	1.50	0.00
June	2022-06-22	21.60	25.80	0.10	52.50	0.00	0.00
July							
August	2022-08-17	20.10	24.60	0.10	55.20	0.00	0.00
September	2022-09-15	27.40	27.40	2.60	42.60	0.00	0.00
October	2022-10-13	55.00	38.50	0.00	6.50	1.80	1.50
November	2022-11-17	31.00	31.80	0.30	36.90	0.00	0.00
December	2022-12-15	20.30	22.90	3.00	53.80	0.00	0.00
Average		26.8	27.4	1.4	44.4	0.3	0.2
HLGW041B							
January	2022-01-28	60.50	39.30	0.20	0.00	4.90	11.70
February	2022-02-15	56.20	39.60	0.00	4.20	2.50	4.10
March	2022-03-17	54.40	39.10	0.00	6.50	8.80	7.70
April	2022-04-19	44.70	36.10	0.10	19.10	6.70	5.70
May	2022-05-17	55.40	39.00	0.00	5.60	5.90	6.00
June	2022-06-27	51.10	37.40	0.10	11.40	5.30	3.20
July	2022-07-22	58.40	39.70	0.10	1.80	10.70	11.40
August	2022-08-24	56.90	39.10	0.00	4.00	6.30	6.20
September	2022-09-16	51.70	37.50	0.20	10.60	6.30	4.80
October	2022-10-20	59.50	40.50	0.00	0.00	3.80	7.10
November	2022-11-21	38.30	33.10	0.60	28.00	4.10	0.00
December	2022-12-15	43.30	34.90	0.20	21.60	7.20	5.10
Average		52.5	37.9	0.1	9.4	6.0	6.1

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW042A							
January	2022-01-18	59.90	39.20	0.00	0.90	4.20	4.80
February	2022-02-15	53.70	37.50	0.20	8.60	8.80	4.50
March	2022-03-21	48.40	36.20	0.20	15.20	7.10	4.60
April	2022-04-13	54.80	38.80	0.00	6.40	4.60	4.50
May							
June	2022-06-22	48.30	35.60	0.30	15.80	3.00	0.00
July							
August	2022-08-17	51.40	36.60	0.00	12.00	0.00	0.00
September	2022-09-15	49.90	36.60	0.10	13.40	0.00	1.00
October	2022-10-13	51.90	36.50	0.30	11.30	3.00	2.60
November	2022-11-18	54.00	38.00	0.10	7.90	4.00	4.30
December	2022-12-15	48.60	35.60	0.50	15.30	4.20	1.50
Average		52.1	37.1	0.2	10.7	3.9	2.8
HLGW042B							
January	2022-01-25	58.30	38.80	0.00	2.90	26.50	25.90
February	2022-02-15	56.80	38.90	0.00	4.30	20.00	19.80
March	2022-03-16	52.20	37.90	0.00	9.90	25.00	18.80
April	2022-04-12	59.20	40.80	0.00	0.00	20.10	21.40
May	2022-05-13	56.70	38.80	0.00	4.50	21.70	19.30
June	2022-06-30	51.30	37.10	0.10	11.50	21.40	21.40
July	2022-07-14	54.00	37.70	0.20	8.10	21.90	23.40
August	2022-08-12	55.20	38.20	0.00	6.60	18.40	18.40
September	2022-09-13	53.10	37.90	0.00	9.00	18.70	18.10
October	2022-10-19	52.30	37.50	0.00	10.20	18.00	13.00
November	2022-11-16	59.30	39.80	0.00	0.90	18.60	19.10
December	2022-12-14	45.50	36.10	0.20	18.20	17.50	7.10
Average		54.5	38.3	0.0	7.2	20.7	18.8
HLGW043A							
January							
February	2022-02-15	61.10	38.90	0.00	0.00	0.00	2.50
March	2022-03-21	59.40	38.20	0.00	2.40	2.50	4.20
April	2022-04-13	60.80	38.20	0.00	1.00	1.50	1.50
May	2022-05-16	60.70	38.60	0.00	0.70	2.50	3.30
June	2022-06-22	53.60	35.90	0.20	10.30	2.60	2.40
July	2022-07-21	56.30	36.70	0.30	6.70	3.10	3.20
August	2022-08-17	56.60	36.80	0.20	6.40	5.00	4.50
September	2022-09-15	52.60	36.90	0.30	10.20	6.60	3.80
October	2022-10-13	59.50	38.00	0.20	2.30	4.80	6.60
November	2022-11-18	49.70	35.40	0.50	14.40	7.00	5.10
December	2022-12-15	50.80	35.60	0.40	13.20	1.50	2.20
Average		56.5	37.2	0.2	6.1	3.4	3.6

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW043B							
January	2022-01-25	50.70	34.70	0.00	14.60	0.00	0.00
February	2022-02-15	45.10	32.60	0.00	22.30	0.00	0.00
March	2022-03-16	21.10	21.50	6.60	50.80	0.00	0.00
April	2022-04-12	37.60	29.20	3.90	29.30	0.00	0.00
May	2022-05-13	55.70	36.80	0.00	7.50	0.00	1.10
June	2022-06-23	25.00	25.80	1.30	47.90	0.00	0.00
July	2022-07-14	43.90	32.50	0.10	23.50	2.60	0.00
August	2022-08-12	25.50	25.80	2.20	46.50	0.00	0.00
September	2022-09-13	47.40	35.20	0.00	17.40	0.00	1.00
October	2022-10-19	45.50	34.40	0.10	20.00		
November	2022-11-16	45.50	35.10	0.00	19.40	0.00	0.00
December	2022-12-14	36.90	32.10	0.30	30.70	0.00	0.00
Average		40.0	31.3	1.2	27.5	0.2	0.2
HLGW044A							
January	2022-01-18	61.20	38.80	0.00	0.00	34.20	27.30
February	2022-02-15	58.80	37.90	0.00	3.30	4.80	5.00
March	2022-03-21	58.90	38.40	0.00	2.70	0.00	0.00
April	2022-04-13	58.10	38.20	0.00	3.70	10.30	9.90
May	2022-05-16	53.80	36.60	0.00	9.60	11.20	6.50
June	2022-06-22	57.20	37.10	0.00	5.70	4.10	4.10
July	2022-07-21	56.10	36.70	0.00	7.20	4.90	4.10
August	2022-08-17	52.40	36.00	0.00	11.60	11.60	10.20
September	2022-09-15	54.20	36.80	0.10	8.90	6.90	5.60
October	2022-10-13	54.50	36.60	0.00	8.90	8.40	8.10
November	2022-11-18	58.00	37.70	0.00	4.30	3.50	4.50
December	2022-12-15	54.80	36.90	0.00	8.30	4.70	4.70
Average		56.5	37.3	0.0	6.2	8.7	7.5
HLGW044B							
January							
February	2022-02-15	37.20	20.60	0.00	42.20	0.00	0.00
March	2022-03-16	34.30	22.40	2.40	40.90	0.00	0.00
April	2022-04-12	44.40	23.60	0.00	32.00	0.00	0.00
May	2022-05-13	44.00	34.00	0.00	22.00	0.00	0.00
June	2022-06-23	41.10	29.40	0.10	29.40	0.00	0.00
July	2022-07-14	42.40	29.50	0.60	27.50	0.00	0.00
August	2022-08-12	39.40	28.00	1.20	31.40	0.00	0.00
September	2022-09-13	38.20	23.70	2.30	35.80	0.00	0.00
October	2022-10-19	45.40	34.40	0.00	20.20		
November	2022-11-16	49.40	35.90	0.00	14.70	0.00	0.00
December	2022-12-14	43.50	34.30	0.40	21.80	0.00	0.00
Average		41.8	28.7	0.6	28.9	0.0	0.0

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW047A							
January	2022-01-18	60.00	40.00	0.00	0.00	7.10	6.80
February	2022-02-15	60.70	39.30	0.00	0.00	17.70	18.70
March	2022-03-21	55.80	38.60	0.00	5.60	12.30	11.60
April	2022-04-13	55.70	37.90	0.00	6.40	9.40	8.60
May	2022-05-16	53.90	37.10	0.20	8.80	5.70	5.70
June	2022-06-22	57.70	38.00	0.30	4.00	7.00	7.20
July	2022-07-21	53.40	37.60	0.20	8.80	7.30	7.40
August	2022-08-17	51.60	37.60	0.00	10.80	7.10	7.10
September	2022-09-14	56.00	39.10	0.00	4.90	9.30	9.10
October	2022-10-13	57.20	39.50	0.00	3.30	5.40	6.90
November	2022-11-17	48.70	37.30	0.00	14.00	6.10	5.00
December	2022-12-15	54.20	45.80	0.00	0.00	32.10	32.10
Average		55.4	39.0	0.1	5.6	10.5	10.5
HLGW048A							
January	2022-01-18	60.30	39.70	0.00	0.00	6.20	6.40
February	2022-02-15	49.80	36.80	0.00	13.40	5.40	3.10
March	2022-03-21	53.20	37.80	0.00	9.00	6.60	5.10
April	2022-04-13	58.30	39.20	0.00	2.50	3.50	4.40
May	2022-05-16	48.80	36.60	0.00	14.60	2.20	0.00
June	2022-06-22	54.90	37.80	0.00	7.30	0.00	2.10
July	2022-07-21	44.20	35.30	0.10	20.40	4.90	4.60
August	2022-08-17	51.20	37.60	0.00	11.20	3.40	3.70
September	2022-09-14	47.30	36.50	0.00	16.20	6.50	6.20
October	2022-10-13	39.70	34.10	0.00	26.20	4.40	1.00
November	2022-11-17	50.50	36.80	0.00	12.70	2.40	2.90
December	2022-12-15	52.30	38.20	0.00	9.50	3.20	2.20
Average		50.9	37.2	0.0	11.9	4.1	3.5
HLGW049A							
January							
February	2022-02-15	36.00	31.00	0.00	33.00	0.00	0.00
March	2022-03-21	29.00	29.20	0.50	41.30	0.00	0.00
April	2022-04-13	28.80	29.00	0.90	41.30	1.80	0.00
May	2022-05-16	35.40	30.10	0.10	34.40	0.00	0.00
June	2022-06-22	37.00	31.80	0.00	31.20	0.00	0.00
July	2022-07-21	35.80	31.10	0.10	33.00	0.00	0.00
August	2022-08-17	30.30	29.60	0.00	40.10	0.00	0.00
September	2022-09-15	33.10	31.00	0.20	35.70	0.00	0.00
October	2022-10-13	32.50	30.40	0.10	37.00		
November	2022-11-17	57.20	36.50	0.70	5.60	0.00	1.90
December	2022-12-15	14.10	17.00	6.60	62.30	1.90	0.00
Average		33.6	29.7	0.8	35.9	0.4	0.2

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW050A							
January							
February	2022-02-15	47.30	34.90	0.00	17.80	0.00	0.00
March	2022-03-21	37.70	32.90	0.00	29.40	0.00	0.00
April	2022-04-13	41.00	33.40	0.00	25.60	2.40	0.00
May	2022-05-16	40.90	33.30	0.00	25.80	0.00	0.00
June	2022-06-22	35.10	31.50	0.10	33.30	0.00	0.00
July	2022-07-21	39.20	32.90	0.00	27.90	0.00	0.00
August	2022-08-17	37.50	32.40	0.20	29.90	0.00	0.00
September	2022-09-15	37.90	32.60	0.60	28.90	0.00	0.00
October	2022-10-13	38.60	31.60	0.10	29.70		0.00
November	2022-11-17	45.80	33.80	0.00	20.40	0.00	0.00
December	2022-12-15	55.10	37.50	0.00	7.40	0.00	1.90
Average		41.5	33.3	0.1	25.1	0.2	0.2
HLGW051A							
January							
February	2022-02-15	49.00	35.60	0.10	15.30	0.00	0.00
March	2022-03-21	47.20	35.10	0.00	17.70	0.00	0.00
April	2022-04-13	48.70	34.30	0.00	17.00	0.00	0.00
May	2022-05-16	53.80	36.50	0.00	9.70	0.00	0.00
June	2022-06-22	58.60	38.20	0.00	3.20	0.00	1.00
July	2022-07-21	27.30	28.70	0.00	44.00	4.10	1.00
August	2022-08-17	34.10	31.00	0.00	34.90	0.00	0.00
September	2022-09-15	40.40	33.40	0.20	26.00	0.00	2.60
October	2022-10-13	37.70	32.00	0.00	30.30		
November							
December	2022-12-15	56.30	38.20	0.00	5.50	5.30	4.80
Average		45.3	34.3	0.0	20.4	1.0	1.0
LHGW002A							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
LHGW0003							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							
LHGW0004							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							
LHGW0006							
January	---	---	---	---	---	---	---
February	---	---	---	---	---	---	---
March	---	---	---	---	---	---	---
April	Decommissioned May 2014						
May	---	---	---	---	---	---	---
June	---	---	---	---	---	---	---
July	---	---	---	---	---	---	---
August	---	---	---	---	---	---	---
September	---	---	---	---	---	---	---
October	---	---	---	---	---	---	---
November	---	---	---	---	---	---	---
December	---	---	---	---	---	---	---
Average		0.0	0.0	0.0	0.0	0.0	0.0

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
LHGW0007							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							
LHGW0008							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							
LHGW0009							
January	---	---	---	---	---	---	---
February	---	---	---	---	---	---	---
March	---	---	---	---	---	---	---
April	Decommissioned May 2014						
May	---	---	---	---	---	---	---
June	---	---	---	---	---	---	---
July	---	---	---	---	---	---	---
August	---	---	---	---	---	---	---
September	---	---	---	---	---	---	---
October	---	---	---	---	---	---	---
November	---	---	---	---	---	---	---
December	---	---	---	---	---	---	---
Average		0.0	0.0	0.0	0.0	0.0	0.0

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
LHGW0010							
January	---	---	---	---	---	---	---
February	---	---	---	---	---	---	---
March	---	---	---	---	---	---	---
April	Decommissioned May 2014						
May	---	---	---	---	---	---	---
June	---	---	---	---	---	---	---
July	---	---	---	---	---	---	---
August	---	---	---	---	---	---	---
September	---	---	---	---	---	---	---
October	---	---	---	---	---	---	---
November	---	---	---	---	---	---	---
December	---	---	---	---	---	---	---
Average		0.0	0.0	0.0	0.0	0.0	0.0
LHGW0013							
January	2022-01-28	55.90	36.70	1.40	6.00	4.90	5.00
February	2022-02-18	55.50	36.70	1.10	6.70	6.80	6.80
March	2022-03-23	53.70	37.00	1.00	8.30	5.10	5.30
April	2022-04-19	56.50	38.70	0.30	4.50	6.80	6.90
May	2022-05-18	57.50	39.40	0.00	3.10	7.90	9.90
June	2022-06-29	43.10	33.70	1.70	21.50	7.10	4.00
July	2022-07-22	40.50	29.50	4.40	25.60	2.70	1.60
August	2022-08-24	23.50	20.20	7.50	48.80	3.10	0.00
September	2022-09-22	7.60	10.10	12.50	69.80	0.00	0.00
October	2022-10-28	45.30	34.80	2.30	17.60	0.00	1.30
November	2022-11-30	57.50	40.20	0.00	2.30	0.00	1.90
December							
Average		45.1	32.5	2.9	19.5	4.0	3.9
LHGW0017							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
LHGW0019							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							
LHGW0020							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							
LHGW0021							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
LHGW0022							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							
LHGW0023							
January							
February							
March							
April							
May	2022-05-18	11.30	7.80	13.10	67.80	0.00	0.00
June							
July							
August							
September							
October							
November							
December							
Average		11.3	7.8	13.1	67.8	0.0	0.0
TLGW001A							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average		---	---	---	---	---	0.0

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
TLGW001B							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average		---	---	---	---	---	0.0
TLGW002A							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average		---	---	---	---	---	0.0
TLGW002B							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average		---	---	---	---	---	0.0

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
TLGW002C							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average		---	---	---	---	---	0.0
VLGW001D							
January	2022-01-19	70.30	12.20	1.10	16.40	3.10	3.80
February	2022-02-28	72.10	10.20	1.60	16.10	0.00	0.00
March	2022-03-23	88.80	9.50	0.00	1.70	0.00	0.00
April	2022-04-13	92.30	7.60	0.10	0.00	0.00	1.30
May	2022-05-20	75.70	11.40	0.00	12.90	0.00	2.10
June	2022-06-27	88.70	6.80	0.00	4.50	0.00	1.20
July	2022-07-21	62.40	11.00	0.40	26.20	4.80	0.00
August	2022-08-19	91.20	7.50	0.10	1.20	0.00	1.80
September	2022-09-23	57.30	12.90	0.10	29.70	1.60	1.60
October	2022-10-19	47.60	12.60	0.00	39.80	2.80	
November	2022-11-23	88.80	7.70	0.00	3.50	0.00	1.30
December	2022-12-16	61.50	12.10	0.10	26.30	2.10	0.00
Average		74.7	10.1	0.3	14.9	1.2	1.2
VLGW001S							
January							
February							
March							
April	2022-04-13	46.30	26.90	2.80	24.00	0.00	0.00
May	2022-05-30	62.10	30.80	0.30	6.80	0.00	0.00
June	2022-06-27	59.70	29.30	0.00	11.00	0.00	0.00
July	2022-07-21	63.00	30.10	0.40	6.50	0.00	0.00
August	2022-08-19	65.20	30.60	0.30	3.90	0.00	0.00
September	2022-09-23	38.50	25.70	0.10	35.70	0.00	0.00
October	2022-10-19	27.80	18.70	5.40	48.10	0.00	
November	2022-11-23	62.50	31.30	0.00	6.20	0.00	0.00
December	2022-12-16	39.70	27.90	0.00	32.40	0.00	0.00
Average		51.6	27.9	1.0	19.4	0.0	0.0

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW002D							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average		---	---	---	---	---	0.0
VLGW002S							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average		---	---	---	---	---	0.0
VLGW003D							
January	2022-01-18	76.70	22.10	0.00	1.20	0.00	0.00
February	2022-02-28	60.60	18.90	0.30	20.20	0.00	0.00
March	2022-03-22	64.50	18.10	0.10	17.30	0.00	0.00
April	2022-04-13	75.00	17.70	0.00	7.30	6.00	5.90
May	2022-05-20	79.20	20.80	0.00	0.00	1.70	2.50
June	2022-06-27	72.10	18.90	0.10	8.90	0.00	0.00
July	2022-07-21	72.70	19.60	0.50	7.20	6.30	6.00
August	2022-08-25	74.00	19.60	0.20	6.20	6.40	8.90
September	2022-09-15	60.30	18.70	0.20	20.80	3.30	3.10
October	2022-10-19	65.70	18.20	0.10	16.00	4.80	4.70
November	2022-11-23	71.70	19.90	0.00	8.40	4.80	3.20
December	2022-12-16	70.80	20.50	0.00	8.70	3.30	2.50
Average		70.3	19.4	0.1	10.2	3.1	3.1

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW003S							
January	2022-01-18	63.20	28.00	0.00	8.80	8.30	8.20
February	2022-02-28	68.50	22.90	0.40	8.20	6.30	5.30
March	2022-03-22	68.40	26.20	0.00	5.40	5.50	5.10
April	2022-04-13	64.20	30.60	0.00	5.20	3.50	3.50
May	2022-05-20	63.80	27.80	0.00	8.40	2.00	0.00
June	2022-06-27	77.00	16.80	0.10	6.10	2.40	2.40
July	2022-07-21	70.20	22.80	0.70	6.30	3.10	2.00
August	2022-08-25	77.70	18.80	0.50	3.00	0.00	1.70
September	2022-09-15	74.90	25.10	0.00	0.00	0.00	1.10
October	2022-10-19	57.40	22.20	0.40	20.00	4.30	
November	2022-11-23	77.50	22.50	0.00	0.00	0.00	1.20
December	2022-12-16	79.10	20.80	0.10	0.00	0.00	2.20
Average		70.2	23.7	0.2	6.0	3.0	3.0
VLGW004D							
January							
February							
March							
April							
May	2022-05-30	0.10	5.80	15.70	78.40	0.00	0.00
June	2022-06-27	0.00	0.40	20.50	79.10	0.00	0.00
July							
August							
September	2022-09-23	0.10	0.40	20.50	79.00	0.00	0.00
October							
November	2022-11-23	0.10	1.00	20.90	78.00	0.00	0.00
December							
Average		0.1	1.9	19.4	78.6	0.0	0.0
VLGW004S							
January							
February							
March							
April							
May	2022-05-20	84.20	15.80	0.10		2.20	1.80
June	2022-06-27	72.70	15.30	0.10	11.90	0.00	0.00
July	2022-07-21	81.90	12.60	0.30	5.20	0.00	2.10
August	2022-08-18	78.80	16.30	0.00	4.90	0.00	1.20
September	2022-09-23	70.30	19.50	0.30	9.90	4.20	4.00
October	2022-10-19	48.70	16.00	2.40	32.90	4.40	0.00
November	2022-11-23	80.60	11.50	1.80	6.10	0.00	1.20
December	2022-12-30	72.40	17.60	0.80	9.20	0.00	1.70
Average		73.7	15.6	0.7	11.4	1.4	1.5

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW005D							
January							
February	2022-02-28	89.80	10.20	0.00	0.00	0.00	0.00
March	2022-03-23	89.80	10.20	0.00	0.00	0.00	0.00
April	2022-04-13	90.20	9.70	0.00	0.10	0.00	1.80
May	2022-05-20	14.00	1.60	17.40	67.00	0.00	0.00
June	2022-06-28	30.00	3.50	13.50	53.00	0.00	
July	2022-07-18	90.70	9.20	0.10	0.00	0.00	0.00
August	2022-08-23	90.60	9.40	0.00	0.00	0.00	2.20
September	2022-09-29	90.80	9.00	0.10	0.10	0.00	0.00
October	2022-10-07	91.50	8.50	0.10			
November	2022-11-23	86.10	13.90	0.00	0.00	0.00	0.00
December	2022-12-30	90.10	9.80	0.10	0.00	0.00	0.00
Average		77.6	8.6	2.8	12.0	0.0	0.4
VLGW005S							
January							
February	2022-02-28	81.70	18.30	0.00	0.00	5.70	4.50
March	2022-03-23	82.50	17.50	0.00	0.00	0.00	1.80
April	2022-04-13	64.70	16.70	2.00	16.60	0.00	0.00
May	2022-05-20	68.40	18.60	0.00	13.00	0.00	0.00
June	2022-06-28	42.80	18.90	2.20	36.10	0.00	0.00
July	2022-07-18	79.10	14.50	0.30	6.10	0.00	0.00
August							
September	2022-09-26	78.80	16.00	0.00	5.20	0.00	0.00
October	2022-10-07	75.00	14.30	0.30	10.40		
November							
December	2022-12-30	54.10	23.50	0.20	22.20	3.80	1.90
Average		69.7	17.6	0.6	12.2	1.2	1.0
VLGW006D							
January	2022-01-19	81.40	18.60	0.00	0.00	4.90	4.90
February							
March	2022-03-22	79.70	18.80	0.00	1.50	0.00	0.00
April	2022-04-19	54.50	16.70	1.60	27.20	0.00	0.00
May	2022-05-20	55.90	17.20	1.20	25.70	1.10	0.00
June	2022-06-24	64.80	14.80	3.70	16.70	0.00	0.00
July	2022-07-12	83.10	16.70	0.20	0.00	0.00	0.00
August	2022-08-23	82.90	17.10	0.00	0.00	0.00	0.00
September	2022-09-26	80.70	15.80	0.20	3.30	0.00	0.00
October	2022-10-27	83.70	16.20	0.10	0.00		
November							
December	2022-12-30	60.40	19.00	0.00	20.60	3.20	2.40
Average		72.7	17.1	0.7	9.5	1.0	0.8

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW006S							
January	2022-01-19	82.40	17.40	0.20	0.00	2.20	2.20
February							
March	2022-03-22	69.10	18.40	0.00	12.50	2.70	2.70
April	2022-04-19	72.40	18.30	0.10	9.20	0.00	1.70
May	2022-05-20	65.00	17.80	0.00	17.20	0.00	0.00
June	2022-06-24	51.60	15.60	0.50	32.30	1.10	0.00
July	2022-07-12	82.20	15.30	0.40	2.10	0.00	0.00
August	2022-08-23	84.30	13.70	0.30	1.70	0.00	2.50
September	2022-09-26	52.10	16.30	0.10	31.50	3.00	0.00
October	2022-10-27	84.50	15.50	0.00	0.00		2.50
November	2022-11-23	46.70	17.30	0.70	35.30	3.90	0.00
December							
Average		69.0	16.6	0.2	14.2	1.4	1.2
VLGW007D							
January	2022-01-19	78.70	21.30	0.00	0.00	5.30	5.50
February	2022-02-28	79.70	19.10	0.80	0.40	7.50	7.40
March	2022-03-22	74.10	17.60	1.80	6.50	5.70	5.60
April	2022-04-19	63.90	16.50	3.00	16.60	3.40	3.40
May	2022-05-19	67.10	17.50	4.50	10.90	2.70	2.00
June	2022-06-23	68.00	17.70	1.70	12.60	0.00	0.00
July	2022-07-12	63.30	16.10	2.90	17.70	0.00	0.00
August	2022-08-18	77.40	22.60	0.00	0.00	0.00	0.00
September	2022-09-26	74.80	22.60	0.00	2.60	0.00	2.00
October	2022-10-27	76.40	23.60	0.00	0.00		
November	2022-11-28	76.60	23.40	0.00	0.00	0.00	0.00
December	2022-12-16	74.70	25.30	0.00	0.00	0.00	1.20
Average		72.9	20.3	1.2	5.6	2.2	2.5
VLGW007S							
January	2022-01-19	83.60	15.50	0.00	0.90	2.90	3.70
February	2022-02-28	79.00	19.00	0.00	2.00	7.20	6.50
March	2022-03-22	72.80	18.30	0.00	8.90	6.70	6.10
April	2022-04-19	70.40	17.50	0.30	11.80	0.00	0.00
May	2022-05-19	42.90	11.80	7.10	38.20	0.00	0.00
June	2022-06-23	53.90	11.90	4.40	29.80	0.00	0.00
July	2022-07-12	54.60	9.10	6.60	29.70	0.00	0.00
August	2022-08-18	78.60	16.90	0.20	4.30	0.00	1.70
September	2022-09-26	65.10	16.20	0.30	18.40	1.10	0.00
October	2022-10-27	80.80	17.90	0.30	1.00		1.20
November	2022-11-28	81.00	19.00	0.00	0.00	0.00	2.50
December	2022-12-16	71.50	18.20	0.00	10.30	2.10	1.20
Average		69.5	15.9	1.6	12.9	1.8	1.9

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW008D							
January							
February	2022-02-28	3.10	7.80	14.90	74.20	0.00	0.00
March	2022-03-22	2.80	9.10	12.80	75.30	0.00	0.00
April	2022-04-19	1.50	8.00	12.90	77.60	0.00	0.00
May	2022-05-20	33.60	8.50	11.00	46.90	0.00	0.00
June	2022-06-23	73.90	15.20	0.20	10.70	0.00	3.20
July	2022-07-12	86.50	12.70	0.00	0.80	0.00	0.00
August	2022-08-11	83.70	15.10	0.40	0.80	0.00	3.00
September	2022-09-13	35.70	18.10	0.20	46.00	3.40	0.00
October	2022-10-11	79.50	16.90	0.30	3.30		
November	2022-11-28	74.10	17.70	0.10	8.10	0.00	0.00
December	2022-12-16	75.50	17.80	0.00	6.70	0.00	0.00
Average		50.0	13.4	4.8	31.9	0.3	0.6
VLGW008S							
January	2022-01-19	75.40	24.60	0.00	0.00	1.70	2.50
February	2022-02-28	76.10	22.70	0.00	1.20	3.10	2.80
March	2022-03-22	75.70	21.70	0.10	2.50	5.10	4.70
April	2022-04-19	75.80	21.40	0.00	2.80	5.20	5.60
May	2022-05-20	75.90	19.70	0.30	4.10	3.00	4.10
June	2022-06-23	66.20	18.00	0.20	15.60	2.00	0.00
July	2022-07-12	78.70	18.80	0.10	2.40	0.00	0.00
August	2022-08-11	23.70	6.10	14.20	56.00	0.00	0.00
September	2022-09-13	55.80	18.70	1.70	23.80	0.00	0.00
October	2022-10-11	70.00	20.80	0.00	9.20	0.00	1.60
November	2022-11-28	72.80	20.90	0.10	6.20	1.70	1.70
December	2022-12-16	71.90	19.70	0.00	8.40	1.70	1.20
Average		68.2	19.4	1.4	11.0	2.0	2.0
VLGW009D							
January							
February	2022-02-28	90.30	9.40	0.30	0.00	0.00	0.00
March	2022-03-23	90.50	9.20	0.30	0.00	0.00	2.30
April	2022-04-13	23.40	12.20	9.20	55.20	0.00	0.00
May	2022-05-20	44.30	21.00	0.00	34.70	2.30	0.00
June	2022-06-28	86.90	10.50	0.30	2.30	0.00	2.90
July	2022-07-21	12.40	16.30	0.40	70.90	4.50	0.00
August	2022-08-18	81.50	11.90	0.00	6.60	0.00	1.20
September	2022-09-23	9.00	16.70	1.00	73.30	2.80	0.00
October	2022-10-07	71.90	11.10	0.50	16.50		
November	2022-11-23	90.50	9.40	0.00	0.10	0.00	0.00
December	2022-12-30	90.90	9.00	0.00	0.10	0.00	1.30
Average		62.9	12.4	1.1	23.6	1.0	0.8

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW009S							
January							
February	2022-02-28	31.40	11.80	11.40	45.40	0.00	0.00
March	2022-03-23	1.50	0.70	20.30	77.50	0.00	0.00
April	2022-04-13	74.30	23.60	0.00	2.10	0.00	2.10
May	2022-05-20	74.70	25.30	0.00	0.00	0.00	2.00
June	2022-06-28	3.10	0.70	20.70	75.50	0.00	0.00
July	2022-07-21	76.90	22.50	0.00	0.60	0.00	2.90
August	2022-08-18	32.90	7.50	11.40	48.20	0.00	0.00
September	2022-09-23	75.30	24.60	0.00	0.10	0.00	1.20
October	2022-10-07	8.50	1.90	18.20	71.40		
November	2022-11-23	75.80	24.20	0.00	0.00	0.00	1.70
December	2022-12-30	49.80	12.70	7.20	30.30	0.00	0.00
Average		45.8	14.1	8.1	31.9	0.0	1.0
VLGW010S							
January							
February							
March							
April							
May	2022-05-20	56.50	24.60	0.70	18.20	0.00	0.00
June	2022-06-24	34.20	17.90	0.30	47.60	0.00	0.00
July							
August	2022-08-24	58.90	39.80	0.20	1.10	0.00	2.80
September							
October	2022-10-07	75.00	21.90	0.10	3.00		
November	2022-11-23	45.10	23.20	0.10	31.60	4.90	4.90
December							
Average		53.9	25.5	0.3	20.3	1.2	1.9
VLGW011S							
January	2022-01-19	59.20	18.10	0.00	22.70	0.00	0.00
February	2022-02-28	35.20	17.20	0.50	47.10	0.00	0.00
March	2022-03-22	33.70	16.80	0.00	49.50	0.00	0.00
April	2022-04-19	30.60	15.90	0.50	53.00	0.00	0.00
May	2022-05-20	45.70	18.30	0.10	35.90	0.00	0.00
June	2022-06-23	66.80	26.70	0.70	5.80	0.00	0.00
July	2022-07-12	64.90	24.30	0.20	10.60	0.00	0.00
August	2022-08-10	27.50	20.80	0.60	51.10	8.20	0.00
September	2022-09-13	63.00	30.90	0.00	6.10	2.80	4.00
October	2022-10-07	62.80	30.10	0.10	7.00	4.30	4.50
November	2022-11-22	61.90	30.80	0.00	7.30	4.40	3.70
December	2022-12-16	44.10	27.60	0.00	28.30	6.50	1.10
Average		49.6	23.1	0.2	27.0	2.2	1.1

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW012S							
January	2022-01-19	75.70	18.60	0.00	5.70	5.50	5.00
February							
March	2022-03-22	76.10	20.80	0.00	3.10	5.30	4.20
April							
May	2022-05-30	52.40	21.60	1.80	24.20	0.00	0.00
June	2022-06-23	71.60	28.20	0.20	0.00	0.00	2.00
July	2022-07-12	57.60	23.40	0.10	18.90	2.80	2.30
August	2022-08-10	63.70	25.50	0.10	10.70	1.10	5.00
September	2022-09-13	69.30	30.20	0.30	0.20	0.00	1.60
October	2022-10-11	49.90	24.40	0.10	25.60	2.80	0.00
November	2022-11-22	69.20	30.80	0.00	0.00	0.00	1.10
December	2022-12-16	65.80	26.70	0.10	7.40	1.10	2.00
Average		65.1	25.0	0.3	9.6	1.9	2.3
VLGW013D							
January							
February							
March	2022-03-22	65.70	15.80	0.10	18.40	0.00	0.00
April	2022-04-19	66.30	15.30	0.00	18.40	0.00	0.00
May	2022-05-19	69.60	14.40	1.90	14.10	0.00	0.00
June	2022-06-23	62.40	15.80	2.50	19.30	0.00	0.00
July	2022-07-12	25.00	6.10	13.40	55.50	0.00	0.00
August	2022-08-09	72.80	19.30	0.40	7.50	0.00	0.00
September	2022-09-13	28.50	17.50	3.10	50.90	0.00	0.00
October	2022-10-11	39.40	17.20	0.50	42.90		
November	2022-11-09	46.00	19.00	0.40	34.60	0.00	0.00
December	2022-12-16	54.70	18.30	0.40	26.60	0.00	0.00
Average		53.0	15.9	2.3	28.8	0.0	0.0
VLGW013S							
January							
February							
March	2022-03-22	63.40	16.50	0.00	20.10	0.00	0.00
April	2022-04-19	67.50	15.40	0.00	17.10	0.00	0.00
May	2022-05-19	77.00	16.50	0.00	6.50	0.00	1.70
June	2022-06-23	70.20	16.40	0.50	12.90	8.90	2.40
July	2022-07-12	71.30	16.10	0.30	12.30	7.50	7.60
August	2022-08-09	73.50	16.20	0.10	10.20	5.80	14.40
September	2022-09-13	34.10	15.40	3.70	46.80	0.00	0.00
October	2022-10-11	38.20	18.30	0.00	43.50	0.00	0.00
November	2022-11-09	47.30	18.60	0.40	33.70	0.00	0.00
December	2022-12-16	59.00	18.40	0.00	22.60	0.00	0.00
Average		60.2	16.8	0.5	22.6	2.2	2.6

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW014D							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average		---	---	---	---	---	0.0
VLGW014S							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average		---	---	---	---	---	0.0
VLGW015D							
January	2022-01-18	62.60	10.20	1.80	25.40	12.70	0.00
February	2022-02-28	88.20	11.80	0.00	0.00	0.00	0.00
March	2022-03-23	83.50	16.50	0.00	0.00	0.00	0.00
April	2022-04-13	66.30	11.40	1.90	20.40	3.50	3.70
May	2022-05-20	45.50	11.80	1.40	41.30	4.10	1.10
June	2022-06-27	56.40	12.60	0.40	30.60	2.80	0.00
July	2022-07-21	82.90	13.60	0.00	3.50	0.00	2.80
August	2022-08-19	84.20	15.80	0.00	0.00	2.50	4.00
September	2022-09-15	55.20	11.70	0.00	33.10	8.10	1.10
October	2022-10-17	72.10	14.00	0.80	13.10	1.70	1.20
November	2022-11-23	68.10	13.40	0.00	18.50	3.30	3.70
December	2022-12-16	81.50	16.60	0.00	1.90	0.00	1.80
Average		70.5	13.3	0.5	15.7	3.2	1.6

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW015S							
January	2022-01-18	63.80	22.00	0.30	13.90	0.00	0.00
February	2022-02-28	78.40	20.20	0.80	0.60	0.00	0.00
March	2022-03-23	68.50	20.50	2.50	8.50	0.00	0.00
April	2022-04-13	27.90	12.90	12.50	46.70	0.00	0.00
May	2022-05-20	73.40	26.40	0.10	0.10	0.00	1.10
June	2022-06-27	64.30	18.30	0.00	17.40	0.00	0.00
July	2022-07-21	64.50	21.30	0.60	13.60	0.00	0.00
August	2022-08-19	69.90	26.60	0.50	3.00	0.00	2.00
September	2022-09-15	69.10	22.00	0.00	8.90	0.00	1.10
October	2022-10-17	66.40	22.50	0.40	10.70	2.30	2.90
November	2022-11-23	65.40	23.30	0.00	11.30	4.50	4.00
December	2022-12-16	72.60	22.50	0.20	4.70	2.10	2.10
Average		65.4	21.5	1.5	11.6	0.7	1.1
VLGW016D							
January	2022-01-19	65.00	21.20	0.00	13.80	1.20	1.20
February	2022-02-28	76.90	19.10	0.00	4.00	4.80	4.80
March	2022-03-23	80.10	19.70	0.00	0.20	4.80	4.60
April	2022-04-13	66.60	20.20	0.00	13.20	4.40	4.00
May	2022-05-20	67.50	20.60	0.00	11.90	2.10	2.40
June	2022-06-27	68.00	18.60	0.10	13.30	4.50	1.60
July	2022-07-18	64.20	20.00	0.10	15.70	4.10	3.30
August	2022-08-19	65.40	20.70	0.00	13.90	2.90	2.60
September	2022-09-26	64.20	19.60	0.00	16.20	1.60	1.60
October	2022-10-19	64.00	20.20	0.00	15.80	3.10	3.10
November	2022-11-23	64.00	20.90	0.00	15.10	2.70	2.90
December	2022-12-30	53.50	21.70	0.00	24.80	7.00	2.90
Average		66.6	20.2	0.0	13.2	3.6	2.9
VLGW016S							
January	2022-01-19	44.50	27.80	0.00	27.70	4.50	3.60
February	2022-02-28	75.60	24.30	0.10	0.00	0.00	0.00
March	2022-03-23	75.20	24.80	0.00	0.00	0.00	0.00
April	2022-04-13	59.70	30.30	0.00	10.00	4.00	4.00
May	2022-05-20	75.00	25.00	0.00	0.00	0.00	1.20
June	2022-06-27	73.00	24.40	0.10	2.50	0.00	1.60
July	2022-07-18	53.90	29.80	0.20	16.10	0.00	0.00
August	2022-08-19	57.80	32.10	0.00	10.10	2.90	2.90
September	2022-09-26	49.40	31.60	0.10	18.90	0.00	0.00
October	2022-10-19	54.00	32.30	0.10	13.60		1.10
November	2022-11-23	50.70	32.90	0.20	16.20	2.20	0.00
December	2022-12-30	75.40	24.30	0.30	0.00	0.00	1.20
Average		62.0	28.3	0.1	9.6	1.2	1.3

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW017D							
January	2022-01-19	71.80	28.20	0.00	0.00	1.70	2.40
February							
March	2022-03-22	73.10	26.90	0.00	0.00	0.00	0.00
April	2022-04-13	51.00	24.40	0.00	24.60	1.60	0.00
May	2022-05-20	72.90	27.10	0.00	0.00	0.00	1.70
June	2022-06-29	72.90	27.00	0.10	0.00	0.00	2.30
July	2022-07-18	73.10	26.80	0.10	0.00	0.00	1.10
August	2022-08-23	73.10	26.90	0.00	0.00	1.60	4.10
September	2022-09-26	36.40	22.10	0.60	40.90	3.10	0.00
October	2022-10-20	72.60	27.30	0.20	N/A		1.60
November	2022-11-23	70.40	26.70	0.30	2.60	2.90	1.10
December	2022-12-30	71.40	28.60	0.00	0.00	0.00	1.20
Average		67.2	26.5	0.1	6.8	1.1	1.4
VLGW017S							
January	2022-01-19	71.40	28.10	0.50	0.00	2.10	2.40
February	2022-02-28	72.10	27.30	0.60	0.00	0.00	0.00
March	2022-03-22	67.90	25.30	1.60	5.20	5.80	5.80
April	2022-04-13	73.10	26.90	0.00	0.00	4.90	6.50
May	2022-05-20	69.90	25.10	1.60	3.40	4.30	4.80
June	2022-06-29	70.70	25.80	0.20	3.30	0.00	0.00
July	2022-07-18	72.60	27.30	0.10	0.00	0.00	0.00
August	2022-08-23	72.10	27.90	0.00	0.00	0.00	0.00
September	2022-09-29	71.60	28.20	0.10	0.10	0.00	1.60
October	2022-10-20	71.80	28.20	0.00	0.00		1.60
November	2022-11-23	71.20	28.80	0.00	0.00	0.00	0.00
December	2022-12-30	65.10	26.80	0.00	8.10	1.10	1.60
Average		70.8	27.1	0.4	1.7	1.7	2.0
VLGW018D							
January	2022-01-19	65.70	34.30	0.00	0.00	2.30	3.30
February	2022-02-28	67.20	32.80	0.00	0.00	5.80	5.90
March	2022-03-22	67.20	32.80	0.00	0.00	6.40	5.50
April	2022-04-19	55.40	29.60	0.10	14.90	4.30	3.80
May	2022-05-19	50.60	29.20	0.00	20.20	3.40	1.90
June	2022-06-24	49.00	27.40	0.10	23.50	3.30	0.00
July	2022-07-26	69.30	30.70	0.00	0.00	0.00	1.60
August	2022-08-18	68.20	31.80	0.00	0.00	0.00	0.00
September	2022-09-26	50.60	27.60	3.60	18.20	0.00	0.00
October	2022-10-20	66.00	33.70	0.30	0.00		1.10
November	2022-11-23	56.10	30.80	0.30	12.80	2.50	1.50
December	2022-12-30	69.00	30.90	0.10	0.00	2.40	3.60
Average		61.2	31.0	0.4	7.5	2.8	2.4

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW018S							
January	2022-01-19	66.70	33.30	0.00	0.00	2.90	2.60
February	2022-02-28	70.20	29.80	0.00	0.00	6.70	6.70
March	2022-03-22	70.40	29.60	0.00	0.00	1.10	0.00
April	2022-04-19	52.90	29.40	2.60	15.10	0.00	0.00
May	2022-05-19	24.80	14.70	12.20	48.30	0.00	0.00
June	2022-06-24	41.80	25.90	0.10	32.20	4.20	0.00
July	2022-07-26	68.30	31.60	0.10	0.00	0.00	2.80
August	2022-08-18	70.20	28.90	0.20	0.70	0.00	2.00
September	2022-09-26	62.30	28.70	0.20	8.80	3.40	3.80
October	2022-10-20	65.40	30.20	0.00	4.40	3.10	3.90
November	2022-11-23	42.50	28.70	0.10	28.70	2.20	0.00
December	2022-12-30	66.10	28.20	1.20	4.50	0.00	1.60
Average		58.5	28.3	1.4	11.9	2.0	2.0
VLGW019D							
January	2022-01-19	64.00	33.40	1.70	0.90	2.30	2.30
February	2022-02-28	64.70	35.30	0.00	0.00	3.10	3.10
March	2022-03-22	64.30	35.70	0.00	0.00	0.00	0.00
April	2022-04-19	65.10	34.40	0.00	0.50	2.30	2.80
May	2022-05-19	57.10	31.90	0.30	10.70	2.20	1.60
June	2022-06-23	60.90	32.80	0.10	6.20	0.00	1.50
July	2022-07-26	58.50	31.80	0.20	9.50	1.50	2.20
August	2022-08-18	64.20	29.10	0.00	6.70	3.50	2.90
September	2022-09-26	59.90	33.20	0.00	6.90	2.20	1.90
October	2022-10-20	60.10	33.80	0.00	6.10	0.00	
November	2022-11-30	65.00	35.00	0.00	0.00	0.00	0.00
December	2022-12-30	65.00	35.00	0.00	0.00	0.00	0.00
Average		62.4	33.5	0.2	4.0	1.4	1.7
VLGW019S							
January	2022-01-19	55.60	33.20	0.00	11.20	6.20	5.70
February	2022-02-28	63.30	33.80	0.00	2.90	1.10	1.60
March	2022-03-22	65.20	33.90	0.00	0.90	3.50	3.50
April	2022-04-19	63.00	32.30	0.10	4.60	2.00	1.60
May	2022-05-19	59.30	32.70	0.20	7.80	3.60	3.80
June	2022-06-23	57.80	31.90	0.20	10.10	3.60	3.90
July	2022-07-26	57.90	31.50	0.80	9.80	4.00	3.50
August	2022-08-30	59.40	31.60	1.00	8.00	5.50	5.40
September	2022-09-26	58.50	31.90	0.40	9.20	2.20	2.50
October	2022-10-20	57.90	33.00	0.30	8.80	1.10	1.10
November	2022-11-30	64.40	35.00	0.40	0.20	2.60	4.50
December	2022-12-30	63.70	35.00	0.10	1.20	3.10	4.70
Average		60.5	33.0	0.3	6.2	3.2	3.5

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW020D							
January							
February	2022-02-28	62.80	37.20	0.00	0.00	0.00	0.00
March	2022-03-22	62.50	37.50	0.00	0.00	0.00	0.00
April	2022-04-19	61.50	36.00	0.00	2.50	0.00	0.00
May	2022-05-17	56.90	33.70	1.40	8.00	0.00	0.00
June	2022-06-24	53.20	32.10	2.10	12.60	0.00	0.00
July	2022-07-25	47.60	31.70	0.10	20.60	0.00	0.00
August	2022-08-24	55.60	32.90	1.70	9.80	0.00	0.00
September	2022-09-29	60.20	35.40	0.00	4.40	0.00	0.00
October	2022-10-14	48.60	32.40	0.00	19.00		
November							
December	2022-12-16	63.80	36.20	0.10		0.00	1.60
Average		57.3	34.5	0.5	8.5	0.0	0.2
VLGW020S							
January							
February	2022-02-28	64.60	35.40	0.00	0.00	0.00	0.00
March	2022-03-22	63.50	36.50	0.00	0.00	0.00	0.00
April	2022-04-19	64.10	35.80	0.10	0.00	0.00	1.10
May	2022-05-17	63.50	36.50	0.00	0.00	0.00	1.10
June	2022-06-24	62.20	35.00	0.40	2.40	1.10	1.50
July	2022-07-25	41.50	28.60	0.40	29.50	1.80	0.00
August	2022-08-24	62.00	35.70	0.00	2.30	0.00	1.10
September	2022-09-29	63.60	34.90	0.40	1.10	0.00	1.10
October	2022-10-14	44.90	31.60	0.00	23.50	1.00	
November							
December	2022-12-16	62.20	34.30	0.00	3.50	2.60	2.30
Average		59.2	34.4	0.1	6.2	0.7	0.9
VLGW021D							
January	2022-01-19	58.50	18.00	0.00	23.50	4.80	3.60
February	2022-02-28	60.90	18.80	0.10	20.20	24.20	24.40
March	2022-03-22	61.20	18.10	0.60	20.10	4.60	4.40
April	2022-04-20	68.30	19.50	0.10	12.10	2.40	2.40
May	2022-05-19	72.10	19.50	0.10	8.30	3.00	3.30
June	2022-06-23	74.10	21.50	0.00	4.40	1.20	1.70
July	2022-07-26	71.50	17.50	0.30	10.70	5.40	5.10
August	2022-08-11	72.90	17.80	0.40	8.90	3.20	4.10
September	2022-09-29	38.80	17.50	2.00	41.70	6.10	0.00
October	2022-10-14	51.00	19.30	0.00	29.70	1.60	0.00
November	2022-11-22	72.20	24.00	0.00	3.80	0.00	1.70
December	2022-12-16	63.50	20.80	0.00	15.70	1.70	0.00
Average		63.8	19.4	0.3	16.6	4.9	4.2

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW021S							
January	2022-01-19	75.40	22.40	0.20	2.00	4.80	4.60
February	2022-02-28	79.00	21.00	0.00	0.00	3.10	3.10
March	2022-03-22	77.80	22.20	0.00	0.00	3.30	2.50
April	2022-04-20	74.50	19.30	0.00	6.20	4.40	4.00
May	2022-05-19	62.70	20.60	0.60	16.10	2.70	0.00
June	2022-06-23	67.80	20.20	0.10	11.90	2.40	0.00
July	2022-07-26	71.90	17.60	0.30	10.20	4.60	4.20
August	2022-08-24	54.80	21.40	0.00	23.80	0.00	0.00
September	2022-09-29	62.70	23.00	0.20	14.10	0.00	1.10
October	2022-10-14	57.40	18.80	0.10	23.70	2.30	2.00
November	2022-11-22	71.00	17.60	0.00	11.40	3.00	2.50
December	2022-12-16	52.00	18.40	0.00	29.60	2.00	0.00
Average		67.3	20.2	0.1	12.4	2.7	2.0
VLGW022D							
January							
February							
March							
April							
May	2022-05-30	12.60	15.00	5.90	66.50	0.00	0.00
June	2022-06-29	65.90	26.80	1.40	5.90	0.00	0.00
July	2022-07-19	70.70	29.10	0.10	0.10	0.00	0.00
August	2022-08-22	70.50	29.50	0.00	0.00	0.00	1.10
September	2022-09-23	55.00	24.30	0.10	20.60	0.00	0.00
October	2022-10-25	70.60	29.40	0.00	0.00	0.00	1.10
November	2022-11-29	68.30	26.30	0.00	5.40	0.00	0.00
December							
Average		59.1	25.8	1.1	14.1	0.0	0.3
VLGW022S							
January							
February	2022-02-28	49.70	20.90	0.00	29.40	0.00	0.00
March	2022-03-23	42.30	20.60	0.00	37.10	0.00	0.00
April							
May	2022-05-25	60.60	21.80	0.40	17.20	0.00	0.00
June	2022-06-29	36.80	15.80	2.60	44.80	0.00	0.00
July	2022-07-19	45.00	17.80	0.50	36.70	0.00	0.00
August	2022-08-22	43.00	18.80	0.30	37.90	0.00	0.00
September	2022-09-23	31.10	21.20	0.30	47.40	0.00	0.00
October	2022-10-25	43.30	23.30	0.00	33.40		
November	2022-11-29	42.20	21.00	0.20	36.60	0.00	0.00
December							
Average		43.8	20.1	0.5	35.6	0.0	0.0

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW023D							
January	2022-01-18	63.80	11.20	3.30	21.70	4.20	4.00
February							
March							
April	2022-04-13	70.30	14.90	0.00	14.80	3.20	1.70
May	2022-05-20	62.00	14.10	1.90	22.00	0.00	0.00
June							
July	2022-07-21	58.00	11.60	2.60	27.80	2.30	0.00
August	2022-08-19	59.10	8.70	4.70	27.50	0.00	0.00
September	2022-09-15	68.80	10.20	2.40	18.60	0.00	0.00
October	2022-10-19	74.00	11.70	0.00	14.30		1.20
November	2022-11-23	76.00	13.30	0.00	10.70	0.00	0.00
December	2022-12-16	86.40	10.80	0.40	2.40	0.00	1.90
Average		68.7	11.8	1.7	17.8	1.2	1.0
VLGW023S							
January	2022-01-18	62.50	28.50	1.90	7.10	4.00	3.80
February							
March	2022-03-22	69.80	28.60	0.00	1.60	4.90	4.90
April	2022-04-13	58.50	29.00	0.10	12.40	1.10	1.10
May	2022-05-20	66.50	29.00	0.00	4.50	0.00	1.10
June	2022-06-27	67.10	24.20	0.20	8.50	1.90	1.90
July	2022-07-21	64.30	28.80	0.20	6.70	0.00	1.10
August	2022-08-19	70.00	30.00	0.00	0.00	0.00	1.60
September	2022-09-15	51.70	31.50	0.40	16.40	5.90	1.50
October	2022-10-19	57.80	34.60	0.00	7.60	1.90	1.90
November	2022-11-23	49.90	32.20	0.20	17.70	3.80	3.80
December	2022-12-16	61.20	31.70	0.10	7.00	2.00	2.00
Average		61.8	29.8	0.3	8.1	2.3	2.2
VLGW024D							
January	2022-01-18	51.00	21.20	3.70	24.10	5.00	4.80
February	2022-02-28	84.30	14.60	1.10	0.00		
March	2022-03-23	65.70	23.90	0.00	10.40	0.00	0.00
April	2022-04-13	75.10	23.50	0.20	1.20	3.50	3.90
May	2022-05-20	67.90	24.00	0.90	7.20	7.60	7.20
June	2022-06-27	59.30	22.90	0.80	17.00	5.80	2.70
July	2022-07-18	58.80	24.40	1.30	15.50	2.80	2.50
August	2022-08-19	67.40	25.00	0.70	6.90	3.10	4.70
September	2022-09-15	52.60	29.00	0.30	18.10	0.00	0.00
October	2022-10-17	73.20	24.20	0.70	1.90	1.60	2.90
November	2022-11-23	57.40	27.60	0.30	14.70	2.50	1.60
December	2022-12-16	70.50	26.50	0.30	2.70	2.40	4.10
Average		65.3	23.9	0.9	10.0	3.1	3.1

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW024S							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							
VLGW025D							
January							
February							
March							
April							
May	2022-05-25	69.90	30.10	0.00	0.00	0.00	0.00
June	2022-06-24	69.90	28.90	0.10	1.10	0.00	0.00
July	2022-07-25	68.10	28.70	0.10	3.10	0.00	0.00
August	2022-08-24	69.80	30.20	0.00	0.00	0.00	0.00
September	2022-09-29	70.70	29.30	0.00	0.00	0.00	0.00
October							
November	2022-11-23	69.60	30.30	0.10	0.00	0.00	0.00
December							
Average		69.7	29.6	0.1	0.7	0.0	0.0
VLGW025S							
January							
February							
March							
April							
May	2022-05-25	69.80	30.20	0.00	0.00	0.00	0.00
June	2022-06-24	70.40	28.60	0.10	0.90	0.00	0.00
July	2022-07-25	68.70	28.60	0.00	2.70	0.00	0.00
August	2022-08-24	69.10	30.90	0.00	0.00	0.00	0.00
September	2022-09-29	70.10	29.90	0.00	0.00	0.00	0.00
October							
November	2022-11-23	70.20	29.80	0.10		0.00	0.00
December							
Average		69.7	29.7	0.0	0.7	0.0	0.0

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW026D							
January	2022-01-19	63.90	36.10	0.00	0.00	3.50	3.30
February	2022-02-28	64.80	35.20	0.00	0.00	4.90	4.60
March	2022-03-22	64.60	35.40	0.00	0.00	0.00	0.00
April	2022-04-20	64.90	35.10	0.00	0.00	0.00	2.80
May	2022-05-17	42.50	27.90	0.20	29.40	2.50	0.00
June	2022-06-24	61.30	30.90	0.10	7.70	0.00	1.50
July	2022-07-26	63.50	30.70	0.30	5.50	2.70	1.50
August	2022-08-24	33.20	25.60	1.40	39.80	2.60	0.00
September	2022-09-29	65.90	34.10	0.00	0.00	0.00	0.00
October	2022-10-14	66.10	33.90	0.00	0.00	0.00	2.50
November	2022-11-29	39.90	27.30	0.30	32.50	1.90	0.00
December	2022-12-16	65.10	34.90	0.00	0.00	0.00	0.00
Average		58.0	32.3	0.2	9.6	1.5	1.4
VLGW026S							
January	2022-01-19	66.70	33.30	0.00	0.00	3.60	3.60
February	2022-02-28	67.20	32.80	0.00	0.00	3.60	3.40
March	2022-03-22	67.20	32.60	0.10	0.10	0.00	0.00
April	2022-04-20	69.20	30.70	0.10	0.00	4.80	5.50
May	2022-05-17	40.70	26.60	0.60	32.10	4.10	1.50
June	2022-06-24	61.30	27.90	0.30	10.50	2.50	2.50
July	2022-07-26	68.70	28.80	0.00	2.50	0.00	1.10
August	2022-08-24	34.20	26.50	0.50	38.80	4.90	1.50
September	2022-09-29	68.70	30.30	0.00	1.00	1.60	3.50
October	2022-10-14	51.20	28.70	0.20	19.90	2.40	1.00
November	2022-11-29	40.40	27.40	0.00	32.20	1.10	0.00
December	2022-12-16	67.90	32.00	0.10	0.00	0.00	1.10
Average		58.6	29.8	0.2	11.4	2.4	2.1
VLGW027D							
January	2022-01-25	72.10	23.90	0.00	4.00	7.20	7.40
February	2022-02-28	75.90	24.10	0.00	0.00	8.30	8.00
March	2022-03-23	74.90	23.60	0.00	1.50	0.00	1.70
April	2022-04-22	73.60	23.30	0.50	2.60	2.90	3.40
May	2022-05-24	76.30	23.70	0.00	0.00	1.70	3.00
June	2022-06-23	70.50	21.90	0.60	7.00	4.20	4.00
July	2022-07-19	71.20	22.10	0.50	6.20	4.50	4.20
August	2022-08-22	69.60	22.70	0.40	7.30	2.00	4.40
September	2022-09-23	57.70	25.90	0.00	16.40	4.10	2.50
October	2022-10-25	67.20	26.60	0.00	6.20	1.60	2.00
November	2022-11-29	67.90	26.50	0.00	5.60	0.00	1.10
December							
Average		70.6	24.0	0.2	5.2	3.3	3.8

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW027S							
January							
February	2022-02-28	73.30	19.80	0.00	6.90	0.00	0.00
March							
April	2022-04-22	61.40	19.30	1.20	18.10	0.00	0.00
May	2022-05-24	73.20	22.00	0.20	4.60	0.00	0.00
June	2022-06-23	69.10	18.10	0.20	12.60	0.00	0.00
July	2022-07-19	74.00	16.70	0.60	8.70	0.00	0.00
August	2022-08-22	39.40	19.80	0.50	40.30	0.00	0.00
September	2022-09-23	16.00	20.40	0.60	63.00	0.00	0.00
October	2022-10-25	66.90	18.60	0.50	14.00	0.00	
November	2022-11-29	67.50	20.50	0.00	12.00	0.00	0.00
December							
Average		60.1	19.5	0.4	20.0	0.0	0.0
VLGW028S							
January							
February	2022-02-28	71.70	28.20	0.00	0.10	0.00	0.00
March	2022-03-23	71.80	28.00	0.10	0.10	0.00	0.00
April	2022-04-20	72.50	27.40	0.10	0.00	0.00	0.00
May	2022-05-24	72.30	27.70	0.00	0.00	0.00	2.00
June	2022-06-29	41.50	25.90	0.40	32.20	2.20	0.00
July	2022-07-26	58.50	25.20	0.40	15.90	0.00	0.00
August	2022-08-24	62.90	25.20	0.40	11.50	0.00	1.90
September	2022-09-29	29.50	24.10	0.00	46.40	1.50	0.00
October	2022-10-25	50.50	24.70	0.50	24.30		
November	2022-11-29	64.30	26.50	0.10	9.10	0.00	0.00
December	2022-12-30	73.00	26.00	0.10	0.90	0.00	1.70
Average		60.8	26.3	0.2	12.8	0.4	0.6
VLGW029D							
January	2022-01-25	71.90	25.60	0.10	2.40	0.00	3.00
February	2022-02-28	69.20	25.10	0.00	5.70	1.20	2.70
March	2022-03-23	69.30	24.60	0.00	6.10	7.30	7.30
April	2022-04-22	70.60	24.20	0.00	5.20	4.00	5.00
May	2022-05-24	74.70	24.90	0.00	0.40	5.20	6.40
June	2022-06-23	68.70	24.40	0.20	6.70	3.70	3.70
July	2022-07-19	68.40	24.40	0.20	7.00	5.40	4.40
August	2022-08-19	68.30	25.60	0.00	6.10	3.70	3.70
September	2022-09-23	62.70	26.00	0.00	11.30	2.80	2.30
October	2022-10-25	68.10	27.30	0.00	4.60	2.30	4.90
November	2022-11-29	60.40	26.80	0.00	12.80	0.00	0.00
December							
Average		68.4	25.4	0.0	6.2	3.2	3.9

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW029S							
January	2022-01-25	67.70	32.30	0.00	0.00	0.00	2.90
February	2022-02-28	51.30	24.10	0.00	24.60	5.00	4.30
March	2022-03-23	43.50	22.50	0.20	33.80	0.00	0.00
April	2022-04-22	39.00	20.60	0.60	39.80	1.50	0.00
May	2022-05-24	69.00	30.60	0.40	0.00	0.00	2.00
June	2022-06-23	45.20	22.70	0.50	31.60	1.50	0.00
July	2022-07-19	69.10	30.60	0.10	0.20	0.00	0.00
August	2022-08-19	68.90	30.90	0.20	0.00	0.00	1.60
September	2022-09-23	31.10	22.50	0.00	46.40	2.40	0.00
October							
November	2022-11-29	68.40	31.30	0.30	0.00	0.00	1.60
December							
Average		55.3	26.8	0.2	17.6	1.0	1.2
VLGW030S							
January							
February	2022-02-28	55.00	25.60	0.00	19.40	0.00	0.00
March	2022-03-23	50.60	26.10	0.10	23.20	0.00	0.00
April	2022-04-20	57.40	24.90	0.00	17.70	0.00	0.00
May	2022-05-24	48.80	28.10	0.00	23.10	0.00	0.00
June	2022-06-29	36.80	25.90	0.40	36.90	0.00	0.00
July							
August	2022-08-24	40.30	24.20	2.50	33.00	0.00	0.00
September	2022-09-29	30.80	25.10	0.20	43.90	0.00	0.00
October	2022-10-25	43.00	28.70	0.00	28.30	0.00	
November	2022-11-29	37.60	26.90	0.10	35.40	0.00	0.00
December	2022-12-30	49.10	25.40	0.00	25.50	0.00	1.10
Average		44.9	26.1	0.3	28.6	0.0	0.1
VLGW031S							
January							
February							
March	2022-03-24	62.90	23.30	0.10	13.70	0.00	0.00
April							
May	2022-05-24	63.90	21.90	0.20	14.00	0.00	0.00
June	2022-06-27	69.20	22.00	0.30	8.50	0.00	0.00
July	2022-07-25	66.40	22.00	0.70	10.90	0.00	0.00
August	2022-08-22	63.80	22.40	1.40	12.40	0.00	0.00
September	2022-09-22	35.70	21.60	0.80	41.90	3.60	0.00
October	2022-10-19	42.60	22.90	0.70	33.80		
November	2022-11-22	54.00	25.20	0.10	20.70	17.10	16.90
December							
Average		57.3	22.7	0.5	19.5	3.0	2.4

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW032S							
January	2022-01-25	66.40	33.60	0.00	0.00	6.50	6.50
February	2022-02-28	67.20	32.80	0.00	0.00	1.60	2.60
March	2022-03-23	67.90	28.80	0.10	3.20	2.60	2.30
April	2022-04-20	70.40	29.40	0.00	0.20	4.50	4.80
May	2022-05-24	61.10	27.60	0.00	11.30	4.30	3.70
June	2022-06-29	50.60	25.90	0.70	22.80	3.90	0.00
July	2022-07-26	63.90	28.00	0.30	7.80	0.00	1.90
August	2022-08-30	56.40	27.30	0.30	16.00	3.20	1.90
September	2022-09-29	54.40	26.80	0.20	18.60	0.00	0.00
October	2022-10-25	63.90	29.80	0.10	6.20		1.60
November	2022-11-29	54.80	28.20	0.20	16.80	0.00	0.00
December	2022-12-30	67.10	32.90	0.00	0.00	0.00	1.10
Average		62.0	29.3	0.2	8.6	2.4	2.2
VLGW033S							
January							
February							
March	2022-03-24	53.60	30.10	0.00	16.30	0.00	0.00
April							
May	2022-05-24	59.40	29.80	0.00	10.80	0.00	1.10
June	2022-06-27	46.50	32.40	0.10	21.00	0.00	0.00
July	2022-07-25	43.40	29.80	0.90	25.90	0.00	0.00
August	2022-08-22	46.40	33.10	0.90	19.60	0.00	0.00
September	2022-09-22	42.90	32.70	0.20	24.20	0.00	0.00
October	2022-10-19	46.90	33.60	0.00	19.50		
November	2022-11-28	39.90	33.50	0.10	26.50	0.00	0.00
December							
Average		47.4	31.9	0.3	20.5	0.0	0.2
VLGW034S							
January							
February							
March	2022-03-24	43.30	30.40	0.00	26.30	0.00	0.00
April							
May	2022-05-24	44.10	30.20	0.00	25.70	0.00	0.00
June	2022-06-27	41.50	27.70	0.20	30.60	0.00	0.00
July	2022-07-25	42.80	29.10	0.30	27.80	0.00	0.00
August	2022-08-22	42.70	30.60	0.00	26.70	0.00	0.00
September	2022-09-22	42.80	31.60	0.60	25.00	0.00	0.00
October	2022-10-18	42.10	31.80	0.20	25.90		
November	2022-11-28	27.00	28.90	0.10	44.00	0.00	0.00
December							
Average		40.8	30.0	0.2	29.0	0.0	0.0

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW042S							
January	2022-01-19	72.40	20.40	0.00	7.20	7.90	10.50
February	2022-02-28	70.90	20.50	0.10	8.50	3.00	3.20
March							
April	2022-04-13	69.40	19.20	0.70	10.70	4.10	4.20
May							
June							
July							
August							
September							
October							
November							
December							
Average		70.9	20.0	0.3	8.8	5.0	6.0
VLGW043S							
January							
February	2022-02-28	65.60	34.10	0.30	0.00	0.00	0.00
March	2022-03-22	64.90	34.90	0.20	0.00	0.00	0.00
April	2022-04-19	64.00	33.70	0.00	2.30	0.00	1.60
May							
June							
July							
August							
September							
October							
November							
December							
Average		64.8	34.2	0.2	0.8	0.0	0.5
VLGW047S							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW0049							
January	2022-01-19	69.30	30.70	0.00	0.00	0.00	1.20
February	2022-02-28	17.80	9.10	15.80	57.30	1.80	0.00
March	2022-03-22	70.00	29.90	0.20		0.00	3.50
April	2022-04-21	31.30	14.30	11.40	43.00	0.00	0.00
May	2022-05-25	69.30	30.70	0.00	0.00	0.00	1.70
June	2022-06-28	13.90	6.30	17.30	62.50	0.00	0.00
July	2022-07-19	69.90	30.00	0.20		0.00	0.00
August	2022-08-24	69.40	30.60	0.00	0.00	0.00	1.10
September	2022-09-15	68.90	30.90	0.10	0.10	0.00	0.00
October	2022-10-07	69.00	30.10	0.00	0.90		
November	2022-11-28	70.30	29.50	0.20	0.00	0.00	0.00
December							
Average		56.3	24.7	4.1	18.2	0.2	0.8
VLGW0050							
January	2022-01-25	73.40	26.50	0.10	0.00	1.20	1.70
February	2022-02-28	39.30	26.90	0.80	33.00	2.20	0.00
March	2022-03-23	74.20	25.80	0.00	0.00	0.00	0.00
April	2022-04-20	73.80	25.70	0.50	0.00	0.00	1.70
May	2022-05-26	55.50	27.80	0.20	16.50	1.10	0.00
June	2022-06-29	51.10	28.60	0.40	19.90	0.00	0.00
July	2022-07-19	50.80	27.70	0.10	21.40	0.00	0.00
August	2022-08-19	55.50	28.60	0.00	15.90	0.00	3.50
September	2022-09-23	35.10	29.40	0.00	35.50	7.40	0.00
October	2022-10-25	74.10	25.90	0.00	0.00	0.00	1.20
November	2022-11-29	40.90	26.30	0.70	32.10	0.00	0.00
December	2022-12-15	75.10	24.80	0.10	0.00	0.00	1.20
Average		58.2	27.0	0.2	14.5	1.0	0.8
VLGW0051							
January	2022-01-25	56.60	32.20	0.00	11.20	10.50	10.20
February	2022-02-28	63.00	32.50	0.00	4.50	10.80	10.70
March	2022-03-23	63.00	32.00	0.00	5.00	8.00	8.10
April	2022-04-20	67.10	32.60	0.00	0.30	9.30	10.60
May	2022-05-26	67.40	32.50	0.00	0.10	7.10	8.40
June	2022-06-29	61.60	32.10	0.10	6.20	9.20	9.10
July	2022-07-19	50.90	30.90	0.10	18.10	15.50	15.80
August	2022-08-19	53.60	32.80	0.00	13.60	14.90	15.20
September	2022-09-23	51.20	32.50	0.00	16.30	18.00	17.80
October	2022-10-25	53.60	33.40	0.00	13.00	17.10	16.90
November	2022-11-29	46.40	31.90	0.00	21.70	15.10	9.00
December	2022-12-15	55.30	31.90	0.00	12.80	7.30	7.40
Average		57.5	32.3	0.0	10.2	11.9	11.6

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW0052							
January	2022-01-19	43.30	32.90	0.00	23.80	1.10	0.00
February	2022-02-28	55.90	31.00	0.00	13.10	0.00	0.00
March	2022-03-22	52.90	31.60	0.00	15.50	0.00	0.00
April	2022-04-21	55.40	31.00	0.00	13.60	0.00	0.00
May	2022-05-25	54.50	31.50	0.00	14.00	0.00	0.00
June	2022-06-28	53.00	30.10	0.30	16.60	0.00	0.00
July	2022-07-19	61.00	33.20	0.00	5.80	0.00	0.00
August	2022-08-24	59.40	34.90	0.00	5.70	0.00	0.00
September	2022-09-15	61.00	35.40	0.00	3.60	0.00	0.00
October	2022-10-07	56.00	34.40	0.00	9.60		1.00
November	2022-11-28	52.80	35.50	0.00	11.70	1.90	1.90
December							
Average		55.0	32.9	0.0	12.1	0.3	0.3
VLGW0053							
January	2022-01-19	50.60	33.70	0.00	15.70	0.00	0.00
February	2022-02-28	47.30	31.90	0.00	20.80	0.00	0.00
March	2022-03-22	47.40	32.60	0.00	20.00	0.00	0.00
April	2022-04-21	48.40	32.80	0.00	18.80	0.00	0.00
May	2022-05-25	37.50	29.30	0.00	33.20	0.00	0.00
June	2022-06-28	40.80	28.90	1.50	28.80	0.00	0.00
July	2022-07-19	44.70	30.80	0.10	24.40	0.00	0.00
August	2022-08-24	42.80	30.00	1.30	25.90	0.00	0.00
September	2022-09-15	47.30	31.80	0.90	20.00	0.00	0.00
October	2022-10-07	46.30	31.10	0.40	22.20	0.00	
November	2022-11-28	49.20	33.00	0.00	17.80	0.00	0.00
December							
Average		45.7	31.4	0.4	22.5	0.0	0.0
VLGW0054							
January	2022-01-25	65.20	27.10	0.00	7.70	2.10	2.10
February	2022-02-28	45.20	29.90	0.00	24.90	4.30	0.00
March	2022-03-23	50.40	29.30	0.00	20.30	0.00	0.00
April	2022-04-20	51.60	29.10	0.00	19.30	0.00	0.00
May	2022-05-26	55.70	29.00	0.00	15.30	0.00	1.10
June	2022-06-29	44.50	29.80	0.40	25.30	0.00	0.00
July	2022-07-25	42.80	29.20	0.80	27.20	1.00	0.00
August	2022-08-19	49.80	31.10	0.00	19.10	1.00	1.80
September	2022-09-29	42.70	29.20	0.40	27.70	0.00	0.00
October	2022-10-27	44.20	31.20	0.00	24.60	1.00	
November	2022-11-29	41.30	30.40	0.00	28.30	1.10	0.00
December	2022-12-15	37.30	29.10	0.00	33.60	0.00	0.00
Average		47.6	29.5	0.1	22.8	0.9	0.5

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW0055							
January	2022-01-25	63.60	36.40	0.00	0.00	0.00	2.00
February	2022-02-28	64.00	36.00	0.00	0.00	0.00	0.00
March	2022-03-23	64.00	35.80	0.20	0.00	0.00	1.10
April	2022-04-20	63.50	36.50	0.00	0.00	0.00	0.00
May	2022-05-26	64.10	35.40	0.40	0.10	0.00	0.00
June	2022-06-29	54.50	32.60	0.00	12.90	1.10	1.50
July	2022-07-25	55.70	33.00	0.10	11.20	2.70	1.90
August	2022-08-19	58.90	33.80	0.00	7.30	2.90	3.30
September	2022-09-29	51.80	32.40	0.00	15.80	2.50	1.10
October	2022-10-27	62.80	36.10	0.00	1.10	1.60	2.50
November	2022-11-29	41.90	31.80	0.10	26.20	1.10	0.00
December	2022-12-13	64.30	35.70	0.00	0.00	0.00	1.10
Average		59.1	34.6	0.1	6.2	1.0	1.2
VLGW0056							
January	2022-01-25	61.90	33.20	0.00	4.90	2.90	2.60
February	2022-02-28	62.20	33.70	0.00	4.10	0.00	0.00
March	2022-03-23	60.00	32.90	0.00	7.10	0.00	0.00
April	2022-04-20	60.00	32.70	0.00	7.30	0.00	0.00
May	2022-05-26	60.30	32.30	0.10	7.30	0.00	0.00
June	2022-06-29	60.00	31.90	0.10	8.00	0.00	0.00
July	2022-07-25	57.80	31.10	0.10	11.00	0.00	0.00
August	2022-08-19	58.60	31.80	0.00	9.60	0.00	2.50
September	2022-09-29	49.40	30.10	0.00	20.50	0.00	0.00
October	2022-10-27	63.20	34.60	0.00	2.20		1.10
November	2022-11-29	29.90	27.60	0.00	42.50	1.90	0.00
December							
Average		56.7	32.0	0.0	11.3	0.5	0.6
VLGW0057							
January							
February							
March							
April	2022-04-20	29.30	24.10	2.10	44.50	0.00	0.00
May							
June							
July							
August							
September							
October							
November							
December							
Average		29.3	24.1	2.1	44.5	0.0	0.0

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
VLGW0058							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							
VLGW0059							
January							
February							
March	2022-03-23	60.00	39.20	0.00	0.80	0.00	0.00
April	2022-04-14	50.50	37.60	0.00	11.90	3.30	1.90
May	2022-05-18	51.50	37.70	0.00	10.80	0.00	0.00
June	2022-06-29	43.70	35.00	0.20	21.10	0.00	0.00
July	2022-07-22	58.20	38.00	1.10	2.70	0.00	1.50
August	2022-08-18	59.70	40.00	0.00	0.30	1.00	4.10
September	2022-09-22	59.80	40.00	0.20	0.00	3.80	6.60
October	2022-10-07	52.40	38.40	0.00	9.20	7.80	7.20
November	2022-11-18	54.50	38.00	0.70	6.80	4.60	5.00
December	2022-12-15	57.00	39.70	0.10	3.20	4.20	4.50
Average		54.7	38.4	0.2	6.7	2.5	3.1
VLGW0060							
January							
February							
March							
April	2022-04-20	62.50	37.50	0.00	0.00	0.00	1.90
May	2022-05-24	48.50	32.20	0.30	19.00	1.50	0.00
June	2022-06-29	43.70	31.10	0.70	24.50	1.00	0.00
July	2022-07-22	65.10	34.70	0.20	0.00	0.00	1.90
August	2022-08-24	49.00	33.50	0.00	17.50	0.00	0.00
September	2022-09-22	65.90	34.00	0.10	0.00	0.00	2.20
October	2022-10-11	30.60	29.20	0.20	40.00	5.60	0.00
November	2022-11-18	66.10	33.90	0.00	0.00	0.00	1.10
December							
Average		53.9	33.3	0.2	12.6	1.0	0.9

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW049B							
January	2022-01-28	60.10	39.40	0.40	0.10	2.90	3.90
February	2022-02-15	57.20	39.30	0.00	3.50	14.00	17.30
March	2022-03-17	59.30	40.60	0.10	0.00	6.20	9.40
April	2022-04-19	50.00	37.00	0.40	12.60	5.80	4.90
May	2022-05-17	55.20	38.10	0.40	6.30	3.50	2.10
June	2022-06-30	54.70	38.10	0.20	7.00	7.70	7.00
July	2022-07-22	53.50	38.00	0.30	8.20	11.10	10.40
August	2022-08-24	52.60	37.70	0.00	9.70	6.40	6.80
September	2022-09-16	52.60	37.30	0.40	9.70	12.30	12.10
October	2022-10-20	54.60	38.80	0.00	6.60	4.90	4.80
November	2022-11-22	59.10	40.90	0.00	0.00	1.80	5.50
December	2022-12-15	46.60	34.80	1.20	17.40	10.80	6.00
Average		54.6	38.3	0.3	6.8	7.3	7.5
HLGW040B							
January	2022-01-28	53.50	35.70	0.40	10.40	2.10	5.80
February	2022-02-15	61.80	38.20	0.00	0.00	6.50	8.60
March	2022-03-17	61.30	38.60	0.10	0.00	6.90	11.30
April	2022-04-19	47.90	35.20	0.60	16.30	8.60	6.00
May	2022-05-17	56.20	38.00	0.20	5.60	6.30	6.00
June	2022-06-28	59.30	38.80	0.30	1.60	1.90	2.20
July	2022-07-22	54.30	39.00	0.20	6.50	6.20	6.00
August	2022-08-23	43.90	35.30	0.10	20.70	1.80	0.00
September	2022-09-16	52.10	38.40	0.00	9.50	4.10	3.60
October	2022-10-20	53.70	38.50	0.00	7.80	4.10	3.80
November	2022-11-21	60.50	39.50	0.00	0.00	1.90	3.20
December	2022-12-15	61.10	38.70	0.20	0.00	2.30	4.50
Average		55.5	37.8	0.2	6.5	4.4	5.1
HLGW045B							
January							
February							
March							
April	2022-04-19	17.10	12.50	1.50	68.90	0.00	0.00
May	2022-05-17	28.70	27.90	0.20	43.20	0.00	0.00
June	2022-06-27	27.80	28.30	0.50	43.40	0.00	0.00
July	2022-07-22	12.10	17.90	7.80	62.20	0.00	0.00
August	2022-08-23	35.00	32.90	0.00	32.10	0.00	3.00
September							
October							
November							
December							
Average		24.1	23.9	2.0	50.0	0.0	0.6

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW046B							
January							
February							
March	2022-03-17	1.50	12.80	17.10	68.60	0.00	0.00
April	2022-04-19	0.10	0.40	21.60	77.90	0.00	0.00
May	2022-05-30	10.80	14.80	14.10	60.30	0.00	0.00
June	2022-06-27	1.20	3.10	18.60	77.10	0.00	0.00
July	2022-07-22	0.30	0.30	21.30	78.10	0.00	0.00
August	2022-08-23	35.80	33.70	0.20	30.30	0.00	2.50
September							
October							
November							
December							
Average		8.3	10.9	15.5	65.4	0.0	0.4
HLGW047B							
January							
February							
March	2022-03-17	1.40	9.50	17.50	71.60	0.00	0.00
April	2022-04-19	17.30	22.50	11.40	48.80	0.00	0.00
May	2022-05-17	12.10	17.30	12.00	58.60	0.00	0.00
June	2022-06-27	20.10	21.20	6.90	51.80	0.00	0.00
July	2022-07-22	44.80	35.60	1.00	18.60	0.00	0.00
August	2022-08-23	45.80	37.60	0.10	16.50	0.00	0.00
September							
October	2022-10-20	43.70	36.30	0.00	20.00	0.00	
November							
December	2022-12-15	36.60	29.80	3.30	30.30	0.00	0.00
Average		27.7	26.2	6.5	39.5	0.0	0.0
HLGW048B							
January							
February							
March	2022-03-17	23.90	26.60	0.30	49.20	0.00	0.00
April	2022-04-19	31.30	29.70	0.00	39.00	0.00	0.00
May	2022-05-17	58.90	38.80	0.00	2.30	0.00	2.50
June	2022-06-27	23.10	26.80	0.20	49.90	0.00	0.00
July	2022-07-22	27.50	29.50	0.10	42.90	0.00	0.00
August	2022-08-24	33.30	31.70	0.00	35.00	0.00	0.00
September	2022-09-16	33.80	31.90	0.00	34.30	0.00	0.00
October	2022-10-20	39.30	33.60	0.00	27.10	0.00	0.00
November	2022-11-21	34.00	30.90	0.00	35.10	0.00	0.00
December	2022-12-15	9.60	19.60	3.90	66.90	4.40	0.00
Average		31.5	29.9	0.5	38.2	0.4	0.3

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW050B							
January	2022-01-25	58.60	38.30	0.00	3.10	1.60	1.90
February	2022-02-15	57.30	38.60	0.00	4.10	10.90	9.30
March	2022-03-16	53.70	37.90	0.00	8.40	6.00	5.10
April	2022-04-12	59.30	39.80	0.00	0.90	3.40	4.30
May	2022-05-13	57.30	38.60	0.00	4.10	5.60	5.40
June	2022-06-30	48.50	36.40	0.10	15.00	5.80	3.60
July	2022-07-14	55.10	38.20	0.00	6.70	8.80	8.20
August	2022-08-12	55.20	38.90	0.00	5.90	5.10	5.00
September	2022-09-13	54.30	38.70	0.00	7.00	5.90	5.90
October	2022-10-19	50.90	37.60	0.00	11.50	2.40	1.90
November	2022-11-16	59.80	39.80	0.00	0.40	4.70	5.10
December	2022-12-14	43.80	35.80	0.00	20.40	1.90	0.00
Average		54.5	38.2	0.0	7.3	5.2	4.6
HLGW051B							
January	2022-01-25	47.70	35.20	0.10	17.00	9.90	8.10
February	2022-02-15	57.50	38.60	0.10	3.80	10.90	10.80
March	2022-03-16	50.60	36.80	0.20	12.40	8.30	7.90
April	2022-04-12	56.00	39.10	0.00	4.90	4.10	4.60
May	2022-05-13	49.80	36.70	0.20	13.30	4.30	2.20
June	2022-06-23	58.60	39.60	0.10	1.70	1.90	3.10
July	2022-07-14	57.90	38.80	0.50	2.80	8.40	8.10
August	2022-08-12	49.90	36.90	0.30	12.90	4.60	4.80
September	2022-09-13	51.30	37.10	0.40	11.20	7.00	6.20
October	2022-10-19	52.70	37.70	0.40	9.20	2.70	2.40
November	2022-11-16	57.90	39.20	0.40	2.50	3.20	3.00
December	2022-12-14	48.60	36.80	0.90	13.70	3.00	1.90
Average		53.2	37.7	0.3	8.8	5.7	5.3
HLGW0052							
January							
February	2022-02-14	57.00	39.10	0.10	3.80	10.20	13.00
March							
April	2022-04-22	41.00	37.00	0.10	21.90	5.10	2.70
May	2022-05-13	50.90	39.50	0.00	9.60	9.40	4.90
June	2022-06-30	57.90	39.80	0.30	2.00	2.60	6.30
July	2022-07-13	54.80	41.50	0.00	3.70	8.40	9.70
August							
September	2022-09-14	54.70	40.20	0.00	5.10	8.30	7.40
October	2022-10-11	59.30	40.40	0.30	0.00	0.00	3.80
November	2022-11-17	21.10	22.20	6.00	50.70	6.80	0.00
December							
Average		49.6	37.5	0.9	12.1	6.4	6.0

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW0053							
January	2022-01-28	57.40	42.50	0.00	0.10	7.30	5.60
February	2022-02-14	57.70	42.30	0.00	0.00	9.20	14.90
March	2022-03-15	55.20	42.00	0.00	2.80	10.00	11.50
April	2022-04-14	55.10	42.10	0.00	2.80	13.10	13.20
May	2022-05-13	56.30	42.10	0.00	1.60	14.70	13.50
June	2022-06-22	56.70	41.80	0.10	1.40	10.20	12.90
July							
August	2022-08-15	56.40	42.20	0.00	1.40	9.90	10.60
September	2022-09-14	56.30	42.30	0.00	1.40	9.90	10.70
October	2022-10-11	57.30	42.40	0.20	0.10	8.40	10.00
November	2022-11-10	56.50	43.50	0.00	0.00	10.40	12.80
December	2022-12-09	56.20	43.80	0.00	0.00	8.00	10.50
Average		56.5	42.5	0.0	1.1	10.1	11.5
HLGW0054							
January	2022-01-28	58.00	42.00	0.00	0.00	6.80	7.20
February	2022-02-14	48.50	38.80	0.00	12.70	4.40	2.90
March	2022-03-21	46.10	38.00	0.10	15.80	3.70	2.30
April	2022-04-14	57.20	42.80	0.00	0.00	1.60	8.50
May	2022-05-13	57.10	42.90	0.00	0.00	1.00	3.90
June	2022-06-22	57.20	42.80	0.10		1.20	3.30
July	2022-07-13	51.80	40.60	0.00	7.60	2.50	2.20
August	2022-08-15	57.10	42.40	0.00	0.50	1.10	2.20
September	2022-09-14	50.10	40.30	0.00	9.60	1.60	0.90
October	2022-10-11	48.60	39.70	0.10	11.60	1.90	2.10
November	2022-11-10	55.30	44.70	0.00	0.00	3.40	4.30
December	2022-12-09	55.50	44.50	0.00	0.00	1.60	3.90
Average		53.5	41.6	0.0	5.3	2.6	3.6
HLGW0055							
January							
February	2022-02-14	53.10	39.20	0.00	7.70	11.10	9.70
March	2022-03-21	52.20	38.80	0.30	8.70	6.20	4.80
April	2022-04-14	57.50	40.70	0.00	1.80	2.70	2.90
May	2022-05-13	56.40	40.00	0.00	3.60	3.20	3.10
June	2022-06-22	55.70	39.80	0.00	4.50	3.60	4.00
July	2022-07-13	49.20	38.30	0.10	12.40	5.30	3.70
August	2022-08-15	57.70	41.50	0.00	0.80	2.50	3.80
September	2022-09-14	51.50	39.80	0.00	8.70	3.90	4.20
October	2022-10-11	48.90	38.70	0.20	12.20	5.80	5.70
November	2022-11-10	57.30	42.70	0.00	0.00	2.30	3.90
December	2022-12-09	56.50	43.50	0.00	0.00	1.30	2.80
Average		54.2	40.3	0.1	5.5	4.4	4.4

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW0056							
January							
February							
March							
April							
May	2022-05-30	13.10	18.30	6.80	61.80	0.00	0.00
June	2022-06-29	15.10	19.10	6.10	59.70	0.00	0.00
July	2022-07-13	15.90	22.00	3.10	59.00	0.00	0.00
August	2022-08-30	14.10	16.20	8.40	61.30	0.00	0.00
September	2022-09-14	11.00	12.00	12.50	64.50	0.00	0.00
October	2022-10-14	10.10	17.20	5.30	67.40		
November	2022-11-28	7.30	12.20	11.50	69.00	0.00	0.00
December							
Average		12.4	16.7	7.7	63.2	0.0	0.0
HLGW0057							
January	2022-01-28	53.60	38.70	0.30	7.40	30.60	29.80
February	2022-02-14	56.90	40.30	0.00	2.80	19.10	21.70
March	2022-03-15	55.70	40.20	0.20	3.90	17.80	17.90
April	2022-04-14	55.80	40.00	0.00	4.20	13.20	12.40
May	2022-05-13	58.00	40.60	0.10	1.30	14.50	16.40
June	2022-06-22	57.30	40.10	0.20	2.40	13.70	15.40
July	2022-07-13	52.10	38.90	0.30	8.70	20.10	20.20
August	2022-08-15	52.60	39.30	0.20	7.90	19.60	17.60
September	2022-09-14	53.80	39.90	0.00	6.30	17.70	17.70
October	2022-10-11	56.20	40.20	0.10	3.50	18.50	18.50
November	2022-11-10	51.60	38.40	0.00	10.00	19.90	17.60
December	2022-12-09	55.80	40.50	0.00	3.70	14.30	14.50
Average		55.0	39.8	0.1	5.2	18.3	18.3
HLGW0058							
January							
February							
March							
April	2022-04-14	21.90	23.60	5.00	49.50	18.20	7.30
May	2022-05-13	38.00	32.30	1.30	28.40	0.00	0.00
June	2022-06-22	43.50	33.00	0.70	22.80	0.00	0.00
July							
August	2022-08-15	21.50	22.30	5.20	51.00	13.60	1.60
September	2022-09-14	45.30	37.90	0.40	16.40	0.00	0.00
October	2022-10-11	42.50	35.80	0.90	20.80	0.00	0.00
November							
December							
Average		35.5	30.8	2.3	31.5	5.3	1.5

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW0059							
January							
February	2022-02-14	58.50	40.80	0.70	0.00	19.40	23.70
March	2022-03-15	53.40	40.30	0.10	6.20	41.70	31.00
April	2022-04-14	55.80	40.40	0.00	3.80	33.60	30.90
May	2022-05-13	58.20	41.70	0.10	0.00	16.40	17.90
June	2022-06-23	37.70	33.00	1.80	27.50	0.00	0.00
July	2022-07-13	54.10	40.20	0.20	5.50	17.90	17.20
August	2022-08-15	52.30	39.30	0.00	8.40	15.20	18.40
September	2022-09-14	58.20	41.70	0.10	0.00	14.60	20.40
October	2022-10-12	32.60	32.10	3.00	32.30	0.00	0.00
November	2022-11-17	29.20	26.80	4.60	39.40	44.70	0.00
December							
Average		49.0	37.6	1.1	12.3	20.4	16.0
HLGW0060							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							
HLGW0061							
January							
February	2022-02-14	56.50	41.40	0.00	2.10	9.40	11.00
March	2022-03-21	55.40	41.30	0.10	3.20	21.40	17.70
April	2022-04-14	55.80	41.80	0.00	2.40	9.90	10.70
May	2022-05-13	57.80	42.20	0.00	0.00	16.50	17.10
June	2022-06-22	58.00	41.90	0.10	0.00	6.40	9.90
July	2022-07-13	52.50	40.70	0.10	6.70	13.10	13.80
August	2022-08-15	54.10	41.40	0.00	4.50	13.80	11.20
September	2022-09-14	55.70	41.50	0.00	2.80	14.00	14.30
October	2022-10-12	47.50	39.20	0.00	13.30	11.50	7.40
November	2022-11-17	45.00	38.30	0.30	16.40	11.00	9.10
December	2022-12-09	56.50	40.20	0.60	2.70	6.10	5.90
Average		54.1	40.9	0.1	4.9	12.1	11.6

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW0062							
January	2022-01-28	57.20	42.80	0.00	0.00	16.30	16.50
February	2022-02-14	57.70	42.30	0.00	0.00	1.70	12.80
March	2022-03-21	56.80	43.20	0.00	0.00	8.40	9.70
April	2022-04-14	57.10	42.90	0.00	0.00	8.60	9.20
May	2022-05-13	55.60	42.40	0.00	2.00	12.60	12.70
June	2022-06-22	57.20	42.70	0.10	0.00	4.50	8.10
July	2022-07-13	52.80	41.50	0.00	5.70	6.10	6.20
August							
September	2022-09-14	55.70	43.00	0.00	1.30	6.60	8.00
October	2022-10-12	38.30	36.40	0.00	25.30	8.10	4.40
November	2022-11-10	55.10	44.90	0.00	0.00	3.70	5.00
December	2022-12-09	55.40	44.60	0.00	0.00	0.00	6.00
Average		54.4	42.4	0.0	3.1	7.0	9.0
HLGW0063							
January	2022-01-28	58.10	41.70	0.00	0.20	13.00	13.10
February	2022-02-14	57.30	42.70	0.00	0.00	0.00	6.20
March	2022-03-21	57.50	42.00	0.00	0.50	4.10	5.80
April	2022-04-14	56.80	42.90	0.00	0.30	2.40	3.10
May	2022-05-13	53.40	41.50	0.00	5.10	2.80	2.70
June	2022-06-22	56.00	43.20	0.00	0.80	0.00	2.80
July	2022-07-13	53.20	41.70	0.00	5.10	1.40	1.60
August	2022-08-15	53.30	41.90	0.00	4.80	2.00	3.90
September	2022-09-14	51.80	41.60	0.00	6.60	3.30	3.30
October	2022-10-12	41.00	37.60	0.00	21.40	4.00	2.80
November	2022-11-10	55.30	44.70	0.00	0.00	0.90	2.20
December	2022-12-09	53.80	46.20	0.00	0.00	1.30	2.40
Average		54.0	42.3	0.0	3.7	2.9	4.2
HLGW064B							
January							
February	2022-02-14	57.40	41.00	0.00	1.60	11.30	14.10
March	2022-03-15	57.40	40.90	0.00	1.70	12.70	14.40
April	2022-04-14	57.30	40.80	0.00	1.90	10.00	12.40
May	2022-05-13	57.10	40.40	0.00	2.50	27.50	27.50
June	2022-06-22	56.30	40.00	0.00	3.70	24.30	27.40
July	2022-07-13	53.20	39.30	0.00	7.50	26.40	26.40
August	2022-08-15	52.20	38.90	0.00	8.90	32.60	31.80
September							
October							
November							
December							
Average		55.8	40.2	0.0	4.0	20.7	22.0

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW065A							
January							
February							
March							
April							
May							
June							
July							
August							
September							
October							
November							
December							
Average							
HLGW065B							
January	2022-01-28	42.70	33.00	3.00	21.30	12.10	12.30
February	2022-02-14	22.40	24.70	3.60	49.30	0.00	0.00
March							
April	2022-04-14	9.50	10.30	14.40	65.80	0.00	0.00
May	2022-05-13	39.70	34.70	0.20	25.40	0.00	0.00
June	2022-06-22	41.10	33.90	0.10	24.90	0.00	0.00
July	2022-07-13	23.60	28.10	0.50	47.80	0.00	0.00
August	2022-08-15	40.30	33.20	0.30	26.20	0.00	0.00
September	2022-09-14	20.10	24.40	0.90	54.60	0.00	0.00
October	2022-10-12	21.50	27.50	1.10	49.90	0.00	0.00
November	2022-11-10	24.60	25.40	1.80	48.20	0.00	0.00
December	2022-12-09	40.10	33.70	1.30	24.90	0.00	0.00
Average		29.6	28.1	2.5	39.8	1.1	1.1
HLGW066A							
January	2022-01-18	52.90	38.80	0.00	8.30	0.00	0.00
February	2022-02-14	39.30	33.70	0.00	27.00	0.00	0.00
March	2022-03-17	41.10	33.60	0.40	24.90	0.00	0.00
April							
May	2022-05-12	45.60	35.60	0.00	18.80	0.00	0.00
June	2022-06-22	41.90	34.50	0.90	22.70	0.00	0.00
July	2022-07-11	40.20	34.30	0.20	25.30	0.00	0.00
August	2022-08-09	37.70	32.10	1.60	28.60	0.00	0.00
September	2022-09-12	36.50	32.60	0.00	30.90	0.00	0.00
October	2022-10-07	34.10	31.30	0.20	34.40	0.00	0.00
November	2022-11-10	36.00	32.70	0.10	31.20	2.10	0.00
December	2022-12-06	32.90	33.10	0.00	34.00	0.00	0.00
Average		39.8	33.8	0.3	26.0	0.2	0.0

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW066B							
January	2022-01-28	54.30	39.20	0.40	6.10	75.90	62.20
February	2022-02-14	55.40	40.10	0.00	4.50	77.80	67.50
March	2022-03-15	54.90	40.10	0.00	5.00	35.50	31.80
April	2022-04-14	55.20	40.40	0.00	4.40	41.20	28.40
May	2022-05-13	55.90	40.20	0.00	3.90	18.30	18.20
June	2022-06-22	56.30	40.00	0.10	3.60	16.40	20.20
July	2022-07-13	52.10	38.80	0.10	9.00	10.40	9.10
August	2022-08-15	50.50	37.80	0.00	11.70	4.40	4.80
September	2022-09-14	54.50	39.50	0.00	6.00	6.40	9.60
October	2022-10-12	50.60	38.50	0.20	10.70	14.20	12.30
November	2022-11-10	53.80	43.10	3.10	0.00	0.00	2.40
December	2022-12-06	55.60	40.50	0.00	3.90	0.00	12.80
Average		54.1	39.9	0.3	5.7	25.0	23.3
HLGW067A							
January	2022-01-18	50.40	39.00	0.00	10.60	12.60	10.00
February	2022-02-14	58.20	41.80	0.00	0.00	24.10	26.50
March	2022-03-17	58.80	41.20	0.00	0.00	21.20	23.70
April	2022-04-12	58.30	41.60	0.10	0.00	15.30	18.60
May	2022-05-12	58.10	41.90	0.00	0.00	23.50	25.50
June	2022-06-22	55.30	39.50	0.80	4.40	28.40	28.40
July	2022-07-11	55.80	40.30	0.10	3.80	21.40	21.50
August	2022-08-09	57.40	41.30	0.00	1.30	22.00	24.50
September	2022-09-12	55.50	40.10	0.40	4.00	22.90	24.50
October	2022-10-07	56.60	40.30	0.00	3.10	22.90	23.90
November	2022-11-09	56.80	41.20	0.30	1.70	27.10	32.90
December	2022-12-06	51.40	38.70	0.80	9.10	28.50	24.40
Average		56.1	40.6	0.2	3.2	22.5	23.7
HLGW067B							
January							
February	2022-02-14	19.70	16.00	0.00	64.30	0.00	0.00
March							
April							
May	2022-05-13	27.60	31.90	1.60	38.90	0.00	0.00
June	2022-06-23	7.80	18.40	15.10	58.70	0.00	0.00
July							
August	2022-08-16	25.10	20.00	10.20	44.70	0.00	0.00
September	2022-09-14	21.30	17.80	5.90	55.00	0.00	0.00
October	2022-10-13	23.00	18.40	10.30	48.30	0.00	0.00
November							
December							
Average		20.8	20.4	7.2	51.7	0.0	0.0

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW068B							
January	2022-01-28	57.90	42.10	0.00	0.00	4.70	9.70
February	2022-02-14	56.10	41.20	0.20	2.50	11.40	12.30
March	2022-03-15	53.80	40.10	0.50	5.60	14.70	13.30
April	2022-04-14	54.80	41.10	0.20	3.90	9.60	9.40
May	2022-05-13	55.20	41.30	0.10	3.40	7.90	7.90
June	2022-06-22	53.90	40.80	0.20	5.10	7.80	7.80
July	2022-07-13	52.50	40.50	0.10	6.90	6.70	6.80
August	2022-08-15	55.40	41.40	0.00	3.20	6.00	9.10
September							
October							
November							
December							
Average		55.0	41.1	0.2	3.8	8.6	9.5
RWHGW01A							
January	2022-01-18	45.50	36.90	0.50	17.10	0.00	0.00
February	2022-02-14	50.10	38.90	0.10	10.90	0.00	0.00
March	2022-03-21	49.70	38.90	0.00	11.40	0.00	0.00
April	2022-04-22	51.20	39.70	0.00	9.10	0.00	0.00
May	2022-05-12	46.90	36.80	0.70	15.60	0.00	0.00
June	2022-06-22	52.00	39.00	0.10	8.90	0.00	0.00
July	2022-07-11	55.10	40.80	0.10	4.00	0.00	2.10
August	2022-08-09	56.20	41.40	0.00	2.40	2.90	3.10
September	2022-09-12	52.60	40.60	0.00	6.80	0.00	1.30
October	2022-10-07	45.90	36.10	0.90	17.10	1.80	2.60
November	2022-11-09	50.80	40.40	0.00	8.80	0.00	0.00
December							
Average		50.5	39.0	0.2	10.2	0.4	0.8
RWHGW01B							
January							
February							
March							
April							
May	2022-05-24	37.60	31.70	2.30	28.40	0.00	0.00
June	2022-06-29	44.40	36.00	1.20	18.40	0.00	0.00
July	2022-07-13	44.00	35.60	1.20	19.20	0.00	0.00
August	2022-08-30	47.40	38.40	0.40	13.80	0.00	1.80
September	2022-09-14	32.80	30.30	3.00	33.90	0.90	0.60
October	2022-10-14	39.10	34.00	1.20	25.70	0.00	0.00
November	2022-11-28	36.80	32.20	2.80	28.20	0.00	0.00
December							
Average		40.3	34.0	1.7	23.9	0.1	0.3

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW070A							
January	2022-01-18	54.90	40.70	0.00	4.40	31.60	21.80
February	2022-02-14	57.20	41.30	0.00	1.50	25.80	26.50
March	2022-03-17	58.40	41.60	0.00	0.00	23.20	27.40
April	2022-04-12	57.60	42.40	0.00	0.00	16.30	18.10
May	2022-05-12	57.50	42.50	0.00	0.00	22.90	20.50
June	2022-06-21	51.60	39.00	0.30	9.10	26.10	22.40
July	2022-07-11	54.90	40.30	0.00	4.80	20.20	22.10
August	2022-08-09	57.60	42.20	0.20	0.00	21.90	22.00
September	2022-09-12	53.20	40.30	0.00	6.50	25.70	26.10
October	2022-10-07	57.50	40.90	0.00	1.60	17.00	17.40
November	2022-11-09	53.50	39.60	0.20	6.70	24.80	23.60
December	2022-12-06	57.40	40.80	0.00	1.80	20.50	21.80
Average		55.9	41.0	0.1	3.0	23.0	22.5
HLGW071A							
January	2022-01-18	50.10	38.10	0.50	11.30	21.20	16.20
February	2022-02-14	55.10	40.20	0.20	4.50	22.50	21.80
March	2022-03-17	58.30	41.70	0.00	0.00	16.90	19.60
April	2022-04-12	58.20	41.80	0.00	0.00	12.00	13.00
May	2022-05-12	57.80	42.20	0.00	0.00	9.20	10.10
June	2022-06-21	54.90	39.40	0.40	5.30	16.00	16.00
July	2022-07-11	55.80	40.00	0.00	4.20	11.00	11.10
August	2022-08-09	58.40	41.60	0.00	0.00	11.70	12.70
September	2022-09-12	56.60	40.40	0.00	3.00	10.20	12.60
October	2022-10-07	58.50	40.20	0.00	1.30	12.10	14.30
November	2022-11-09	37.00	29.10	5.80	28.10	15.20	6.80
December							
Average		54.6	39.5	0.6	5.2	14.4	14.0
HLGW072A							
January	2022-01-18	57.80	40.80	0.00	1.40	36.50	29.60
February	2022-02-14	55.60	40.00	0.30	4.10	33.20	32.80
March	2022-03-17	56.40	40.20	0.10	3.30	32.90	32.80
April	2022-04-12	58.70	41.30	0.00	0.00	24.50	28.20
May	2022-05-12	58.60	41.40	0.00	0.00	26.80	27.10
June	2022-06-21	54.10	39.10	0.40	6.40	24.30	24.40
July	2022-07-11	56.90	40.10	0.00	3.00	12.50	12.60
August	2022-08-09	58.60	41.40	0.00	0.00	8.70	12.00
September	2022-09-12	55.00	39.80	0.00	5.20	24.30	24.20
October	2022-10-07	56.20	39.30	0.20	4.30	19.90	20.00
November	2022-11-09	52.00	38.80	0.50	8.70	28.70	28.70
December							
Average		56.4	40.2	0.1	3.3	24.8	24.8

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW073A							
January	2022-01-18	58.60	41.00	0.00	0.40	45.30	42.00
February	2022-02-14	55.70	40.30	0.00	4.00	40.70	42.00
March	2022-03-17	59.00	41.00	0.00	0.00	44.90	48.90
April	2022-04-12	59.10	40.90	0.00	0.00	35.30	40.00
May	2022-05-12	58.80	41.10	0.00	0.10	36.70	39.10
June	2022-06-21	54.50	39.20	0.20	6.10	33.50	36.20
July	2022-07-11	53.20	38.80	0.10	7.90	17.40	17.30
August	2022-08-09	56.30	40.40	0.00	3.30	33.10	33.10
September	2022-09-12	54.60	39.70	0.00	5.70	31.80	31.80
October	2022-10-07	57.30	39.80	0.00	2.90	21.20	21.20
November	2022-11-09	58.40	41.60	0.00	0.00	35.60	44.30
December	2022-12-06	54.60	40.00	0.20	5.20	55.50	55.10
Average		56.7	40.3	0.0	3.0	35.9	37.6
HLGW074A							
January	2022-01-18	54.50	40.00	0.00	5.50	44.40	35.90
February	2022-02-14	54.70	40.00	0.00	5.30	36.10	35.40
March	2022-03-17	58.50	41.50	0.00	0.00	32.80	35.00
April	2022-04-12	58.60	41.40	0.00	0.00	27.50	31.60
May	2022-05-12	58.40	41.60	0.00	0.00	25.90	30.70
June	2022-06-21	55.90	40.00	0.40	3.70	28.10	26.60
July	2022-07-11	51.90	38.80	0.10	9.20	33.10	33.00
August	2022-08-09	57.80	41.50	0.00	0.70	25.60	27.60
September	2022-09-12	54.30	40.30	0.00	5.40	29.80	34.70
October	2022-10-07	57.00	40.70	0.00	2.30	13.30	14.80
November	2022-11-09	2.80	2.50	20.80	73.90	0.00	0.00
December	2022-12-06	54.10	39.20	0.30	6.40	0.00	1.10
Average		51.5	37.3	1.8	9.4	24.7	25.5
HLGW075B							
January	2022-01-28	58.30	41.60	0.00	0.10	14.10	14.30
February	2022-02-14	56.10	41.00	0.00	2.90	16.60	16.00
March	2022-03-15	55.00	40.60	0.00	4.40	20.50	16.80
April	2022-04-14	56.60	40.90	0.00	2.50	14.90	14.90
May	2022-05-13	54.90	40.50	0.00	4.60	15.10	15.20
June	2022-06-22	54.00	40.00	0.00	6.00	13.00	12.80
July	2022-07-13	54.60	40.20	0.00	5.20	10.90	10.90
August	2022-08-15	55.30	40.20	0.00	4.50	14.50	14.60
September							
October							
November							
December							
Average		55.6	40.6	0.0	3.8	15.0	14.4

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW079A							
January	2022-01-18	52.70	39.30	<<<<	N/A	12.50	0.00
February	2022-02-14	49.60	38.60	0.30	11.50	0.00	0.00
March	2022-03-17	57.20	42.80	0.00	0.00	1.00	1.40
April	2022-04-11	54.80	40.80	0.10	4.30	14.90	14.70
May	2022-05-12	57.80	42.10	0.10	0.00	11.30	12.40
June	2022-06-21	53.10	40.10	0.10	6.70	11.80	10.80
July	2022-07-11	58.30	41.40	0.30	0.00	11.10	13.10
August	2022-08-09	56.10	41.60	0.00	2.30	12.60	14.80
September	2022-09-12	50.60	39.60	0.00	9.80	15.20	13.00
October	2022-10-07	58.30	41.50	0.00	0.20	9.20	12.90
November	2022-11-09	52.10	39.10	0.10	8.70	13.30	11.20
December	2022-12-06	58.30	41.70	0.00	0.00	9.90	12.80
Average		54.9	40.7	0.1	4.0	10.2	9.8
HLGW080A							
January	2022-01-18	56.90	43.10	0.00	0.00	11.10	9.90
February	2022-02-14	54.90	41.00	0.50	3.60	9.60	9.30
March	2022-03-17	57.00	43.00	0.00	0.00	15.50	21.20
April	2022-04-11	57.60	42.40	0.00	0.00	24.70	25.90
May	2022-05-12	54.60	41.20	0.10	4.10	20.30	20.50
June	2022-06-21	56.20	41.50	0.10	2.20	17.70	17.60
July	2022-07-11	58.00	41.70	0.20	0.10	19.90	20.40
August	2022-08-09	57.60	42.20	0.00	0.20	17.60	19.60
September	2022-09-12	55.40	41.30	0.20	3.10	20.10	21.20
October	2022-10-07	58.20	41.60	0.00	0.20	15.80	20.60
November	2022-11-09	51.70	37.80	1.70	8.80	22.40	19.90
December	2022-12-06	55.60	39.80	0.90	3.70	21.10	21.10
Average	2022-06-28	56.1	41.4	0.3	2.2	18.0	18.9
HLGW081A							
January	2022-01-18	58.50	40.30	0.50	0.70	32.00	24.10
February	2022-02-14	56.50	39.90	0.80	2.80	38.20	38.10
March	2022-03-17	58.50	40.40	0.30	0.80	40.40	43.00
April	2022-04-11	56.40	40.20	0.60	2.80	41.10	39.20
May	2022-05-12	54.30	39.00	1.30	5.40	45.00	41.60
June	2022-06-21	55.00	39.40	0.70	4.90	33.40	29.30
July	2022-07-11	56.30	39.60	0.40	3.70	36.10	36.10
August	2022-08-09	56.70	40.30	0.30	2.70	30.30	31.00
September	2022-09-12	56.90	39.80	0.40	2.90	32.10	34.30
October	2022-10-07	57.50	39.60	0.10	2.80	29.70	32.20
November	2022-11-09	53.60	37.60	1.80	7.00	36.70	33.70
December	2022-12-06	53.70	37.60	1.70	7.00	34.10	32.10
Average		56.2	39.5	0.7	3.6	35.8	34.6

Appendix B2, continued

Month	Date	CH ₄ %	CO ₂ %	O ₂ %	Balance %	Init. Flow SCFM	Adj. Flow SCFM
HLGW082A							
January	2022-01-18	59.30	40.10	0.60	0.00	13.10	21.20
February	2022-02-14	54.40	39.30	0.90	5.40	24.70	23.30
March	2022-03-17	58.60	41.40	0.00	0.00	23.60	24.50
April	2022-04-11	58.20	41.80	0.00	0.00	22.20	24.30
May	2022-05-12	57.90	42.10	0.00	0.00	21.70	22.80
June	2022-06-21	54.20	38.70	1.00	6.10	22.30	20.10
July	2022-07-11	58.70	40.50	0.10	0.70	21.90	22.10
August	2022-08-09	57.80	40.70	0.00	1.50	21.20	22.80
September	2022-09-12	54.50	39.30	0.60	5.60	22.30	22.30
October	2022-10-07	58.20	40.30	0.00	1.50	18.00	20.00
November	2022-11-09	47.40	34.00	3.90	14.70	23.10	16.00
December	2022-12-06	47.80	34.50	3.50	14.20	14.80	9.90
Average		55.6	39.4	0.9	4.1	20.7	20.8
HLGW083A							
January	2022-01-18	60.00	39.90	0.00	0.10	31.60	37.30
February	2022-02-14	56.40	39.80	0.40	3.40	30.10	29.70
March	2022-03-17	56.50	40.20	0.00	3.30	21.20	21.90
April	2022-04-11	54.40	39.70	0.00	5.90	17.20	15.50
May	2022-05-12	56.90	40.60	0.00	2.50	11.20	11.10
June	2022-06-21	55.80	39.80	0.10	4.30	27.00	25.80
July	2022-07-11	56.70	39.70	0.10	3.50	25.80	25.80
August	2022-08-09	58.90	41.10	0.00	0.00	26.20	29.80
September	2022-09-12	54.20	38.50	0.90	6.40	31.20	26.50
October	2022-10-07	56.80	39.70	0.00	3.50	30.70	29.90
November	2022-11-09	52.90	38.70	0.50	7.90	31.50	26.60
December	2022-12-06	55.50	40.00	0.00	4.50	25.30	25.30
Average		56.3	39.8	0.2	3.8	25.8	25.4

Note: <<>> = under or over range of instrument

Appendix B3
2022 Hartland Landfill Gas Well Field Data Summary

Name	Refuse Lift (mASL)	Year Activated	Average Methane (% by vol)	Average Flow (scfm)	Months in Operation	Methane Annual Flow (scfm)	Methane Flow (m3)	Energy (GJ)	Well Production (% of Total)	Cumulative Total (%)
HLGW016B	163	2012	55.6	146.9	12.0	42,895,165	1,214,662	43,606	16%	16%
HLGW073A	163	2019	56.7	35.9	12.0	10,693,131	302,797	10,870	4%	20%
HLGW081A	167	2019	56.2	35.8	12.0	10,548,939	298,714	10,724	4%	24%
HLGW028A	171	2017	55.5	31.6	12.0	9,218,119	261,029	9,371	3%	27%
HLGW083A	167	2019	56.3	25.8	12.0	7,608,816	215,459	7,735	3%	30%
HLGW066B	159 (3)	2018	54.1	25.0	12.0	7,115,590	201,492	7,234	3%	33%
HLGW070A	163	2019	55.9	23.0	12.0	6,758,971	191,394	6,871	3%	36%
HLGW072A	163	2019	56.4	24.8	11.0	6,717,577	190,222	6,829	3%	38%
HLGW074A	163	2019	51.5	24.7	12.0	6,692,150	189,502	6,803	3%	41%
HLGW067A	159 (3)	2018	56.1	22.5	12.0	6,622,387	187,526	6,732	2%	43%
HLGW0018	165	2013	55.3	22.6	12.0	6,572,614	186,117	6,682	2%	46%
HLGW082A	167	2019	55.6	20.7	12.0	6,056,275	171,496	6,157	2%	48%
HLGW042B	175	2017	54.5	20.7	12.0	5,911,089	167,384	6,009	2%	50%
HLGW032B	171	2014	56.8	18.2	12.0	5,439,613	154,034	5,530	2%	52%
HLGW080A	167	2019	56.1	18.0	12.0	5,303,625	150,183	5,392	2%	54%
HLGW0057	155(3)	2019	55.0	18.3	12.0	5,268,026	149,175	5,355	2%	56%
HLGW0059	155(3)	2019	49.0	20.4	10.0	4,365,124	123,607	4,437	2%	58%
HLGW071A	163	2019	54.6	14.4	11.0	3,777,097	106,956	3,840	1%	59%
HLGW030B	171	2014	55.2	12.4	12.0	3,597,529	101,871	3,657	1%	60%
VLGW0051	---	2011	57.5	11.9	12.0	3,592,885	101,740	3,652	1%	62%
HLGW064B	155(3)	2018	55.8	20.7	7.0	3,539,747	97,034	3,484	1%	63%
HLGW031B	171	2014	53.5	12.2	12.0	3,426,694	97,034	3,484	1%	64%
HLGW025B	171	2016	55.0	17.5	8.0	3,370,093	95,431	3,426	1%	66%
HLGW0061	155(3)	2019	54.1	12.1	11.0	3,150,594	89,215	3,203	1%	67%
HLGW047A	179	2017	55.4	10.5	12.0	3,068,327	86,886	3,119	1%	68%
HLGW039A	175	2017	56.3	10.2	12.0	3,019,797	85,512	3,070	1%	69%

Appendix B3, continued

Name	Refuse Lift (mASL)	Year Activated	Average Methane (% by vol)	Average Flow (scfm)	Months in Operation	Methane Annual Flow (scfm)	Methane Flow (m3)	Energy (GJ)	Well Production (% of Total)	Cumulative Total (%)
HLGW079A	167	2019	54.9	10.2	12.0	2,951,703	83,583	3,001	1%	70%
HLGW075B	163	2019	55.6	15.0	8.0	2,910,999	82,431	2,959	1%	71%
HLGW0053	151(3)	2018	56.5	10.1	11.0	2,746,117	77,762	2,792	1%	72%
HLGW044A	179	2017	56.5	8.7	12.0	2,587,118	73,259	2,630	1%	73%
HLGW033A	171	2014	56.8	8.5	12.0	2,537,695	71,860	2,580	1%	74%
HLGW037B	175	2017	54.6	14.9	6.0	2,137,464	60,527	2,173	1%	75%
HLGW049B	179	2018	54.6	7.3	12.0	2,089,965	59,182	2,125	1%	76%
HLGW029A	171	2017	54.2	6.9	12.0	1,969,004	55,756	2,002	1%	77%
HLGW021B	165	2013	56.2	7.0	11.0	1,885,761	53,399	1,917	1%	77%
HLGW034A	171	2014	55.1	7.1	11.0	1,885,295	53,386	1,917	1%	78%
HLGW0062	155(3)	2019	54.4	7.0	11.0	1,825,688	51,698	1,856	1%	79%
HLGW028B	171	2015	56.8	6.4	11.0	1,752,124	49,615	1,781	1%	79%
HLGW040A	175	2017	54.2	5.9	12.0	1,672,982	47,374	1,701	1%	80%
HLGW041B	175	2017	52.5	6.0	12.0	1,667,282	47,212	1,695	1%	81%
HLGW068B	160 (3)	2018	55.0	8.6	8.0	1,654,978	46,864	1,682	1%	81%
HLGW038B	175	2017	53.9	5.8	12.0	1,626,563	46,059	1,654	1%	82%
VLGW021D	---	1997	63.8	4.9	12.0	1,624,199	45,992	1,651	1%	82%
HLGW024B	171	2016	57.1	8.0	8.0	1,599,750	45,300	1,626	1%	83%
HLGW051B	179	2017	53.2	5.7	12.0	1,590,876	45,049	1,617	1%	84%
HLGW050B	179	2018	54.5	5.2	12.0	1,481,124	41,941	1,506	1%	84%
HLGW034B	171	2014	43.7	5.9	12.0	1,355,703	38,389	1,378	1%	85%
HLGW040B	175	2018	55.5	4.4	12.0	1,279,613	36,235	1,301	0%	85%
VLGW016D	---	1997	66.6	3.6	12.0	1,259,803	35,674	1,281	0%	86%
VLGW015D	---	1997	70.5	3.2	12.0	1,195,068	33,841	1,215	0%	86%
HLGW036B	175	2017	54.8	6.0	8.0	1,151,484	32,607	1,171	0%	86%
HLGW0055	151(3)	2018	54.2	4.4	11.0	1,136,123	32,172	1,155	0%	87%
VLGW027D	---	1997	70.6	3.3	11.0	1,128,500	31,956	1,147	0%	87%

Appendix B3, continued

Name	Refuse Lift (mASL)	Year Activated	Average Methane (% by vol)	Average Flow (scfm)	Months in Operation	Methane Annual Flow (scfm)	Methane Flow (m3)	Energy (GJ)	Well Production (% of Total)	Cumulative Total (%)
VLGW003D	---	1996	70.3	3.1	12.0	1,125,947	31,883	1,145	0%	88%
HLGW0052	151(3)	2018	49.6	6.4	8.0	1,102,737	31,226	1,121	0%	88%
VLGW003S	---	1996	70.2	3.0	12.0	1,087,223	30,787	1,105	0%	89%
HLGW048A	179	2017	50.9	4.1	12.0	1,084,600	30,713	1,103	0%	89%
VLGW024D	---	1997	65.3	3.1	12.0	1,069,080	30,273	1,087	0%	89%
VLGW029D	---	1997	68.4	3.2	11.0	1,065,821	30,181	1,083	0%	90%
HLGW027A	171	2017	44.0	4.4	12.0	1,022,395	28,951	1,039	0%	90%
VLGW019S	---	1997	60.5	3.2	12.0	1,019,652	28,873	1,037	0%	91%
VLGW021S	---	1997	67.3	2.7	12.0	959,723	27,176	976	0%	91%
HLGW043A	175	2017	56.5	3.4	11.0	917,020	25,967	932	0%	91%
VLGW018D	---	1997	61.2	2.8	12.0	888,363	25,156	903	0%	92%
HLGW042A	175	2017	52.1	3.9	10.0	887,034	25,118	902	0%	92%
LHGW0013	151	2011	45.1	4.0	11.0	877,472	24,847	892	0%	92%
VLGW007D	---	1996	72.9	2.2	12.0	856,323	24,248	871	0%	93%
HLGW0063	155(3)	2019	54.0	2.9	12.0	831,452	23,544	845	0%	93%
VLGW032S	---	1997	62.0	2.4	12.0	787,692	22,305	801	0%	93%
VLGW026S	---	1997	58.6	2.4	12.0	733,877	20,781	746	0%	93%
HLGW0054	151(3)	2018	53.5	2.6	12.0	721,903	20,442	734	0%	94%
VLGW008S	---	1996	68.2	2.0	12.0	701,255	19,857	713	0%	94%
VLGW023S	---	1997	61.8	2.3	11.0	689,359	19,521	701	0%	94%
VLGW007S	---	1996	69.5	1.8	12.0	663,963	18,801	675	0%	94%
VLGW017S	---	1997	70.8	1.7	12.0	615,288	17,423	625	0%	95%
VLGW018S	---	1997	58.5	2.0	12.0	604,027	17,104	614	0%	95%
VLGW031S	---	1997	57.3	3.0	8.0	593,537	16,807	603	0%	95%
VLGW0059	---	2011	54.7	2.5	10.0	591,778	16,757	602	0%	95%
VLGW013S	---	1997	60.2	2.2	10.0	584,554	16,553	594	0%	96%
HLGW039B	175	2017	52.3	2.5	10.0	582,324	16,490	592	0%	96%

Appendix B3, continued

Name	Refuse Lift (mASL)	Year Activated	Average Methane (% by vol)	Average Flow (scfm)	Months in Operation	Methane Annual Flow (scfm)	Methane Flow (m3)	Energy (GJ)	Well Production (% of Total)	Cumulative Total (%)
VLGW011S	---	1996	49.6	2.2	12.0	569,069	16,114	579	0%	96%
HLGW029B	171	2015	50.6	3.2	8.0	564,284	15,979	574	0%	96%
VLGW012S	---	1996	65.1	1.9	10.0	530,310	15,017	539	0%	96%
HLGW0058	155(3)	2019	35.5	5.3	6.0	493,491	13,974	502	0%	97%
HLGW027B	171	2015	43.3	2.1	12.0	479,193	13,569	487	0%	97%
VLGW001D	---	1996	74.7	1.2	12.0	471,047	13,339	479	0%	97%
VLGW019D	---	1997	62.4	1.4	12.0	467,107	13,227	475	0%	97%
VLGW042S	---	2003	70.9	5.0	3.0	465,558	13,183	473	0%	97%
VLGW026D	---	1997	58.0	1.5	12.0	459,362	13,008	467	0%	98%
VLGW006S	---	1996	69.0	1.4	10.0	433,133	12,265	440	0%	98%
VLGW016S	---	1997	62.0	1.2	12.0	402,784	11,406	409	0%	98%
VLGW017D	---	1997	67.2	1.1	11.0	352,477	9,981	358	0%	98%
VLGW004S	---	1996	73.7	1.4	8.0	348,439	9,867	354	0%	98%
VLGW023D	---	1997	68.7	1.2	9.0	328,237	9,295	334	0%	98%
VLGW005S	---	1996	69.7	1.2	9.0	325,992	9,231	331	0%	98%
VLGW006D	---	1996	72.7	1.0	10.0	325,369	9,213	331	0%	98%
VLGW0055	---	2011	59.1	1.0	12.0	307,829	8,717	313	0%	99%
VLGW0050	---	2011	58.2	1.0	12.0	303,357	8,590	308	0%	99%
VLGW009D	---	1996	62.9	1.0	11.0	290,645	8,230	295	0%	99%
HLGW032A	171	2014	49.5	1.2	11.0	279,378	7,911	284	0%	99%
VLGW015S	---	1997	65.4	0.7	12.0	254,608	7,210	259	0%	99%
VLGW029S	---	1997	55.3	1.0	10.0	251,856	7,132	256	0%	99%
VLGW0054	---	2011	47.6	0.9	12.0	218,601	6,190	222	0%	99%
HLGW051A	179	2017	45.3	1.0	10.0	207,165	5,866	211	0%	99%
VLGW0060	---	2011	53.9	1.0	8.0	191,210	5,415	194	0%	99%
VLGW020S	---	1997	59.2	0.7	10.0	168,479	4,771	171	0%	99%
HLGW065B	159 (3)	2018	29.6	1.1	11.0	156,788	4,440	159	0%	99%

Appendix B3, continued

Name	Refuse Lift (mASL)	Year Activated	Average Methane (% by vol)	Average Flow (scfm)	Months in Operation	Methane Annual Flow (scfm)	Methane Flow (m3)	Energy (GJ)	Well Production (% of Total)	Cumulative Total (%)
VLGW010S	---	1996	53.9	1.2	5.0	144,628	4,095	147	0%	99%
VLGW0056	---	2011	56.7	0.5	11.0	130,971	3,709	133	0%	100%
VLGW028S	---	1997	60.8	0.4	11.0	108,278	3,066	110	0%	100%
RWHGW01A	3	2020	50.5	0.4	11.0	103,996	2,945	106	0%	100%
HLGW008B	143	2006	41.4	0.5	11.0	96,095	2,721	98	0%	100%
HLGW0010	139	2008	33.7	3.2	2.0	94,276	2,670	96	0%	100%
VLGW008D	---	1996	50.0	0.3	11.0	81,846	2,318	83	0%	100%
VLGW0052	---	2011	55.0	0.3	11.0	79,480	2,251	81	0%	100%
HLGW008A	143	2006	42.2	0.4	12.0	79,405	2,248	81	0%	100%
HLGW030A	171	2014	39.5	0.4	9.0	68,494	1,940	70	0%	100%
HLGW022B	165	2013	42.4	0.3	11.0	67,333	1,907	68	0%	100%
HLGW048B	179	2018	31.5	0.4	10.0	60,616	1,716	62	0%	100%
HLGW049A	179	2017	33.6	0.4	11.0	59,800	1,693	61	0%	100%
HLGW006A	159	2005	37.2	0.4	8.0	56,939	1,612	58	0%	100%
HLGW043B	175	2017	40.0	0.2	12.0	49,656	1,406	50	0%	100%
VLGW0049	---	2011	56.3	0.2	11.0	48,783	1,381	50	0%	100%
HLGW050A	179	2017	41.5	0.2	11.0	47,919	1,357	49	0%	100%
HLGW041A	175	2017	26.8	0.3	10.0	38,701	1,096	39	0%	100%
HLGW031A	171	2014	34.3	0.2	10.0	33,062	936	34	0%	100%
HLGW033B	171	2014	31.1	0.2	11.0	26,941	763	27	0%	100%
RWHGW01B	3	2020	40.3	0.1	7.0	15,878	450	16	0%	100%
HLGW065A	159 (3)	2018	#N/A	#N/A	#N/A		0	0	0%	100%
HLGW0004	147	2003	0.0	0.0	0.0		0	0	0%	100%
HLGW026B	171	2015	27.7	0.0	7.0	0	0	0	0%	100%
VLGW0053	---	2011	45.7	0.0	11.0	0	0	0	0%	100%
HLGW0060	155(3)	2019	0.0	0.0	0.0		0	0	0%	100%
HLGW067B	159 (3)	2018	20.8	0.0	6.0	0	0	0	0%	100%

Appendix B3, continued

Name	Refuse Lift (mASL)	Year Activated	Average Methane (% by vol)	Average Flow (scfm)	Months in Operation	Methane Annual Flow (scfm)	Methane Flow (m3)	Energy (GJ)	Well Production (% of Total)	Cumulative Total (%)
HLGW023B	165	2013	25.7	0.0	6.0	0	0	0	0%	100%
HLGW023B	165	2013	25.7	0.0	6.0	0	0	0	0%	100%
HLGW044B	179	2017	41.8	0.0	11.0	0	0	0	0%	100%
HLGW0013	147	2010	32.2	0.0	3.0	0	0	0	0%	100%
LHGW0019	---	2014	0.0	0.0	0.0		0	0	0%	100%
VLGW0058	---	2011	0.0	0.0	0.0		0	0	0%	100%
LHGW0023	159	2011	11.3	0.0	1.0	0	0	0	0%	100%
HLGW0003	139	2003	43.7	0.0	1.0	0	0	0	0%	100%
LHGW0022	159	2014	0.0	0.0	0.0		0	0	0%	100%
HLGW045B	179	2018	24.1	0.0	5.0	0	0	0	0%	100%
HLGW0014	155	2011	8.2	0.0	2.0	0	0	0	0%	100%
HLGW0001	139	2001	29.2	0.0	1.0	0	0	0	0%	100%
HLGW047B	179	2018	27.7	0.0	8.0	0	0	0	0%	100%
HLGW0012	147	2010	42.0	0.0	3.0	0	0	0	0%	100%
VLGW009S	---	1996	45.8	0.0	11.0	0	0	0	0%	100%
HLGW0005	147	2003	0.0	0.0	0.0		0	0	0%	100%
HLGW0009	139	2008	---	---	0.0		0	0	0%	100%
HLGW0011	0	2008	0.0	0.0	0.0		0	0	0%	100%
HLGW0015	155	2011	0.0	0.0	0.0		0	0	0%	100%
HLGW006B	159	2005	0.0	0.0	0.0		0	0	0%	100%
HLGW016A	159	2012	0.0	0.0	0.0		0	0	0%	100%
HLGW017A	163	2013	0.0	0.0	0.0		0	0	0%	100%
HLGW017B	163	2012	8.4	0.0	2.0	0	0	0	0%	100%
HLGW019B	165	2013	0.0	0.0	0.0		0	0	0%	100%
HLGW019C	165	2012	0.0	0.0	0.0		0	0	0%	100%
HLGW020B	165	2013	0.0	0.0	0.0		0	0	0%	100%
LHGW0003	147	2003	0.0	0.0	0.0		0	0	0%	100%

Appendix B3, continued

Name	Refuse Lift (mASL)	Year Activated	Average Methane (% by vol)	Average Flow (scfm)	Months in Operation	Methane Annual Flow (scfm)	Methane Flow (m3)	Energy (GJ)	Well Production (% of Total)	Cumulative Total (%)
LHGW0004	147	2003	0.0	0.0	0.0		0	0	0%	100%
LHGW0006	143	2009	0.0	0.0	0.0		0	0	0%	100%
LHGW0007	143	2009	0.0	0.0	0.0		0	0	0%	100%
LHGW0008	143	2009	0.0	0.0	0.0		0	0	0%	100%
LHGW0009	143	2012	0.0	0.0	0.0		0	0	0%	100%
LHGW0010	143	2012	0.0	0.0	0.0		0	0	0%	100%
LHGW0017	163	2012	0.0	0.0	0.0		0	0	0%	100%
LHGW0020	159	2014	0.0	0.0	0.0		0	0	0%	100%
LHGW0021	159	2014	0.0	0.0	0.0		0	0	0%	100%
LHGW002A	147	2007	0.0	0.0	0.0		0	0	0%	100%
VLGW001S	---	1996	51.6	0.0	9.0	0	0	0	0%	100%
VLGW002D	---	1996	---	---	0.0		0	0	0%	100%
VLGW002S	---	1996	---	---	0.0		0	0	0%	100%
VLGW004D	---	1996	0.1	0.0	0.0	0	0	0	0%	100%
VLGW0057	---	2011	29.3	0.0	1.0	0	0	0	0%	100%
VLGW005D	---	1996	77.6	0.0	11.0	0	0	0	0%	100%
VLGW013D	---	1997	53.0	0.0	10.0	0	0	0	0%	100%
VLGW014D	---	1997	---	---	0.0		0	0	0%	100%
VLGW014S	---	1997	---	---	0.0		0	0	0%	100%
VLGW020D	---	1997	57.3	0.0	10.0	0	0	0	0%	100%
VLGW022D	---	1997	59.1	0.0	7.0	0	0	0	0%	100%
VLGW022S	---	1997	43.8	0.0	9.0	0	0	0	0%	100%
VLGW024S	---	1997	0.0	0.0	0.0		0	0	0%	100%
VLGW025D	---	1997	69.7	0.0	6.0	0	0	0	0%	100%
VLGW025S	---	1997	69.7	0.0	6.0	0	0	0	0%	100%
VLGW027S	---	1997	60.1	0.0	9.0	0	0	0	0%	100%
VLGW030S	---	1997	44.9	0.0	10.0	0	0	0	0%	100%

Appendix B3, continued

Name	Refuse Lift (mASL)	Year Activated	Average Methane (% by vol)	Average Flow (scfm)	Months in Operation	Methane Annual Flow (scfm)	Methane Flow (m3)	Energy (GJ)	Well Production (% of Total)	Cumulative Total (%)
VLGW033S	---	1997	47.4	0.0	8.0	0	0	0	0%	100%
VLGW034S	---	1997	40.8	0.0	8.0	0	0	0	0%	100%
VLGW043S	---	2003	64.8	0.0	3.0	0	0	0	0%	100%
VLGW047S	---	2003	0.0	0.0	0.0		0	0	0%	100%
HLGW046B	179	2018	8.3	0.0	4.0	0	0	0	0%	100%
HLGW0056	151(3)	2018	12.4	0.0	7.0	0	0	0	0%	100%
HLGW066A	159 (3)	2018	39.8	0.2	11.0	0	0	0	0%	100%

APPENDIX C

Hartland Landfill Gas Collection Data

C1 Hartland Landfill Gas Collection Data

Appendix C1
Hartland Landfill Gas Collection Data

Date	Methane Daily Avg	Oxygen Daily Avg	Field Pressure ("H2O)	Flare 1 Temp Avg	Flare 2 Temp Avg	Groundflare Daily Flow	Candlestick Flare 2 Daily Flow	Gen Flow	TotalFlow	Comments
1-Jan-22	54.87	0.43	-34.02	85.20	341.38	-	770,306	691,791	1,462,097	
2-Jan-22	52.83	0.38	-33.77	131.86	358.70	-	749,046	701,990	1,451,036	
3-Jan-22	50.36	0.28	-33.81	205.78	316.16	-	753,063	728,349	1,481,412	
4-Jan-22	54.95	0.36	-34.38	82.06	353.69	-	792,256	737,057	1,529,313	
5-Jan-22	54.95	0.36	-32.76	715.42	208.93	-	1,012,975	531,520	1,544,495	
6-Jan-22	53.85	0.39	-32.41	691.29	200.38	-	871,743	730,249	1,601,992	
7-Jan-22	53.29	0.46	-33.80	347.45	268.42	-	838,496	756,439	1,594,935	
8-Jan-22	54.72	0.46	-34.13	82.93	334.24	-	821,963	751,089	1,573,052	
9-Jan-22	55.00	0.46	-34.13	85.91	326.43	-	825,652	754,329	1,579,981	
10-Jan-22	55.48	0.46	-34.13	87.56	334.93	-	820,120	767,795	1,587,915	
11-Jan-22	56.10	0.40	-33.50	88.50	338.90	-	816,333	756,883	1,573,216	
12-Jan-22	54.84	0.48	-34.52	87.01	351.81	-	816,788	762,675	1,579,463	
13-Jan-22	53.76	0.47	-34.53	88.74	321.97	369,497	631,921	562,370	1,563,788	
14-Jan-22	54.08	0.47	-34.52	86.61	338.77	-	842,748	723,370	1,566,118	
15-Jan-22	54.57	0.47	-34.49	88.11	331.79	-	823,900	737,049	1,560,949	
16-Jan-22	54.69	0.48	-33.49	86.62	334.53	-	806,473	737,785	1,544,258	
17-Jan-22	51.06	0.49	-32.97	435.97	247.68	-	781,078	739,375	1,520,453	
18-Jan-22	52.83	0.48	-33.51	90.15	312.36	-	735,144	733,794	1,468,938	
19-Jan-22	53.20	0.47	-33.53	84.23	372.10	-	726,107	722,145	1,448,252	
20-Jan-22	51.68	0.45	-33.54	85.92	315.97	-	773,421	737,898	1,511,319	
21-Jan-22	52.66	0.44	-33.52	81.76	343.15	-	787,739	749,556	1,537,295	
22-Jan-22	53.35	0.47	-33.54	83.34	348.51	-	763,057	755,109	1,518,166	
23-Jan-22	53.21	0.47	-33.53	84.09	341.83	508,219	553,444	416,690	1,478,353	
24-Jan-22	52.98	0.48	-33.53	83.77	326.15	1,215,624	153,119	445,553	1,814,296	
25-Jan-22	52.98	0.46	-33.52	79.22	323.84	1,311,393	124,051	748,800	2,184,244	
26-Jan-22	53.13	0.36	-33.26	77.51	325.18	-	817,889	750,284	1,568,173	
27-Jan-22	54.06	0.40	-33.50	83.18	331.60	225,103	679,457	595,292	1,499,852	
28-Jan-22	55.42	0.45	-33.48	86.70	310.22	98,395	682,837	682,994	1,464,226	
29-Jan-22	56.50	0.29	-33.48	86.28	352.74	-	774,374	733,511	1,507,885	
30-Jan-22	54.59	-0.09	-33.48	80.49	353.41	-	745,973	756,118	1,502,091	
31-Jan-22	53.96	0.39	-33.41	83.79	263.97	-	804,361	829,017	1,633,378	
1-Feb-22	56.96	0.39	-33.41	83.79	263.97	-	1,069,395	447,355	1,516,750	

Appendix C1, continued

Date	Methane Daily Avg	Oxygen Daily Avg	Field Pressure ("H2O)	Flare 1 Temp Avg	Flare 2 Temp Avg	Groundflare Daily Flow	Candlestick Flare 2 Daily Flow	Gen Flow	TotalFlow	Comments
2-Feb-22	57.13	0.40	-33.46	84.14	318.98	-	819,835	726,293	1,546,128	
3-Feb-22	56.71	0.38	-33.41	86.25	317.69	-	825,686	746,967	1,572,653	
4-Feb-22	57.40	0.37	-33.49	---	356.21	-	831,049	742,421	1,573,470	
5-Feb-22	56.05	0.37	-33.49	---	328.20	-	828,569	754,757	1,583,326	
6-Feb-22	57.28	0.36	-33.48	---	300.59	-	942,144	630,205	1,572,349	
7-Feb-22	56.30	0.20	---	---	---	-	968,647	596,332	1,564,979	
8-Feb-22	56.48	0.36	-33.50	86.64	350.35	-	831,345	747,385	1,578,730	
9-Feb-22	56.59	0.33	-33.51	89.57	342.24	-	854,403	731,635	1,586,038	
10-Feb-22	57.12	0.34	-33.51	88.91	362.60	-	862,939	737,610	1,600,549	
11-Feb-22	57.27	0.34	-33.50	83.86	366.42	-	881,039	734,315	1,615,354	
12-Feb-22	57.75	0.33	-33.51	82.39	358.28	-	942,830	672,491	1,615,321	
13-Feb-22	58.36	0.35	-33.50	86.18	334.43	-	1,012,293	591,587	1,603,880	
14-Feb-22	58.47	0.39	-33.29	86.05	320.21	-	918,671	695,009	1,613,680	
15-Feb-22	56.33	0.44	-33.40	87.03	365.16	-	885,881	763,503	1,649,384	
16-Feb-22	55.86	0.50	-33.51	82.90	423.92	-	779,867	747,879	1,527,746	
17-Feb-22	57.79	0.34	-33.48	87.49	273.00	-	1,392,030	60,586	1,452,616	---
18-Feb-22	57.77	0.36	-33.50	88.16	299.30	-	1,159,391	367,513	1,526,904	---
19-Feb-22	59.24	0.37	-33.50	85.88	382.70	-	936,861	608,082	1,544,943	---
20-Feb-22	58.97	0.39	-33.50	84.72	374.63	-	925,426	616,337	1,541,763	---
21-Feb-22	58.25	0.41	-33.50	78.86	379.99	-	1,318,243	189,732	1,507,975	---
22-Feb-22	56.30	0.30	-33.16	1,424.74	302.61	726,931	776,358	4,038	1,507,327	---
23-Feb-22	56.80	0.20	-33.48	1,550.83	29.28	1,536,939	-	-	1,536,939	Ground flare running- gas concentration measurements replaced with manual readings
24-Feb-22	56.00	0.20	-33.48	1,550.74	27.52	1,564,645	-	-	1,564,645	Ground flare running- gas concentration measurements replaced with manual readings
25-Feb-22	57.50	0.20	-33.47	1,552.04	30.40	1,569,560	-	-	1,569,560	Ground flare running- gas concentration measurements replaced with manual readings
26-Feb-22	---	---	-33.47	1,548.50	34.49	1,543,943	-	-	1,543,943	Ground flare running- gas concentration measurements replaced with manual readings

Appendix C1, continued

Date	Methane Daily Avg	Oxygen Daily Avg	Field Pressure ("H2O)	Flare 1 Temp Avg	Flare 2 Temp Avg	Groundflare Daily Flow	Candlestick Flare 2 Daily Flow	Gen Flow	TotalFlow	Comments
27-Feb-22	---	---	-33.42	1,553.23	31.24	1,553,772	-	-	1,553,772	Ground flare running- No manual readings taken on weekend
28-Feb-22	58.40	0.20	-33.50	1,547.60	33.00	1,553,772	-	-	1,553,772	Total flow biased high due to leak, replaced with average of preceding 4 days. Ground flare running- No manual readings taken on weekend
1-Mar-22	58.10	0.10	-33.48	1,551.88	29.56	1,501,287	-	-	1,501,287	
2-Mar-22	58.60	0.10	-33.48	1,550.25	33.41	1,507,318	-	-	1,507,318	N/A
3-Mar-22	57.50	0.10	-33.48	1,550.66	30.60	1,529,178	-	-	1,529,178	Ground flare running- gas concentration measurements replaced with manual readings
4-Mar-22	57.70	0.10	-33.47	1,552.48	27.91	1,530,604	-	-	1,530,604	Ground flare running- gas concentration measurements replaced with manual readings
5-Mar-22	57.40	0.10	-33.47	1,546.98	27.35	1,539,267	-	-	1,539,267	Ground flare running- gas concentration measurements replaced with manual readings
6-Mar-22	---	---	-33.47	1,549.68	28.35	1,548,203	-	-	1,548,203	Ground flare running- gas concentration measurements replaced with manual readings
7-Mar-22	58.20	0.10	-33.47	1,552.56	33.00	1,561,254	-	-	1,561,254	Ground flare running- gas concentration measurements replaced with manual readings
8-Mar-22	58.90	0.10	-33.47	1,550.90	31.51	1,566,375	-	-	1,566,375	Ground flare running- gas concentration measurements replaced with manual readings
9-Mar-22	58.20	0.10	-33.47	1,549.80	27.44	1,559,341	-	-	1,559,341	Ground flare running- gas concentration measurements replaced with manual readings
10-Mar-22	58.10	0.20	-33.48	1,551.17	32.56	1,560,691	-	-	1,560,691	Ground flare running- gas concentration measurements replaced with manual readings

Appendix C1, continued

Date	Methane Daily Avg	Oxygen Daily Avg	Field Pressure ("H2O)	Flare 1 Temp Avg	Flare 2 Temp Avg	Groundflare Daily Flow	Candlestick Flare 2 Daily Flow	Gen Flow	TotalFlow	Comments
11-Mar-22	58.20	0.10	-33.48	1,550.16	32.04	1,570,234	-	-	1,570,234	Ground flare running- gas concentration measurements replaced with manual readings
12-Mar-22	59.80	0.00	-32.87	1,358.59	221.00	838,838	708,080	77,534	1,624,452	Ground flare running- gas concentration measurements replaced with manual readings
13-Mar-22	51.14	0.08	-33.07	91.16	259.16	-	1,475,048	42,725	1,517,773	Ground flare running- gas concentration measurements replaced with manual readings
14-Mar-22	55.70	0.06	-33.17	89.20	270.65	-	1,376,938	223,158	1,600,096	---
15-Mar-22	58.07	0.07	-33.50	85.68	323.00	-	1,134,219	456,007	1,590,226	---
16-Mar-22	56.93	0.04	-33.50	86.32	290.86	-	1,029,952	546,055	1,576,007	---
17-Mar-22	58.11	0.03	-33.49	88.50	263.78	-	1,054,885	532,660	1,587,545	---
18-Mar-22	58.62	0.03	-33.50	89.73	286.97	-	1,065,306	523,744	1,589,050	---
19-Mar-22	58.09	0.06	-33.49	80.49	339.97	-	1,045,953	523,196	1,569,149	---
20-Mar-22	57.12	0.06	-33.50	85.11	292.53	-	1,044,961	534,032	1,578,993	---
21-Mar-22	57.12	0.05	-33.49	87.88	286.54	-	1,195,086	391,645	1,586,731	---
22-Mar-22	57.33	0.03	-33.50	90.13	356.09	-	854,106	755,069	1,609,175	---
23-Mar-22	58.25	0.04	-33.49	88.36	396.60	-	837,630	739,306	1,576,936	---
24-Mar-22	58.44	0.02	-33.50	85.08	424.84	-	815,774	734,588	1,550,362	---
25-Mar-22	58.58	0.04	-33.51	89.26	395.48	-	823,226	736,761	1,559,987	---
26-Mar-22	58.97	0.06	-32.83	88.12	374.26	-	809,090	737,266	1,546,356	---
27-Mar-22	59.68	0.06	-31.19	89.91	404.68	-	766,762	732,981	1,499,743	---
28-Mar-22	58.94	0.06	-31.05	90.84	387.42	-	772,568	739,234	1,511,802	---
29-Mar-22	58.07	0.06	-32.11	89.97	412.13	-	788,665	736,456	1,525,121	---
30-Mar-22	58.20	0.05	-33.21	84.64	405.82	-	841,084	685,663	1,526,747	---
31-Mar-22	58.20	0.10	-32.80	86.60	375.00	-	811,939	784,361	1,596,300	---
1-Apr-22	59.41	0.06	-32.36	88.76	358.87	-	822,891	724,138	1,547,029	N/A
2-Apr-22	59.82	0.06	-33.07	86.86	384.81	-	841,688	715,470	1,557,158	---
3-Apr-22	61.37	0.03	-33.00	88.03	327.25	-	843,943	707,154	1,551,097	---
4-Apr-22	60.76	0.07	-32.89	81.86	457.05	-	843,530	662,034	1,505,564	---
5-Apr-22	58.37	0.11	-33.50	81.96	378.11	-	1,266,785	219,126	1,485,911	---
6-Apr-22	59.38	0.02	-33.50	85.56	333.44	-	1,267,909	235,914	1,503,823	---

Appendix C1, continued

Date	Methane Daily Avg	Oxygen Daily Avg	Field Pressure ("H2O)	Flare 1 Temp Avg	Flare 2 Temp Avg	Groundflare Daily Flow	Candlestick Flare 2 Daily Flow	Gen Flow	TotalFlow	Comments
7-Apr-22	60.77	0.03	-32.95	88.73	376.83	-	1,026,868	502,221	1,529,089	---
8-Apr-22	60.33	0.04	-33.44	86.66	407.54	-	899,930	669,713	1,569,643	---
9-Apr-22	60.00	0.03	-33.20	83.71	336.07	-	1,244,105	308,126	1,552,231	---
10-Apr-22	58.10	0.03	-33.02	1,417.84	188.95	1,018,248	522,128	22,731	1,563,107	---
11-Apr-22	58.70	0.01	-33.47	1,551.13	28.58	1,543,140	-	15,708	1,558,848	---
12-Apr-22	58.30	0.01	-33.48	1,548.97	32.39	1,573,892	-	9,974	1,583,866	---
13-Apr-22	57.70	0.00	-33.48	1,550.86	32.55	1,597,712	-	13,964	1,611,676	---
14-Apr-22	55.80	0.10	-31.09	1,020.65	387.07	581,410	616,531	297,632	1,495,573	---
15-Apr-22	---	0.04	-33.51	85.84	422.98	-	775,761	738,550	1,514,311	---
16-Apr-22	58.70	0.06	-33.53	83.12	434.05	-	768,582	735,766	1,504,348	---
17-Apr-22	---	0.04	-33.51	85.14	457.39	-	771,344	740,151	1,511,495	---
18-Apr-22	---	0.04	-34.04	87.74	415.25	-	786,498	722,972	1,509,470	---
19-Apr-22	57.40	0.05	-34.41	85.97	409.70	-	810,637	740,959	1,551,596	---
20-Apr-22	59.00	0.39	-32.97	742.86	393.59	103,007	762,264	660,625	1,525,896	---
21-Apr-22	58.09	0.19	-33.38	88.79	394.52	-	797,986	742,015	1,540,001	---
22-Apr-22	57.14	0.19	-33.50	88.87	373.37	-	788,475	739,325	1,527,800	
23-Apr-22	57.86	0.19	-33.61	88.97	388.06	-	797,460	741,701	1,539,161	
24-Apr-22	59.47	0.19	-34.04	89.57	423.50	-	812,570	735,761	1,548,331	
25-Apr-22	59.69	0.21	-32.93	86.74	390.68	-	820,802	701,489	1,522,291	
26-Apr-22	---	0.25	-32.55	1,098.57	371.69	394,003	625,879	527,336	1,547,218	
27-Apr-22	59.13	0.23	-33.51	86.49	400.16	-	823,431	747,143	1,570,574	
28-Apr-22	59.37	0.23	-33.52	88.49	388.78	-	824,435	745,424	1,569,859	
29-Apr-22	58.93	0.25	-33.51	90.92	431.17	-	821,448	744,036	1,565,484	
30-Apr-22	59.80	0.20	-33.50	90.30	383.20	-	811,776	767,038	1,578,814	
1-May-22	59.69	0.23	-33.49	91.10	361.64	-	816,603	736,672	1,553,275	
2-May-22	59.92	0.25	-33.46	92.74	402.92	-	812,284	742,142	1,554,426	
3-May-22	58.44	0.25	-33.50	89.41	386.79	-	816,348	753,373	1,569,721	
4-May-22	59.90	0.21	-33.49	90.77	408.86	-	842,824	725,319	1,568,143	
5-May-22	60.09	0.24	-33.37	88.27	390.30	-	818,603	735,251	1,553,854	
6-May-22	59.13	0.25	-32.32	89.03	416.82	-	821,362	738,925	1,560,287	
7-May-22	58.17	0.28	-31.85	87.94	400.83	-	834,486	744,905	1,579,391	
8-May-22	58.31	0.26	-31.74	86.71	412.64	-	836,619	740,828	1,577,447	
9-May-22	57.48	0.28	-32.57	90.13	390.24	-	834,496	740,767	1,575,263	

Appendix C1, continued

Date	Methane Daily Avg	Oxygen Daily Avg	Field Pressure ("H2O)	Flare 1 Temp Avg	Flare 2 Temp Avg	Groundflare Daily Flow	Candlestick Flare 2 Daily Flow	Gen Flow	TotalFlow	Comments
10-May-22	55.96	0.26	-33.48	89.29	408.48	-	816,894	750,193	1,567,087	
11-May-22	57.19	0.26	-33.00	88.76	425.47	-	788,885	743,561	1,532,446	
12-May-22	58.22	0.27	-32.57	89.01	381.66	-	793,468	734,761	1,528,229	
13-May-22	56.92	0.28	-33.02	89.11	426.43	-	813,313	747,132	1,560,445	
14-May-22	58.31	0.25	-32.74	91.22	389.30	-	805,381	745,135	1,550,516	
15-May-22	59.19	0.23	-32.60	92.16	377.09	-	819,209	728,502	1,547,711	
16-May-22	57.73	0.28	-33.03	89.76	416.89	-	879,616	669,885	1,549,501	
17-May-22	57.55	0.27	-33.41	90.56	367.42	-	849,177	719,705	1,568,882	
18-May-22	58.50	0.20	-30.33	844.65	400.09	173,799	723,394	520,748	1,417,941	
19-May-22	57.35	0.27	-33.49	90.46	379.30	-	1,114,418	444,010	1,558,428	
20-May-22	57.00	0.00	-31.86	1,018.15	373.71	147,517	745,955	661,961	1,555,433	
21-May-22	57.40	0.30	-32.73	1,284.45	407.23	427,872	658,046	474,693	1,560,611	
22-May-22	56.74	0.34	-33.39	95.40	336.51	-	878,971	715,315	1,594,286	
23-May-22	57.00	0.35	-33.42	97.83	365.72	-	876,234	714,351	1,590,585	
24-May-22	57.80	0.39	-33.47	95.22	297.62	-	868,683	715,076	1,583,759	
25-May-22	56.30	0.20	-32.65	1,173.71	329.40	600,335	555,336	399,925	1,555,596	
26-May-22	57.00	0.40	-32.73	1,250.17	323.96	505,243	583,187	466,893	1,555,323	
27-May-22	58.23	0.32	-32.58	92.27	396.75	-	886,426	606,837	1,493,263	
28-May-22	58.95	0.29	-32.20	92.46	392.98	-	928,505	546,650	1,475,155	
29-May-22	57.72	0.33	-32.87	92.87	412.68	-	808,412	658,080	1,466,492	
30-May-22	56.80	0.30	-33.50	93.80	378.60	-	822,943	783,714	1,606,657	
31-May-22	57.20	0.30	-33.30	98.10	418.00	-	832,184	793,551	1,625,735	
1-Jun-22	57.99	0.25	-32.76	98.95	370.86	-	825,697	665,833	1,491,530	
2-Jun-22	58.65	0.23	-31.99	98.57	413.65	-	803,917	661,847	1,465,764	
3-Jun-22	59.14	0.28	-32.01	98.62	388.09	-	797,953	748,800	1,546,753	
4-Jun-22	59.43	0.27	-31.76	95.66	358.32	-	800,168	611,368	1,411,536	
5-Jun-22	58.57	0.27	-32.25	95.80	377.18	-	800,570	648,000	1,448,570	
6-Jun-22	56.67	0.33	-33.48	95.96	365.50	-	794,759	648,000	1,442,759	
7-Jun-22	58.42	0.22	-32.80	95.60	427.75	-	804,975	648,000	1,452,975	
8-Jun-22	57.72	0.24	-31.98	98.12	385.21	-	822,859	662,518	1,485,377	
9-Jun-22	59.01	0.24	-32.11	96.51	344.36	-	836,864	750,240	1,587,104	
10-Jun-22	58.43	0.26	-31.81	95.71	363.55	-	824,016	750,240	1,574,256	
11-Jun-22	58.54	0.22	-31.60	96.36	389.57	-	825,847	750,240	1,576,087	

Appendix C1, continued

Date	Methane Daily Avg	Oxygen Daily Avg	Field Pressure ("H2O)	Flare 1 Temp Avg	Flare 2 Temp Avg	Groundflare Daily Flow	Candlestick Flare 2 Daily Flow	Gen Flow	TotalFlow	Comments
12-Jun-22	59.01	0.25	-31.66	94.11	410.09	-	825,097	737,524	1,562,621	
13-Jun-22	57.46	0.31	-32.10	92.30	409.53	-	839,375	737,280	1,576,655	
14-Jun-22	56.98	0.26	-31.24	91.83	386.08	-	834,921	737,280	1,572,201	
15-Jun-22	58.66	0.25	-29.94	94.70	379.87	-	823,549	737,280	1,560,829	
16-Jun-22	58.23	0.27	-28.90	95.22	362.20	-	818,118	737,280	1,555,398	
17-Jun-22	58.23	0.28	-30.69	95.28	386.64	-	836,473	737,280	1,573,753	
18-Jun-22	57.75	0.26	-32.12	95.38	405.52	-	802,214	671,976	1,474,190	
19-Jun-22	57.46	0.22	-31.51	97.63	427.27	-	780,412	753,421	1,533,833	
20-Jun-22	57.05	0.21	-31.98	97.62	340.83	-	898,312	549,051	1,447,363	
21-Jun-22	57.66	0.19	-31.94	98.45	360.61	-	895,518	598,048	1,493,566	
22-Jun-22	57.98	0.18	-29.71	99.58	441.43	-	804,877	708,845	1,513,722	
23-Jun-22	56.64	0.28	-29.66	96.19	388.67	-	866,398	701,778	1,568,176	
24-Jun-22	55.10	0.20	-33.13	97.45	387.61	-	835,867	695,520	1,531,387	
25-Jun-22	56.90	0.15	-32.97	97.65	505.00	-	724,917	695,987	1,420,904	
26-Jun-22	57.66	0.17	-32.71	98.36	499.71	-	689,510	684,841	1,374,351	
27-Jun-22	57.81	0.16	-32.34	98.06	440.80	-	699,539	652,578	1,352,117	
28-Jun-22	58.75	0.24	-31.75	98.11	422.98	-	748,224	639,257	1,387,481	
29-Jun-22	57.78	0.28	-32.25	98.43	362.03	-	801,310	737,371	1,538,681	
30-Jun-22	57.80	0.20	-31.50	97.80	395.30	-	806,408	742,341	1,548,749	
1-Jul-22	58.29	0.23	-31.35	99.16	391.18	-	800,155	758,880	1,559,035	
2-Jul-22	58.61	0.20	-31.30	97.60	387.11	-	800,034	758,880	1,558,914	
3-Jul-22	58.90	0.25	-32.06	96.33	367.11	-	812,216	756,106	1,568,322	
4-Jul-22	58.28	0.25	-31.98	94.77	338.14	-	836,763	670,527	1,507,290	
5-Jul-22	58.75	0.20	-31.40	96.63	333.62	-	856,675	622,972	1,479,647	
6-Jul-22	58.66	0.21	-32.04	98.80	394.57	-	828,187	669,600	1,497,787	
7-Jul-22	58.17	0.25	-32.46	98.94	339.63	-	911,127	630,149	1,541,276	
8-Jul-22	57.71	0.21	-32.91	99.93	370.26	-	840,669	756,000	1,596,669	
9-Jul-22	57.21	0.22	-33.43	99.27	344.45	-	873,632	665,317	1,538,949	
10-Jul-22	56.74	0.24	-33.40	99.06	304.57	-	854,889	677,320	1,532,209	
11-Jul-22	57.68	0.20	-32.62	99.26	344.26	-	860,536	687,202	1,547,738	
12-Jul-22	58.26	0.17	-32.33	100.45	359.31	-	869,611	642,021	1,511,632	
13-Jul-22	57.55	0.22	-32.88	98.70	345.58	-	858,343	632,160	1,490,503	
14-Jul-22	57.46	0.17	-32.37	99.76	275.59	-	1,093,496	468,323	1,561,819	

Appendix C1, continued

Date	Methane Daily Avg	Oxygen Daily Avg	Field Pressure ("H2O)	Flare 1 Temp Avg	Flare 2 Temp Avg	Groundflare Daily Flow	Candlestick Flare 2 Daily Flow	Gen Flow	TotalFlow	Comments
15-Jul-22	56.97	0.24	-32.89	98.57	306.95	-	853,770	714,179	1,567,949	
16-Jul-22	56.82	0.24	-33.02	99.28	362.45	-	846,663	728,049	1,574,712	
17-Jul-22	56.93	0.26	-33.00	98.13	341.13	-	867,879	692,467	1,560,346	
18-Jul-22	55.88	0.26	-33.27	99.65	349.18	-	848,045	740,160	1,588,205	
19-Jul-22	56.52	0.21	-32.93	98.46	329.08	-	853,231	740,160	1,593,391	
20-Jul-22	56.72	0.26	-32.54	99.88	304.33	-	869,200	638,059	1,507,259	
21-Jul-22	57.20	0.30	-31.46	1,031.00	291.22	268,404	744,537	523,537	1,536,478	
22-Jul-22	57.10	0.40	-32.17	653.61	284.44	156,185	742,786	596,427	1,495,398	
23-Jul-22	56.89	0.21	-32.92	98.59	301.93	-	876,006	730,906	1,606,912	
24-Jul-22	57.04	0.23	-32.23	98.82	346.02	-	868,344	683,920	1,552,264	
25-Jul-22	57.23	0.19	-31.69	99.12	310.08	-	858,502	691,876	1,550,378	
26-Jul-22	56.47	0.23	-30.41	100.27	334.87	-	987,440	504,475	1,491,915	
27-Jul-22	56.54	0.14	-31.75	99.96	285.72	-	869,422	558,599	1,428,021	
28-Jul-22	56.40	0.15	-33.01	99.40	275.05	-	899,457	632,284	1,531,741	
29-Jul-22	56.49	0.16	-32.96	99.99	285.02	-	883,845	622,080	1,505,925	
30-Jul-22	56.30	0.20	-33.00	99.50	300.40	-	900,595	725,439	1,626,034	
31-Jul-22	56.40	0.20	-33.20	100.30	287.50	-	896,273	727,418	1,623,691	
1-Aug-22	56.53	0.18	-33.35	100.07	344.60	-	899,276	637,920	1,537,196	
2-Aug-22	56.54	0.24	-33.52	99.13	307.75	-	899,926	637,920	1,537,846	
3-Aug-22	57.61	0.23	-31.19	96.86	381.11	-	819,656	660,694	1,480,350	
4-Aug-22	57.00	0.30	-30.52	767.44	380.63	91,228	814,954	596,855	1,503,037	
5-Aug-22	57.06	0.21	-32.35	94.46	388.16	-	859,670	680,241	1,539,911	
6-Aug-22	56.64	0.21	-32.01	95.53	413.81	-	825,283	710,186	1,535,469	
7-Aug-22	50.63	0.35	-30.43	95.60	420.80	-	856,478	649,043	1,505,521	
8-Aug-22	57.22	0.19	-31.15	95.82	406.72	-	895,583	616,194	1,511,777	
9-Aug-22	57.60	0.19	-31.00	96.40	386.53	-	824,544	705,587	1,530,131	
10-Aug-22	57.43	0.23	-30.85	97.39	338.26	-	830,163	720,763	1,550,926	
11-Aug-22	57.06	0.23	-31.23	95.92	371.15	-	870,625	699,313	1,569,938	
12-Aug-22	56.52	0.23	-32.30	96.02	336.48	-	890,294	706,869	1,597,163	
13-Aug-22	55.91	0.28	-33.44	97.07	338.62	-	900,831	729,595	1,630,426	
14-Aug-22	56.15	0.23	-33.00	96.38	297.05	-	907,278	713,414	1,620,692	
15-Aug-22	55.82	0.26	-32.13	96.96	293.05	-	925,300	680,295	1,605,595	
16-Aug-22	54.10	0.10	-31.10	673.16	325.64	88,727	877,208	640,301	1,606,236	

Appendix C1, continued

Date	Methane Daily Avg	Oxygen Daily Avg	Field Pressure ("H2O)	Flare 1 Temp Avg	Flare 2 Temp Avg	Groundflare Daily Flow	Candlestick Flare 2 Daily Flow	Gen Flow	TotalFlow	Comments
17-Aug-22	55.60	0.00	-31.44	1,217.21	327.40	454,518	716,404	410,820	1,581,742	
18-Aug-22	56.69	0.17	-31.83	97.22	297.64	-	954,014	629,538	1,583,552	
19-Aug-22	57.03	0.15	-31.79	97.90	314.97	-	944,278	650,806	1,595,084	
20-Aug-22	57.01	0.20	-32.00	97.24	291.56	-	935,219	674,037	1,609,256	
21-Aug-22	---	---	-31.91	1,203.91	230.95	700,928	652,897	276,909	1,630,734	
22-Aug-22	54.10	0.00	-30.14	1,335.24	269.36	958,503	539,467	109,788	1,607,758	
23-Aug-22	55.90	0.10	-31.12	1,183.33	312.00	546,375	678,867	408,680	1,633,922	
24-Aug-22	56.88	0.18	-31.00	96.76	280.66	-	972,100	654,430	1,626,530	
25-Aug-22	56.39	0.18	-31.16	97.11	293.66	-	954,044	677,676	1,631,720	
26-Aug-22	57.03	0.20	-30.91	94.85	317.50	-	947,588	676,719	1,624,307	
27-Aug-22	57.79	0.25	-30.13	92.67	333.91	-	890,794	712,047	1,602,841	
28-Aug-22	57.36	0.24	-29.91	92.28	305.79	-	883,020	712,330	1,595,350	
29-Aug-22	56.45	0.18	-29.36	91.25	332.14	-	907,038	670,857	1,577,895	
30-Aug-22	56.63	0.19	-28.92	91.23	298.77	-	943,217	624,493	1,567,710	
31-Aug-22	56.10	0.10	-30.30	92.40	262.60	-	1,044,451	625,864	1,670,315	
1-Sep-22	56.59	0.20	-31.84	92.27	277.43	-	940,958	711,127	1,652,085	
2-Sep-22	56.52	0.19	-31.63	91.22	305.56	-	936,981	693,190	1,630,171	
3-Sep-22	55.61	0.21	-32.54	89.66	315.88	-	939,786	714,709	1,654,495	
4-Sep-22	56.32	0.25	-32.59	93.99	296.88	-	945,540	715,037	1,660,577	
5-Sep-22	55.48	0.26	-32.74	89.06	339.94	-	942,002	719,614	1,661,616	
6-Sep-22	56.23	0.21	-32.47	89.30	303.02	-	940,609	711,537	1,652,146	
7-Sep-22	54.91	0.24	-32.74	90.10	321.90	-	932,943	723,316	1,656,259	
8-Sep-22	54.20	0.20	-32.13	1,046.51	272.18	385,551	727,601	547,541	1,660,693	
9-Sep-22	56.54	0.24	-32.35	89.26	341.22	-	950,766	697,408	1,648,174	
10-Sep-22	56.11	0.21	-32.35	91.90	322.57	-	938,010	704,984	1,642,994	
11-Sep-22	55.33	0.24	-32.47	91.72	309.98	-	940,975	700,436	1,641,411	
12-Sep-22	55.84	0.26	-32.69	88.29	286.85	-	939,076	709,354	1,648,430	
13-Sep-22	56.05	0.24	-32.54	93.52	284.35	-	943,720	705,375	1,649,095	
14-Sep-22	55.60	0.20	-30.36	358.48	266.37	5,614	932,908	694,690	1,633,212	
15-Sep-22	54.51	0.27	-31.23	94.84	277.71	-	1,009,487	657,207	1,666,694	
16-Sep-22	53.80	0.20	-31.20	1,218.82	279.45	655,704	571,976	447,080	1,674,760	
17-Sep-22	---	---	-32.00	1,547.60	30.99	1,665,573	-	-	1,665,573	
18-Sep-22	---	---	-32.00	1,553.52	26.75	1,660,795	-	-	1,660,795	

Appendix C1, continued

Date	Methane Daily Avg	Oxygen Daily Avg	Field Pressure ("H2O)	Flare 1 Temp Avg	Flare 2 Temp Avg	Groundflare Daily Flow	Candlestick Flare 2 Daily Flow	Gen Flow	TotalFlow	Comments
19-Sep-22	---	---	-31.98	1,549.03	27.59	1,657,302	-	-	1,657,302	
20-Sep-22	50.90	0.40	-31.99	1,550.06	27.29	1,662,022	-	-	1,662,022	
21-Sep-22	53.90	0.30	-32.00	1,549.19	27.40	1,666,644	-	-	1,666,644	
22-Sep-22	52.90	0.50	-32.00	1,541.30	27.24	1,658,943	-	-	1,658,943	
23-Sep-22	52.10	0.40	-31.99	1,545.06	32.30	1,647,422	-	-	1,647,422	
24-Sep-22	---	---	-31.99	1,548.49	26.29	1,649,469	-	-	1,649,469	
25-Sep-22	---	---	-31.99	1,551.48	26.92	1,658,374	-	-	1,658,374	
26-Sep-22	51.50	0.30	-31.99	1,548.34	28.67	1,642,316	-	-	1,642,316	
27-Sep-22	53.10	0.30	-32.00	1,552.21	28.46	1,611,338	-	-	1,611,338	
28-Sep-22	52.10	0.40	-31.99	1,554.06	29.92	1,598,704	-	-	1,598,704	
29-Sep-22	52.00	0.30	-31.98	1,551.34	29.06	1,569,410	-	-	1,569,410	
30-Sep-22	---	---	-31.98	1,549.57	27.57	1,547,214	-	-	1,547,214	
1-Oct-22	---	---	-31.98	1,550.44	28.22	1,547,961	-	-	1,547,961	
2-Oct-22	---	---	-31.98	1,551.06	28.15	1,544,432	-	-	1,544,432	
3-Oct-22	52.80	0.30	-31.98	1,549.01	28.19	1,542,138	-	-	1,542,138	
4-Oct-22	52.40	0.40	-31.99	1,548.97	29.10	1,532,993	-	-	1,532,993	
5-Oct-22	53.00	0.30	-31.99	1,547.48	26.79	1,533,809	-	-	1,533,809	
6-Oct-22	53.40	0.10	-31.99	1,547.90	29.77	1,502,231	-	-	1,502,231	
7-Oct-22	54.50	0.30	-31.96	1,552.98	29.93	1,462,496	-	-	1,462,496	
8-Oct-22	55.00	0.20	-31.98	1,550.27	28.86	1,470,557	-	-	1,470,557	
9-Oct-22	---	---	-31.98	1,550.34	28.95	1,465,422	-	-	1,465,422	
10-Oct-22	---	---	-31.98	1,549.47	31.07	1,457,299	-	-	1,457,299	
11-Oct-22	55.50	0.30	-31.98	1,550.54	28.24	1,465,887	-	-	1,465,887	
12-Oct-22	55.00	0.20	-31.98	1,547.70	28.46	1,499,694	-	-	1,499,694	
13-Oct-22	56.30	0.30	-31.98	1,549.33	29.75	1,510,373	-	-	1,510,373	
14-Oct-22	55.70	0.10	-31.98	1,549.05	29.23	1,488,321	-	-	1,488,321	
15-Oct-22	53.70	0.20	-31.97	1,551.50	30.49	1,523,065	-	-	1,523,065	
16-Oct-22	---	---	-31.98	1,546.92	30.21	1,516,488	-	-	1,516,488	
17-Oct-22	52.80	0.40	-31.97	1,549.29	31.27	1,511,411	-	3,373	1,514,784	
18-Oct-22	53.10	0.50	-29.86	1,328.32	300.79	761,733	416,016	264,895	1,442,644	
19-Oct-22	53.50	0.40	-30.63	1,127.65	415.06	449,579	514,287	530,144	1,494,010	
20-Oct-22	56.49	0.44	-31.09	92.39	354.21	-	855,943	657,769	1,513,712	
21-Oct-22	56.06	0.51	-31.66	88.83	375.40	-	791,031	779,539	1,570,570	

Appendix C1, continued

Date	Methane Daily Avg	Oxygen Daily Avg	Field Pressure ("H2O)	Flare 1 Temp Avg	Flare 2 Temp Avg	Groundflare Daily Flow	Candlestick Flare 2 Daily Flow	Gen Flow	TotalFlow	Comments
22-Oct-22	54.72	0.62	-30.55	84.62	379.88	-	753,376	789,397	1,542,773	
23-Oct-22	54.02	0.62	-30.42	85.99	412.24	-	714,776	820,327	1,535,103	
24-Oct-22	54.71	0.60	-30.04	84.44	408.93	-	717,742	804,254	1,521,996	
25-Oct-22	55.02	0.55	-30.19	86.26	379.90	-	749,843	798,098	1,547,941	
26-Oct-22	---	---	-28.90	81.14	320.82	3,059	571,649	552,641	1,127,349	
27-Oct-22	56.86	0.39	-31.29	86.31	373.72	-	784,959	770,581	1,555,540	
28-Oct-22	55.57	0.47	-30.85	84.34	385.90	-	755,763	800,506	1,556,269	
29-Oct-22	55.52	0.42	-31.08	88.67	383.16	-	771,756	800,803	1,572,559	
30-Oct-22	57.03	0.36	-30.65	88.12	370.23	-	770,865	781,713	1,552,578	
31-Oct-22	57.40	0.40	-30.20	85.30	384.20	-	780,435	757,548	1,537,983	
1-Nov-22	57.06	0.44	-30.03	82.36	367.92	-	756,787	780,635	1,537,422	
2-Nov-22	54.87	0.53	-31.03	81.16	397.31	-	751,682	804,454	1,556,136	
3-Nov-22	56.33	0.39	-31.63	83.17	325.00	-	763,162	789,329	1,552,491	
4-Nov-22	---	---	-29.29	823.93	277.91	210,029	1,026,200	255,919	1,492,148	
5-Nov-22	---	---	-31.97	1,552.11	29.04	1,490,449	-	45,701	1,536,150	
6-Nov-22	---	---	-31.97	1,550.39	32.64	1,555,238	-	66,744	1,621,982	
7-Nov-22	54.60	0.50	-31.98	1,548.22	32.39	1,485,713	-	79,167	1,564,880	
8-Nov-22	56.00	0.30	-30.53	869.71	227.11	622,443	760,018	64,951	1,447,412	
9-Nov-22	54.71	0.47	-31.93	78.23	367.18	-	1,044,885	472,764	1,517,649	
10-Nov-22	56.50	0.00	-28.80	929.46	405.40	207,544	623,949	650,497	1,481,990	
11-Nov-22	---	---	-30.63	1,063.26	350.35	682,064	446,445	461,597	1,590,106	
12-Nov-22	---	---	-30.45	703.97	357.04	244,288	640,957	691,653	1,576,898	
13-Nov-22	---	---	-30.73	1,291.34	216.96	1,076,466	91,531	167,647	1,335,644	
14-Nov-22	52.20	1.00	-31.48	750.89	363.68	688,417	451,832	483,504	1,623,753	
15-Nov-22	52.30	0.50	-30.44	810.50	391.16	267,859	628,009	609,770	1,505,638	
16-Nov-22	52.90	0.60	-31.57	81.17	379.56	-	796,813	822,215	1,619,028	
17-Nov-22	51.90	0.40	-29.15	947.89	500.10	214,041	608,415	645,129	1,467,585	
18-Nov-22	57.00	0.10	-30.36	848.98	450.14	376,535	487,627	570,333	1,434,495	
19-Nov-22	56.81	0.31	-30.28	78.32	427.36	-	676,406	730,398	1,406,804	
20-Nov-22	53.28	0.70	-30.64	81.27	367.29	-	687,225	677,900	1,365,125	
21-Nov-22	57.28	0.30	-31.19	86.58	367.43	-	729,287	730,162	1,459,449	
22-Nov-22	55.39	1.38	-28.72	86.35	359.16	-	692,616	655,608	1,348,224	
23-Nov-22	55.47	0.39	-31.38	87.49	387.77	-	699,742	797,448	1,497,190	

Appendix C1, continued

Date	Methane Daily Avg	Oxygen Daily Avg	Field Pressure ("H2O)	Flare 1 Temp Avg	Flare 2 Temp Avg	Groundflare Daily Flow	Candlestick Flare 2 Daily Flow	Gen Flow	TotalFlow	Comments
24-Nov-22	56.76	0.31	-30.99	83.04	377.99	-	858,415	625,444	1,483,859	
25-Nov-22	56.24	0.38	-31.39	86.06	408.12	-	694,137	788,069	1,482,206	
26-Nov-22	52.50	0.33	-31.08	84.81	422.78	-	688,364	760,264	1,448,628	
27-Nov-22	---	---	-31.08	79.20	245.54	-	1,322,717	58,337	1,381,054	
28-Nov-22	58.40	0.10	-29.20	506.97	458.74	42,385	913,775	469,716	1,425,876	
29-Nov-22	59.30	0.00	-29.64	1,069.99	412.85	387,710	435,540	554,770	1,378,020	
30-Nov-22	59.10	0.10	-29.80	1,050.60	468.20	483,692	423,485	470,391	1,377,568	
1-Dec-22	55.90	0.45	-31.50	82.97	519.01	-	634,464	784,755	1,419,219	
2-Dec-22	56.03	0.41	-31.88	82.85	510.63	-	582,008	775,082	1,357,090	
3-Dec-22	55.63	0.45	-31.61	79.13	473.14	-	611,271	801,740	1,413,011	
4-Dec-22	56.64	0.38	-30.41	82.06	444.05	-	637,651	791,900	1,429,551	
5-Dec-22	56.06	0.41	-30.36	85.12	406.55	-	625,390	799,055	1,424,445	
6-Dec-22	54.41	0.42	-30.77	85.43	394.27	-	656,981	806,924	1,463,905	
7-Dec-22	53.65	0.40	-30.23	88.80	329.59	-	948,200	535,613	1,483,813	
8-Dec-22	55.10	0.39	-31.29	84.75	434.95	-	700,958	754,892	1,455,850	
9-Dec-22	55.30	0.20	-29.98	748.06	460.14	99,501	613,478	723,804	1,436,783	
10-Dec-22	55.10	0.10	-30.11	1,000.84	362.71	407,572	510,061	542,118	1,459,751	
11-Dec-22	52.02	0.53	-32.16	88.61	388.11	-	717,110	826,557	1,543,667	
12-Dec-22	51.40	0.52	-31.64	82.33	413.94	-	689,281	839,983	1,529,264	
13-Dec-22	49.88	0.72	-31.05	88.11	395.09	-	687,213	852,527	1,539,740	
14-Dec-22	50.23	0.60	-32.21	85.08	446.59	-	646,873	845,381	1,492,254	
15-Dec-22	53.44	0.41	-32.46	82.34	478.85	-	633,882	785,872	1,419,754	
16-Dec-22	55.35	0.33	-32.49	85.09	465.87	-	635,145	775,982	1,411,127	
17-Dec-22	56.85	0.32	-32.47	85.14	405.42	-	648,461	750,449	1,398,910	
18-Dec-22	55.95	0.43	-32.50	82.80	572.89	-	613,228	773,359	1,386,587	
19-Dec-22	53.90	0.48	-32.49	80.44	575.46	-	580,399	772,829	1,353,228	
20-Dec-22	55.46	0.34	-32.49	79.61	569.40	-	578,368	676,807	1,255,175	
21-Dec-22	48.95	0.44	-32.53	75.96	684.80	-	615,976	607,685	1,223,661	
22-Dec-22	42.64	0.32	-32.49	81.68	514.49	-	876,715	378,407	1,255,122	
23-Dec-22	57.09	0.35	-32.51	81.01	507.83	-	637,240	585,287	1,222,527	
24-Dec-22	55.92	0.44	-32.52	85.09	528.47	-	696,339	548,416	1,244,755	
25-Dec-22	57.27	0.33	-32.50	86.28	476.41	-	565,914	657,432	1,223,346	
26-Dec-22	---	---	-30.36	828.74	428.11	296,814	468,385	478,025	1,243,224	

Appendix C1, continued

Date	Methane Daily Avg	Oxygen Daily Avg	Field Pressure ("H2O)	Flare 1 Temp Avg	Flare 2 Temp Avg	Groundflare Daily Flow	Candlestick Flare 2 Daily Flow	Gen Flow	TotalFlow	Comments
27-Dec-22	56.26	0.52	-32.49	86.60	496.91	-	594,470	670,763	1,265,233	
28-Dec-22	55.10	0.54	-32.45	82.13	489.86	-	692,773	595,127	1,287,900	
29-Dec-22	57.23	0.36	-32.48	89.20	420.30	-	1,022,084	284,356	1,306,440	
30-Dec-22	57.08	0.39	-32.24	86.46	433.36	-	623,728	690,557	1,314,285	
31-Dec-22	53.60	0.60	-32.50	86.30	488.70	-	614,155	731,155	1,345,310	
Total						105,091,532	251,649,080	202,337,653	558,386,474	
Daily Average	56.4	0.3	-32.3			288,713	691,344	553,972	1,534,029	
scfm						200	480	385	1,065	
Normalize to 50% methane						-	-	-	-	

APPENDIX D

Subsurface Perimeter and Foundation Probe Monitoring

- D1 Subsurface Perimeter and Foundation Probe Monitoring Methodology
- D2 Probe Location and Completion Information
- D3 Hartland Landfill Gas Monitoring Program 2022 Gas Probe Data

Appendix D1 Subsurface Perimeter and Foundation Probe Monitoring Methodology

The following is the subsurface probe and foundation monitoring field methodology, as outlined in *Hartland Landfill Standard Operating Procedures* (2019). All monitoring is completed with a LANDTEC Gas Analyzer and Extraction Monitor (GEM) 2000+.

CALIBRATION

Prior to each monitoring event, the gas analyzer is calibrated using the calibration gases at Hartland. Prior to calibration, the gas monitor is set to Gas Analyzer (GA) mode for ambient measurements.

Methane and carbon dioxide gases are used to calibrate the methane and carbon dioxide sensors, and zero the oxygen sensor. Oxygen gas is used to calibrate the oxygen sensor and zero the methane sensor. All calibration values should be recorded on the field sheet.

MONITORING

Weather conditions, including barometric pressure, precipitation and temperature are recorded prior to commencing work.

The following monitoring procedure is followed for each gas probe:

1. Zero pressure.
2. Connect tubing to the gas sample port (ensure pump is off), open valve, wait until pressure reading stabilizes and record value.
3. Turn on pump and wait at least 200 seconds.
4. Watch for any methane or carbon dioxide spikes.
5. At the end of 200 seconds, record the gas concentrations and any spikes on the field sheet.
6. Quickly navigate to the pressure screen and record the static pressure reading (this helps determine whether the screen is plugged/open, or water is covering the screen).
7. Disconnect the tubing from the sampling port and close the gas monitoring valve.
8. Open the water level monitoring port (not all wells will have a water level monitoring port).
9. Follow the same procedure (steps 1-8) for gas probe B.
10. Once monitoring for probe B is completed measure the water level for probe A, followed by probe B.
11. Before moving to the next station, ensure that all valves are closed.

At the end of the day, check gas levels using the calibration gas and record on the field sheet.

Appendix D2 Probe Location and Completion Information

Probe	Probe Location	Well Information
East Property Boundary Perimeter Probes		
GP-1A	90 m north of main gate	Depth: 10.37 m, Screen height: 2.91 m
GP-1B	90 m north of main gate	Depth: 5.82 m, Screen height: 2.91 m
GP-2A	70 m north of GP-1	Depth: 10.61 m, Screen height: 2.91 m
GP-2B	70 m north of GP-1	Depth: 6.36 m, Screen height: 2.91 m
GP-3A	120 m north of GP-1	Depth: 10.63 m, Screen height: 2.91 m
GP-3B	120 m north of GP-1	Depth: 4.83 m, Screen height: unknown
GP-11A	20 m north of main gate in mountain biking parking lot	Depth: 10.72 m, Screen height: unknown
GP-11B	20 m north of main gate in mountain biking parking lot	Depth: 5.23 m, Screen height: unknown
GP-12A	50 m north of GP-3 along perimeter road	Depth: 9.00 m, Screen height: unknown
GP-12B	50 m north of GP-3 along perimeter road	Depth: 5.72 m, Screen height: unknown
Horizontal Subsurface Building Gas Probes		
GP-4A	Southeast corner of workshop	2.4 m from southeast corner of building in gravel road
GP-5A	Admin building parking lot, behind mountain bike washrooms	3 m along west side of mountain bike washroom building
GP-6A	Northeast corner of admin building	15 m west along north side of building
GP-6B	Northeast corner of admin building	15 m west along north side of building
GP-7A	Against north wall of Hartland admin office	10 m south toward southeast corner of building
GP-7B	Against wall in southwest corner of Hartland admin building	Follows 'H' pattern under building extension
GP-8A	East side of auto-scale building	Unknown
GP-9A	West side of auto-scale building	Unknown
GP-13A	2 m south of Hartland workshop entrance	Unknown
GP-14A	West side of Hartland workshop	12 m along east side of workshop
GP-17A	North corner of Hartland Interpretive Centre (monitoring initiated January 2011)	Follows building perimeter
GP-18A	Northwest corner of the contractor's workshop	Follows building perimeter

Appendix D3 Hartland Landfill Gas Monitoring Program 2022 Gas Probe Data

GAS PROBE 01A

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	15:29	---	3.77	-35,030.23	0.0	0.1	21.4	
2022	2022/07/29	13:48	---	7.58	0.12	0.0	0.3	19	Pump stopped prior to full recommended sampling period (200 seconds) because of vacuum in well.

GAS PROBE 01B

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	15:34	---	4.01	-35,029.99	0.0	2.8	14.9	
2022	2022/07/29	13:52	---	4.6	1.69	0.0	3.3	15.8	

GAS PROBE 02A

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	15:17	---	5.08	-35,028.92	0.0	0.1	21.2	
2022	2022/07/29	14:00	---	6.67	-1.03	0.0	0.3	18.9	Pump stopped prior to full recommended sampling period (200 seconds) because of vacuum in well.

Appendix D3, continued

GAS PROBE 02B

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	15:22	---	5.3	-35,028.70	0.0	4.2	11.0	
2022	2022/07/29	14:03	---	5.84	2.39	0.0	5.2	8.4	

GAS PROBE 03A

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	15:05	---	9.04	-35,024.96	0.0	1.8	14.2	
2022	2022/07/29	14:15	---	10.63	2.91	0.0	1.7	11.7	Dry

GAS PROBE 03B

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	15:10	---	4.76	-35,029.24	0.0	1.7	14.8	
2022	2022/07/29	14:18	---	4.75	2.83	0.0	5.8	16	Dry

GAS PROBE 04A

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	15:41	---	---	---	0.0	2.4	19.0	
2022	2022/07/29	13:32	---	---	---	0.0	1.8	17.7	

GAS PROBE 05A

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	12:20	---	---	---	0.0	0.7	20.1	
2022	2022/07/29	11:07	---	---	---	0.0	0.5	19.8	

Appendix D3, continued

GAS PROBE 06A

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	12:26	---	---	---	0.0	0.5	20.4	
2022	2022/07/29	11:14	---	---	---	0.0	0.3	19.8	

GAS PROBE 06B

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	12:29	---	---	---	0.0	1.1	19.8	
2022	2022/07/29	11:37	---	---	---	0.0	0.4	19.7	

GAS PROBE 07A

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	12:53	---	---	---	0.0	0.3	20.9	
2022	2022/07/29	11:37	---	---	---	0.0	0.2	20.2	

GAS PROBE 07B

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	12:56	---	---	---	0.0	0.2	21.0	
2022	2022/07/29	11:42	---	---	---	0.0	0.1	20.4	

GAS PROBE 08A

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	13:01	---	---	---	0.0	0.2	21.1	
2022	2022/07/29	11:48	---	---	---	0.0	0.2	20.2	

Appendix D3, continued

GAS PROBE 09A

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	13:07	---	---	---	0.0	0.2	21.1	
2022	2022/07/29	11:54	---	---	---	0.0	0.2	20.1	

GAS PROBE 11A

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	13:42	---	4.37	-35,212.63	0.0	0.2	20.9	
2022	2022/07/29	10:58	---	8.01	0.20	0.0	0.2	19.9	Pump stopped prior to full recommended sampling period (200 seconds) because of vacuum in well.

GAS PROBE 11B

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	13:45	---	4.46	-35,212.54	0.0	19.0	19.0	
2022	2022/07/29	10:53	---	5.65	3.33	0.0	3	17.8	

GAS PROBE 12A

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	14:01	---	6.97	-35,210.03	0.0	20.8	20.8	
2022	2022/07/29	14:30	---	10.33	4.24	0.0	2.6	7.6	

Appendix D3, continued

GAS PROBE 12B

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	14:08	---	6.06	-35,210.94	0.0	7.8	7.8	
2022	2022/07/29	14:35	---	6.53	3.72	0.0	8.7	8.5	

GAS PROBE 13A

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	15:45	---	---	---	0.0	17.9	17.9	
2022	2022/07/29	13:37	---	---	---	0.0	5.7	14	

GAS PROBE 17A

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	15:50	---	---	---	0.0	21.1	21.1	
2022	2022/07/29	13:41	---	---	---	0.0	0.7	18.9	

GAS PROBE 18A

Reporting Year	Date	Time	Pressure/Vacuum	Static water level	Exposed screen above water	Methane (CH ₄)	Carbon Dioxide (CO ₂)	Oxygen (O ₂)	Comment
			inches of water	metres	metres	percent in air	percent in air	percent in air	
2022	2022/03/14	14:18	---	---	---	0.0	21.0	21.0	
2022	2022/07/29	10:34	---	---	---	0.0	0.3	19.9	

APPENDIX E

Grid and Hot Spot Monitoring

- E1 Grid and Hot Spot Monitoring Methodology
- E2 2022 Grid and Z Point Monitoring Data
- E3 Hartland Landfill Historical Z Point Data

Appendix E1 Grid and Hot Spot Monitoring Methodology

The following is the grid sampling field methodology, as outlined in *Hartland Landfill Standard Operating Procedures* (2012).

Monitoring usually takes two full days, beginning at 0730 hours and ending between 1600 and 1630. Prior to each monitoring day, the gas analyzer must be calibrated using the calibration gases at Hartland. At the beginning of each field day, the fuel cell for the Flame Ionization Detector (FID) is filled with hydrogen gas and the unit is warmed up for at least 30 minutes before calibration. Calibration is conducted with two methane span gases (currently 500 ppm and 14,990 ppm methane), and a zero gas to generate a proper calibration slope. After successful calibration, a span check is completed and recorded on the calibration sheet. In addition, the Jerome sensor is regenerated at the beginning and end of each day to remove any residual hydrogen sulphide on the gold sensor.

The Jerome analyzer is factory calibrated and, therefore, does not require field calibration. After regeneration, the instrument is turned on for 30 minutes before zeroing. Once it is zeroed, the zero filter is attached to the unit and a sample is taken.

MONITORING

There is an established walking pattern over the grid points, and it denotes two distinct monitoring areas (Phase 1 and Phase 2/Active Face). These areas are monitored separately, due to the distinct differences in gas concentrations, level of landfilling activity, and placement of litter fences. This results in acquisition of data from a similar area under similar environmental conditions, as monitoring typically takes two days. In each area, the grid points are traversed alphabetically (e.g., B1, B2, B3, B4, etc.) where physically possible. In some cases, litter fences, controlled waste trenches or active filling areas limit or restrict access resulting in deviation from the standard protocol. These deviations should be recorded on the field sheet.

Weather conditions dictate when this monitoring can be completed. The FID cannot operate in rainy conditions and monitoring should be delayed until two consecutive days of dry weather are predicted. In addition, high to moderate winds blow gases away from their origin and dilute gas concentrations. These conditions are not representative of typical landfill conditions and monitoring does not take place on these days.

The following procedure is used to collect methane and H₂S readings at each grid point:

1. Place the hydrogen sulphide (H₂S) analyzer on the ground then press the "Sample" button.
2. The second staff person should place the FID intake controller 4 inches from the ground surface for 30 seconds.
3. Once the H₂S analyzer has reported a value (approximately 30 seconds), the methane value should be read from the FID and both values recorded on the field sheet.
4. The FID is programmed to alarm if methane levels exceed 100 ppm. If the alarm sounds while walking a traverse, staff must investigate the area for the source of elevated methane by means of a detailed 10-by-10 meter (m) grid. The 10-by-10 m grid should be traversed between all adjacent grid points. Obvious sources of methane include bird poles or a seam/edge of a temporary closure lining.
5. Once the source has been identified, record the source description, methane and H₂S values, as well as the location coordinates. This data represents a "hot spot" (>1,000 ppm of methane) or "Z-spot" (>12,500 ppm of methane), identified on figures 5 and 6 as a red, or purple, 'X', respectively.
6. If an obvious source cannot be identified, the location and data/observations from the highest localized reading should be recorded.
7. Continue with this method until all grid points, background stations, and pre-existing Z-spots have been monitored. Pre-existing Z-spots can be removed from the monitoring list if methane levels are below 1,000 ppm for three consecutive monitoring events.
8. At the end of each field day, a span check is completed on the FID and recorded on the field sheet.

Appendix E2 2022 Grid and Z Point Monitoring Data

Table 1. Hartland Landfill VOC & TRS Grid Data

August 23-26, 2022		
WAYPOINT	Methane (ppm)	H ₂ S
B1	0	0.002
B2	0	0.001
B3	0	0.003
B4	0	0.002
B5	0	0.002
B6	1	0.002
B7	0	0.001
B8	0	0.002
B9	0	0.003
B10	0	0.003
BACK-1	0	0.001
BACK-6	0	0.002
BACK-7	0	0.000
BACK-10	0	0.000
BACK-11	0	0.000
BACK-12	0	0.001
BACK-13	0	0.000
BACK-20	0	0.001
BACK-21	0	0.001
C1	0	0.002
C2	0	0.002
C3	0	0.003
C4	0	0.003
C5	0	0.001
C6	0	0.002
C7	0	0.003
C8	0	0.003
C9	0	0.003
C10	0	0.002
C11	0	0.003
D1	0	0.002
D2	0	0.002
D3	0	0.003
D4	0	0.003
D5	0	0.003
D6	0	0.004
D7	0	0.002
D8	35	0.002
D9	0	0.002
D10	0	0.002
D11	0	0.002
E1	0	0.001
E2	0	0.003
E3	0	0.003
E4	0	0.002
E5	0	0.002
E6	0	0.002
E7	2	0.002

Appendix E2
Table 1, continued

August 23-26, 2022		
WAYPOINT	Methane (ppm)	H ₂ S
E8	0	0.002
E9	---	---
E10	0	0.002
E11	202	0.002
F1	0	0.002
F2	0	0.002
F3	0	0.002
F4	0	0.001
F5	0	0.002
F6	13	0.001
F7	4	0.001
F8	1	0.003
F9	---	---
F10	34	0.005
F11	110	0.003
F12	---	---
G1	0	0.001
G2	0	0.001
G3	0	0.001
G4		---
G5	0	0.002
G6	1	0.002
G7	445	0.002
G8	2	0.002
G9	15	0.002
G10	2	0.001
G11	---	---
G12	61	0.001
G13	---	---
G14	---	---
G15	---	---
H1	0	0.001
H2	0	0.001
H3	0	0.001
H4	0	0.001
H5	0	0.001
H6	0	0.001
H7	0	0.001
H8	5	0.001
H9	7	0.001
H10	7	0.003
H11	0	0.001
H12	---	---
H13	---	---
I1	0	0.000
I2	0	0.000
I3	0	0.000
I4	0	0.001
I5	0	0.001
I6	0	0.001
I7	0	0.000

Appendix E2
Table 1, continued

August 23-26, 2022		
WAYPOINT	Methane (ppm)	H ₂ S
I8	13	0.001
I9	0	0.002
I10	12	0.001
I11	10	0.001
I12	165	0.003
I13	68	0.003
I14	46	0.002
I15	121	0.002
J1	0	0.001
J2	0	0.001
J3	0	0.001
J4	0	0.001
J5	0	0.001
J6	0	0.001
J7	0	0.001
J8	0	0.001
J9	0	0.002
K1	0	0.001
K2	0	0.001
K3	0	0.001
K4	0	0.001
K5	0	0.001
K6	0	0.001
K7	0	0.001
K8	0	0.002
K9	35	0.002
K10	4	0.001
K11	46	0.002
K12	2800	0.018
K13	6	0.001
K14	15	0.003
K15	15	0.002
L1	0	0.001
L2	0	0.001
L3	0	0.002
L4	0	0.001
L5	0	0.001
L6	0	0.001
L7	0	0.001
L8	0	0.001
L9	0	0.001
L10	0	0.002
L11	0	0.003
L12	13	0.002
L13	2	0.002
L14	0	0.002
M1	0	0.001
M2	0	0.001
M3	0	0.000
M4	0	0.001
M5	0	0.001

Appendix E2
Table 1, continued

August 23-26, 2022		
WAYPOINT	Methane (ppm)	H ₂ S
M6	0	0.001
M7	0	0.001
M8	1	0.002
M9	0	0.001
M10	0	0.000
M11	7	0.001
M12	3	0.001
M13	2	0.001
M14	---	---
N1	0	0.002
N2	1	0.002
N3	1	0.002
N4	0	0.002
N5	0	0.002
N6	0	0.002
N7	0	0.002
N8	1	0.002
N9	0	0.003
N10	1	0.002
N11	1	0.003
N12	28	0.003
N13	0	0.005
P1	0	0.001
P2	0	0.001
P3	0	0.001
P4	3	0.001
Z88	5500	0.000
Z94	12	0.580
Z100	5600	0.001
Z106	0.02	0.065
Z108		
Z115		
Z117		
Z119	3900	0
Z121		
Z122	180	0.004
Z123	10	0.001
Z124	2900	0
Z125	1600	0.013
Z126	130	0.002
Z127	6600	0.650
Z128	7600	0.26
Z129	1800	0.000
Z130	2900	0
Z131	950	0.000
Z132		
Z133		
Z134		
Z135		
Z136	4400	0.009

Appendix E2, continued

Table 2. Hartland Landfill VOC from Walkabout

WAYPOINT	Methane (ppm)	Comments
Z88	5,500	Infrastructure hatch, north face closure at Toutle Valley
Z94	12	Buried
Z100	5,600	Hole in tarp beside black pipe, approximately 20 ft downhill of gas well
Z106	2	LFG infrastructure on North Face interim closure
Z119	3,900	4 holes along LFG pipe
Z122	2	Concrete box infrastructure with black lid, across and up the road from wheel wash
Z123	0	Buried
Z124	2,900	Concrete box with metal hatch by road
Z125	1,600	Concrete box with metal hatch by road, adjacent to Z124, slightly south
Z126	130	Concrete box with metal hatch by road, uphill of Z125
Z127	6,600	Metal culvert parallel to road, flowing downhill into Toutle Valley
Z128	7,600	Inside casing of wells 90-1-1 and 90-2-1
Z129	1,800	Large hole in black tarp with metal poking out, 50ft south of well #90
Z130	2,900	Hole in tarp
Z131	950	Hole in tarp between bench roads, downhill of Z130
Z135	2	Hole in tarp with metal rebar
Z136	4,400	Large hole in black tarp with rotten stump sticking out

Appendix E3 Hartland Landfill Historical Z-Point Data

Northing	Easting	Point	Sort Order	Created	Active?	Oct-2009	Jan-2010	Jun-2010	Jan-2011	Dec-2011	Mar-2012	May-2012	Jul-2012	Dec-2012	Mar-2013	Oct-2013	Mar-2014	Jul-2014	Mar-2015	Sep-2015	Sep-2016	Mar-2017	Aug-2017	Mar-2018	Mar-2019	Jul-2020	Jul-2021	Aug-2022	Aug-2023	Description (updated during latest survey)
5376317.71	465627.16	Z88	88	Jan-2010	ACTIVE		50000	0.121	2395	15000	22000	15000	10300	15000	8720	3600	41700	8919	10500	15400	15700	4700	10300	6370	874	6816	311	5500	12,200	Infrastructure hatch, north face closure at Toutle Valley
5376339.03	465598.07	Z94	94	Jan-2011	ACTIVE				12500	20000	15000	15000	79700	15000	12500	MISSED	23800	73200	42100	41400	134	14000	11300	16700	2859	8600	2	12	3.1	Buried
5376298.15	465682.45	Z100	100	Dec-2011	ACTIVE					2300	15000	15000	10800	15000	12500	1088	18900	314	5685	11200	3.21	MISSED	MISSED	MISSED	7	1511	MISSED	5600	12,900	Hole in tarp beside black pipe, approximately 20 ft downhill of gas well
5376283.35	465708.83	Z101	101	Dec-2011	N					11700	23.05	17800	30900	15000	12500	127	14500	17600	2803	28200	52	8500	85.81	1400	39	2	22	DISCONTINUED	DISCONTINUED	DISCONTINUED
5376327.32	465654.99	Z106	106	May-2012	ACTIVE							61300	35700	42000	12500	6566	2693	9300	2072	8086	50300	11000	1989	0	3950	3800	5007	2000	8,000	LFG infrastructure on North Face interim closure (box lid)
5376257.97	465597.96	Z115	115		Y											61800	---	6560	12900	MISSED	1	MISSED	MISSED	MISSED	MISSED	MISSED	MISSED		DISCONTINUED	DISCONTINUED
5376314.21	465611.88	Z118	118	Jul-2014	ACTIVE												12600	3600	MISSED	9639	10	25.4	1032	1407	2487	369	2		MISSED	Hole in tarp
5376296.43	465718.43	Z119	119	Jul-2014	ACTIVE												15900	15900	16200	7000	4773	6966	8890	3100	9632	700	2400		MISSED	4 holes along LFG pipe
5375891.79	465602.61	Z122	122	Mar-2017	ACTIVE																MISSED	8,500	7,224	MISSED	65	2,444	1,077		1,015	Concrete box infrastructure with black lid, across and up the road from wheel wash
5375891.79	465602.61	Z123	123	Mar-2017	ACTIVE																MISSED	8,400	365	MISSED	28747	25,600	0	0	0.0%	Buried
5376156.54	465848.29	Z124	124	Mar-2017	ACTIVE																MISSED	6,300	6,645	3,288	MISSED	2,043	693	2,900	MISSED	Concrete box with metal hatch by road
5376155.12	465848.01	Z125	125	Mar-2017	ACTIVE																MISSED	14,000	3,002	5,028	MISSED	10,100	700	1,600	5,034	Concrete box with metal hatch by road, adjacent to Z124, slightly south
5376147.43	465854.57	Z126	126	Jul-2020	ACTIVE																					9,400	456	130	14,000	Concrete box with metal hatch by road, uphill of Z125
5376276.39	465621.81	Z127	127	Aug-2020	ACTIVE																					21,400	75,000	6,600	7,100	Metal culvert parallel to road, flowing downhill into Toutle Valley
5376286.65	465651.33	Z128	128	Sep-2020	ACTIVE																					3,400	2,120	7,600	15,000	Inside casing of Gw well 90-2-1 (90-1-1 reading: 1.3ppm methane, 0.150ppm H2S in 2023)
5376281.02	465652.79	Z129	129	Oct-2020	ACTIVE																					8,900	2,670	1,800	MISSED	Large hole in black tarp with metal pole sticking out, 50ft south of well #90
5376282.15	465729.97	Z130	130	Nov-2020	ACTIVE																					1,686	1,111	2,900	3,300	Hole in tarp with metal poking out
5376286.60	465730.09	Z131	131	Dec-2020	ACTIVE																					1,430	1,905	950	3,300	Hole in tarp between bench roads, downhill of Z130. Rock poking out of hole in the tarp
5376359.74	465654.26	Z132	132	Jan-2021	ACTIVE																					2,302	391	MISSED	MISSED	Hole in tarp (large rock poking through), near bench road and black pipe
5376209.99	465672.68	Z133	133	Jul-2021	ACTIVE																						3,000	MISSED	0	Buried 2023
5376197.89	465653.66	Z134	134	Jul-2021	ACTIVE																						14,000	MISSED	5	Flange on black pipe at top of slope
5376280.91	465730.54	Z135	135	Jul-2021	ACTIVE																						2,200	MISSED	MISSED	Hole in tarp with metal rebar
5376338.40	465659.67	Z136	136	Aug-2022	ACTIVE																							4,400	2,800	Large hole in black tarp with rotten stump tree stump sticking out of hole

Notes:	
	Methane over 1,000 ppm
	Methane under 1,000 ppm

APPENDIX F

Upcoming Project: RNG Facility

- F1 Expected Flows Gas Characteristics
- F2 Equipment Specifics
- F3 Hartland Biogas Upgrading Facility Site Plan and Interconnection Station / Pipeline
- F4 Isometric View

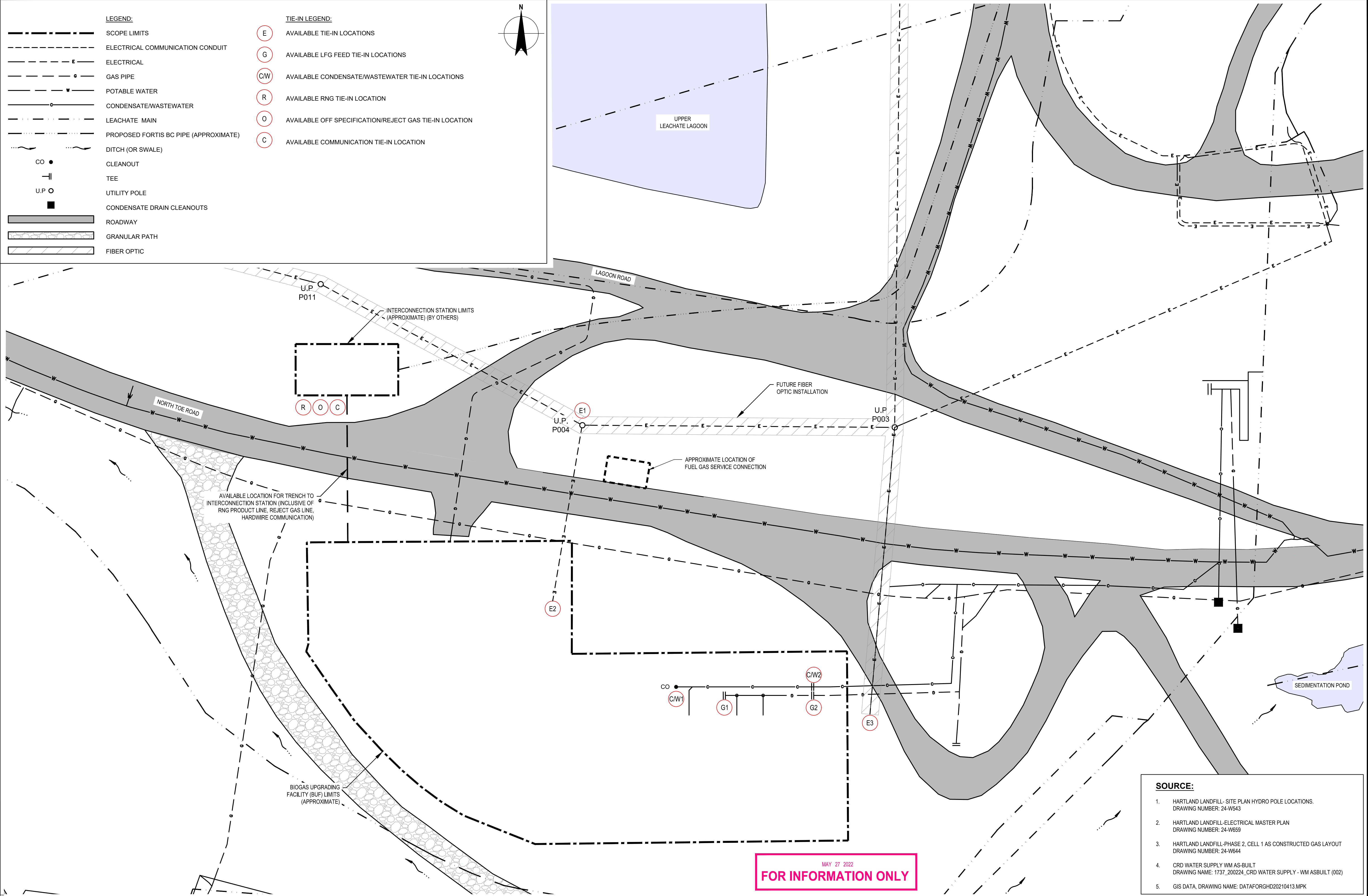
Appendix F1 Expected Flows Gas Characteristics

Parameter	Unit	Landfill Gas Characteristics
Methane (CH ₄)	%-vol	Minimum 30
Sand, dust, gums, oil and other impurities	-	Any
Hydrogen Sulphide (H ₂ S)	mg/m3 (ppm)	0 – 280 (0 – 200)
H ₂ O	mg/m3 (%-vol)	0-49,8401 (0-7)*
Hydrocarbon dew point	-	Any
Total Sulphur	mg/m3	<130
Carbon dioxide (CO ₂)	%-vol	25 – 45
Oxygen (O ₂)	%-vol	<3.5
Temperature	Deg C	0-40*
Total Siloxanes	mg/m3	0 – 200
Carbon Monoxide	%-vol	ND (<0.05)
Ammonia	mg/m3	<3
Nitrogen (N ₂)	%-vol	≤30%
Bacteria and pathogens	Impurity filter	Any
Pressure (Vacuum)	Inches of Water Column	20 – 40

*LFG parameters H₂O and temperature are based on typical LFG characteristics and not data collected from the Hartland Landfill Site.

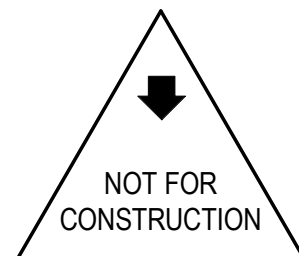
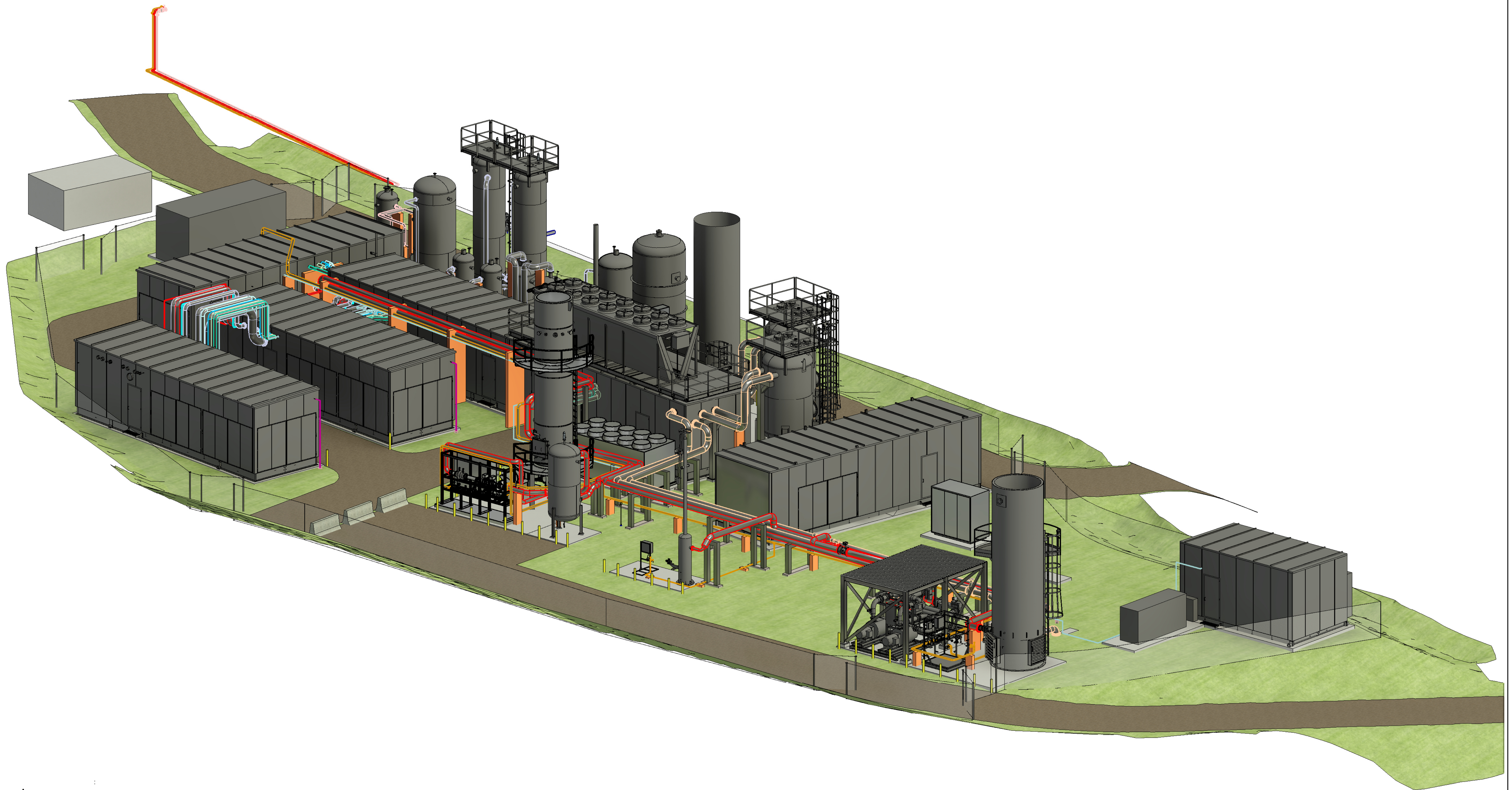
Appendix F2 Equipment Specifics

Equipment	Specifics
Enclosed Flare	EFR 96-30 Series Temp Controlled Enclosed Flare
Candlestick Flare	Anguil Hero Flare F25U4 Utility Flare
Blower	Continental Industrie, model 051A.06



MAY 27 2022
FOR INFORMATION ONLY

 CONSULTANT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

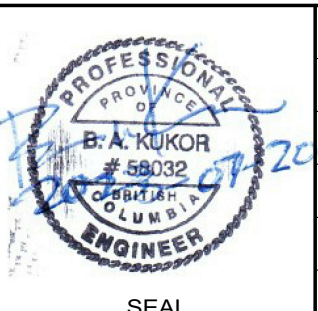


NOTES

1. ELEVATIONS AND DIMENSIONS ARE IN METERS, UNLESS NOTED OTHERWISE.
2. FOR PIPING MATERIALS PLEASE REFER TO HRRG P&ID LEGEND WE-PID-2020-100-3 SHEETS 1 THROUGH 3.



-	-	-	-	
ISSUE	DATE	BY	REVISION DESCRIPTION	ENG.



0	JUL. 2023	ISSUED FOR CONSTRUCTION
No.	DATE	ISSUE



Capital Regional District Parks & Environmental Services			HARTLAND LANDFILL GAS UPGRADING FACILITY			
DESIGNED	K.H.	SURVEYED	-	ISOMETRIC VIEW		
DRAWN	C.F.	START	11/21/22			
SCALE HORIZONTAL	N.T.S.	CHECKED	B.K.			
SCALE VERTICAL	-	APPROVED	B.K.			
PROJECT REFERENCE		ERM 2022-008 WSP WY22032091		DRAWING NUMBER		M100
				ISSUE		0.
				SHT. No. OF		