POST-CLOSURE ENVIRONMENTAL MONITORING REPORT
(February 2020 Data)

Shawmut Avenue Landfill
New Bedford, MA 02746
MassDEP DSWM Transmittal No. ACOP-SE-08-4004-SEP 120068

Prepared For:

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&

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February 19, 2020

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1.0 INTRODUCTION

On behalf of the City of New Bedford, River Hawk Environmental, LLC (RHE) has prepared this Post-Closure Environmental Monitoring Report to provide the Massachusetts Department of Environmental Protection (MassDEP) with the results of post-closure landfill gas monitoring data collected at the Shawmut Avenue Landfill facility in February 2020. Post-Closure Landfill monitoring was conducted in accordance with the Massachusetts Solid Waste Management Regulations (310 CMR 19.00) and the requirements of the facility-specific Post-Closure Monitoring and Maintenance Plan, which was approved by the MassDEP in a letter dated April 19, 2007.

2.0 MONITORING PROCEDURE & RESULTS

RHE conducted landfill gas monitoring on February 14, 2020. The initial and final concentrations of methane (CH_4), carbon dioxide (CO_2), oxygen (O_2), hydrogen sulfide (H_2S), and total organic volatiles (TOV) were measured at twelve (12) landfill gas wells (LGW-1 through LGW-11 and LGW-14), four (4) temporary gas probes (TGP-5, TGP-6, TGP-7, and TGP-8), six (6) temporary monitoring points/vents (MP-1 through MP-6), one (1) fire hydrant (Hydrant #1), three (3) catch basins (CB-1, CB-2, and CB-3), and two (2) building structures (scale house and warehouse building). Concentrations of CH_4, CO_2, O_2, and H_2S were measured in the field using a Landtec GEM 5000 Landfill Gas Analyzer. TOV concentrations were measured using a Ion Science Tiger Handheld VOC Detector (PID), which was equipped with a 10.6 eV lamp and calibrated with 100 ppmv isobutylene span gas.

Temporary gas probes were installed by driving an AMS® Retract-A-Tip to discrete depths below the ground surface. The stainless steel Retract-A-Tips were connected to polyethylene tubing, and landfill gas samples were subsequently drawn.

At least two well/probe volumes of air were evacuated from landfill gas wells and temporary gas probes prior to the collection of final measurements. Landfill gas monitoring locations are displayed on Figure 2, and a summary of field measurements collected from the above-referenced locations is included in Table 1.

Landfill Gas Well & Temporary Monitoring Point/Vent Results:

- CH_4 was detected at landfill gas wells LGW-1 and LGW-5 at concentrations greater than the regulatory limit of 25% Lower Explosive Limit (LEL); however, landfill gas wells were not considered to be "fenceline monitoring locations," since perimeter temporary gas probes were installed and screened on the same day.
- CO_2 was detected at a concentration greater than 1% in landfill gas wells LGW-1, LGW-5, and LGW-6.
- Depleted O_2 concentrations (less than 19.5%) were detected at landfill gas wells LGW-1 and LGW-5.
- H_2S was detected in landfill gas well LGW-1 and temporary gas probe TGP-7.
- TOVs were not detected at concentrations greater than 1.0 ppmv in any landfill gas wells, temporary gas probes, temporary vents/monitoring points, or temporary gas probes.

The results of landfill gas monitoring are generally consistent with previous landfill gas well and temporary gas probe monitoring results. It should be noted that monitoring conducted during this event did not reveal the presence of explosive gases at concentrations greater than 25% of the LEL at the property line, or beyond. Therefore, notification to the MassDEP, pursuant to 310 CMR 19.142(h) was not applicable. It should be noted that two (2) landfill gas wells (LGW-12 and LGW-13) were not monitored during this event. The wells were apparently damaged and/or destroyed during site work activities. We recommend replacement of landfill gas wells LGW-12 and LGW-13 before the next proposed monitoring event.

Catch Basin, Fire Hydrant, and Indoor Air Monitoring Results:

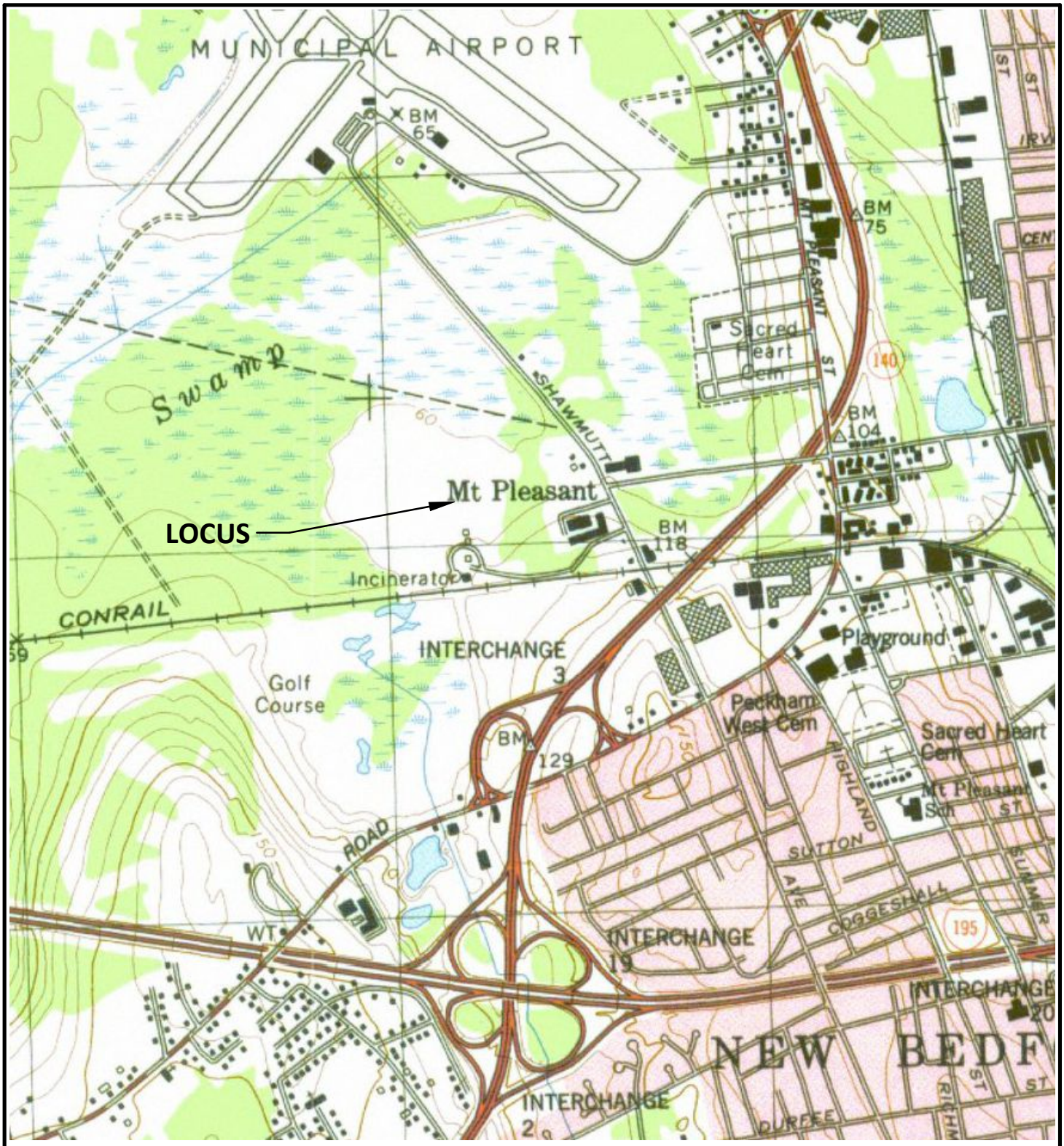
- No significantly elevated concentrations of TOVs, CH_4, CO_2, H_2S, nor depleted concentrations of O_2, were detected during field screening conducted at catch basins, fire hydrants, or within the scale house or the warehouse buildings.

The results of catch basin and indoor air screening are generally consistent with previous monitoring results. It should be noted that the nozzle caps of Hydrant #1 and Hydrant #2 were removed as part of response actions conducted in the summer of 2015. The nozzle cap associated with Hydrant #2 was observed to be reconnected during the February 2018 monitoring event. We have recommended that the nozzle cap of Hydrant #2 be removed.

3.0 FUTURE COURSE OF ACTION

The next post-closure environmental monitoring event is scheduled for May 2020.

FIGURES



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DRAWING TITLE	FIGURE 1 - LOCUS PLAN
PROJECT	SHAWMUT AVENUE LANDFILL NEW BEDFORD, MA
CLIENT	CITY OF NEW BEDFORD NEW BEDFORD, MA

APPROX. SCALE:	DATE:	DRAWN BY:	RSR
NTS	OCT. 19, 2016	CHECKED BY:	WPK

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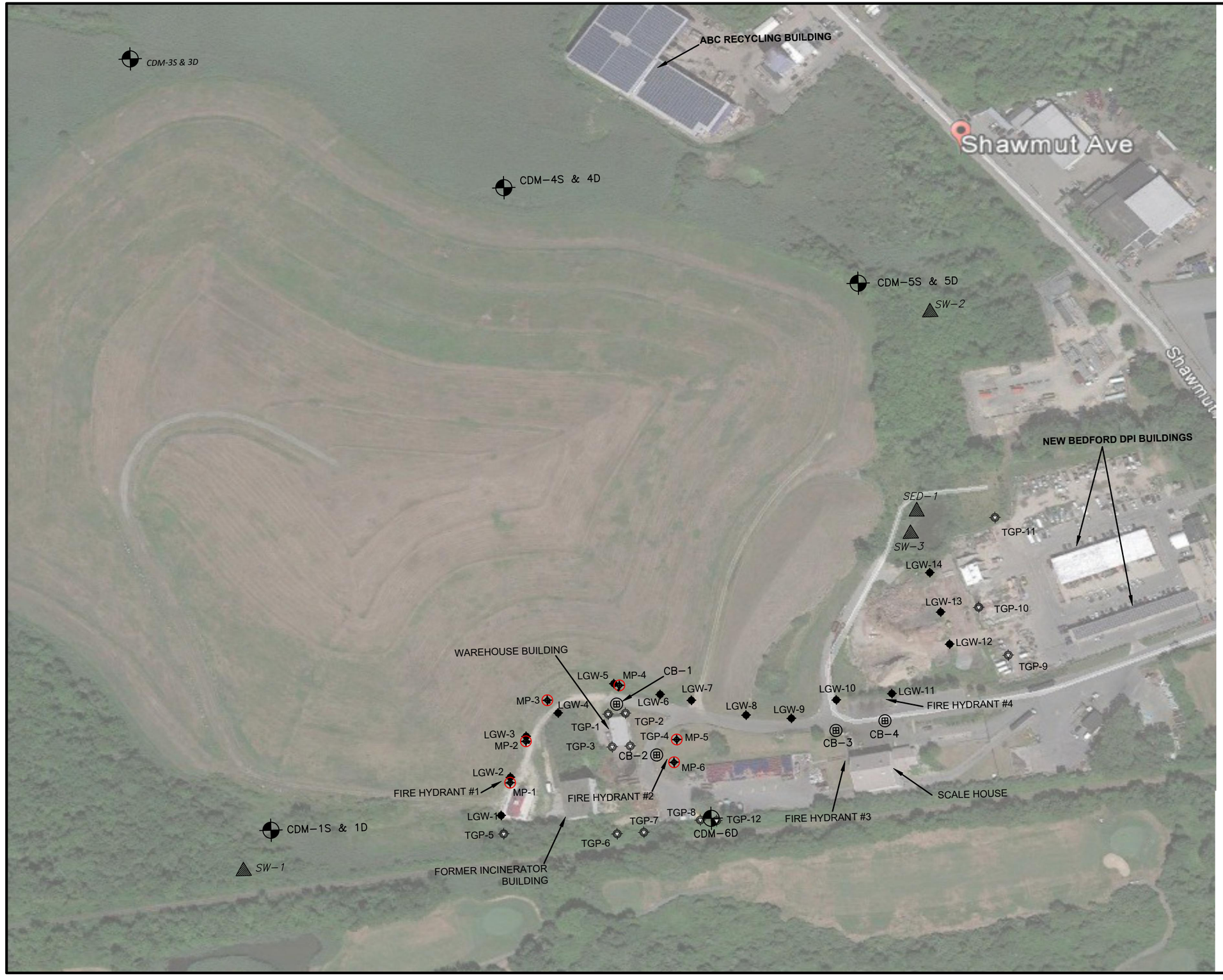

APPROX SCALE 1" = 1000'

0 500 1000 2000

LEGEND

- CDM–1S - GROUNDWATER MONITORING WELL
- LGW-1 - LANDFILL GAS MONITORING WELL
- SW–1 - SURFACE WATER SAMPLE LOCATION
- SED–1 - SEDIMENT SAMPLE LOCATION
- CB–2 - CATCH BASIN
- MP-1 - TEMPORARY GAS MONITORING POINT/VENT
- TGP-1 - TEMPORARY GAS PROBE

DRAWING TITLE	SITE PLAN
PROJECT	SHAWMUT AVENUE LANDFILL NEW BEDFORD, MA
CLIENT	CITY OF NEW BEDFORD NEW BEDFORD, MA
APPROX. SCALE: 1" = 1000'	DATE: FEB 28, 2017
DRAWN BY: PJK	CHECKED BY: WPK

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TABLES

TABLE 1
Landfill Gas Monitoring Results
February 14, 2020

Shawmut Avenue Landfill
New Bedford, Massachusetts

Monitoring Point Identification	Monitoring Location Type	Purge Time	Total Organic Volatiles (TOV)		Methane (CH_4)		Lower Explosive Lmt. (LEL)		Carbon Dioxide (CO_2)		Oxygen (O_2)		Hydrogen Sulfide (H_2S)	
		minutes	ppmv		%		%		%		%		ppm	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final	Initial	Final
LGW-1	Gas Well	10+	0.0	0.0	0.0	48.8	0	976	0.1	24.5	20.5	0.0	2	4
LGW-2	Gas Well	10+	0.0	0.0	0.0	0.0	0	0	0.1	0.1	21.1	21.1	0	0
LGW-3	Gas Well	10+	0.0	0.1	0.0	0.4	0	8	0.1	1.3	21.2	20.5	0	0
LGW-4	Gas Well	10+	0.0	0.0	0.0	0.0	0	0	0.1	0.3	21.2	20.6	0	0
LGW-5	Gas Well	10+	0.0	0.0	0.0	36.5	0	730	0.1	24.0	21.4	0.5	0	0
LGW-6	Gas Well	10+	0.0	0.0	0.0	1.3	0	26	0.1	2.2	21.7	20.8	0	0
LGW-7	Gas Well	10+	0.0	0.0	0.0	0.2	0	4	0.1	0.2	22.0	22.0	0	0
LGW-8	Gas Well	10+	0.0	0.0	0.0	0.1	0	2	0.1	0.1	22.1	22.1	0	0
LGW-9	Gas Well	10+	0.0	0.0	0.0	0.0	0	0	0.1	0.1	22.0	22.0	0	0
LGW-10	Gas Well	10+	0.0	0.2	0.0	0.0	0	0	0.1	0.1	20.9	21.8	0	0
LGW-11	Gas Well	10+	0.0	0.0	0.0	0.0	0	0	0.1	0.2	21.8	21.6	0	0
LGW-12	Gas Well	----	Sealed, unable to sample.											
LGW-13	Gas Well	----	Well Missing, unable to sample.											
LGW-14	Gas Well	10+	0.0	0.0	0.0	0.0	0	0	0.1	0.1	21.8	21.8	0	0
TGP-5	Temp. Gas Probe	1-5	0.0	0.0	0.0	0.0	0	0	0.1	0.2	20.5	20.5	0	0
TGP-6	Temp. Gas Probe	1-5	0.0	0.0	0.1	0.1	2	2	0.1	0.4	22.0	22.0	0	0
TGP-7	Temp. Gas Probe	1-5	0.0	0.0	0.1	0.1	2	2	0.0	0.0	22.2	21.0	0	1
TGP-8	Temp. Gas Probe	1-5	0.0	0.2	0.0	0.0	0	0	0.0	0.0	22.2	22.1	0	0
CB-1	Catch Basin	<1	0.0	0.0	0.1	0.1	2	2	0.1	0.1	22.4	22.3	0	0
CB-2	Catch Basin	<1	0.0	0.0	0.0	0.0	0	0	0.1	0.1	22.0	22.4	0	0
CB-3	Catch Basin	<1	0.0	0.0	0.0	0.0	0	0	0.1	0.1	22.0	22.0	0	0
MP-1	Monitoring Point	10+	0.0	0.0	0.0	0.0	0	0	0.1	0.1	20.9	20.9	0	0
MP-2	Monitoring Point	10+	0.0	0.0	0.0	0.0	0	0	0.1	0.1	21.2	21.2	0	0
MP-3	Monitoring Point	10+	0.0	0.0	0.0	0.0	0	0	0.1	0.1	21.2	21.2	0	0
MP-4	Monitoring Point	10+	0.0	0.0	0.0	0.0	0	0	0.1	0.1	21.4	21.5	0	0
MP-5	Monitoring Point	10+	0.0	0.0	0.1	0.1	2	2	0.1	0.1	22.4	22.4	0	0
MP-6	Monitoring Point	10+	0.0	0.0	0.1	0.1	2	2	0.1	0.1	22.0	22.0	0	0
Hydrant 1	Fire Hydrant	<1	0.0	0.0	0.1	0.1	2	2	0.1	0.1	21.2	21.2	0	0
Hydrant 2	Fire Hydrant	----	Sealed, unable to sample.											
Scale House	Indoor Air	<1	0.0	0.0	0.0	0.0	0	0	0.1	0.1	22.0	22.0	0	0
Warehouse Building	Indoor Air	<1	0.0	0.0	0.1	0.3	2	6	0.1	0.1	22.3	22.3	0	0

Notes:
1.) Monitoring points were purged for approximately 10 minutes before final measurements were recorded.
2.) Total Organic Volatiles were measured using a Ion Science Tiger Handheld VOC Detector.
3.) Methane, LEL, Carbon Dioxide, Oxygen, and Hydrogen Sulfide were measured using a Landtec GEM 5000 Landfill Gas Monitor.
4.) Unable to sample TGP- 1 through TGP-4 due to high groundwater.

Generated by PK (02/14/2020)
QA by JRC (02/19/2020)