

REPORT

Summary of Landfill Gas Monitoring

Thomas W. Danehy Park
Cambridge, Massachusetts

March 2023





City of Cambridge
Department of Public Works

Katherine F. Watkins, Commissioner

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May 23, 2023

Mr. Mark Fairbrother
Section Chief, Solid Waste Management
Massachusetts Department of Environmental Protection
Northeast Region Main Office
150 Presidential Way
Woburn, Massachusetts 01801

Subject: Responsible Official Certification Statement
Danehy Park (Former New Street Landfill)
Cambridge, Massachusetts
March 2023 Landfill Gas Monitoring Event

Dear Mr. Fairbrother:

In accordance with the Massachusetts Solid Waste Management Regulations (310 CMR 19.011), the City of Cambridge, Massachusetts submits this certification for the attached submittal prepared for us by CDM Smith, Inc.

I, James Wilcox, attest under the pains and penalties of perjury that: (a) I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification statement; (b) based upon my inquiry of those persons responsible for obtaining the information, the information contained in this submittal is, to the best of my knowledge, true, accurate, and complete; (c) I am fully authorized to bind the entity required to submit these documents and to make this attestation on behalf of such entity; (d) I am aware that there are significant penalties, including, but not limited to, possible administrative and civil penalties for submitting false, inaccurate, or incomplete information and possible fines and imprisonment for knowingly submitting false, inaccurate, or incomplete information.

Very truly yours,

A handwritten signature in black ink that reads "James F. Wilcox". The signature is written in a cursive style with a stylized "J" and "W".

James Wilcox
City Engineer

Attachment – March 2023 Summary of Quarterly Landfill Gas Monitoring



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Boston, Massachusetts 02109
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May 23, 2023

Mr. Mark Fairbrother
Section Chief, Solid Waste Management
Massachusetts Department of Environmental Protection
Northeast Regional Office
150 Presidential Way
Woburn, Massachusetts 01801

Subject: Results of Post-Closure Landfill Gas Monitoring
Danehy Park, Cambridge, Massachusetts
March 2023

Dear Mr. Fairbrother:

On March 10 and March 13th, 2023, CDM Smith conducted post-closure landfill gas monitoring at Danehy Park (former New Street Landfill) in Cambridge, Massachusetts. The post-closure landfill gas monitoring program consists of sampling at 40 locations throughout the site and surrounding areas plus one background location. In 2013, the number of locations was reduced from 74 locations required under the former sampling program. This reduction was approved by the Massachusetts Department of Environmental Protection (MassDEP) in a letter dated January 3, 2013. The September 2022 sampling event was conducted in general accordance with this approval and the revised environmental monitoring plan submitted to MassDEP in February 2013.

In December 2020, CDM Smith submitted on behalf of the City of Cambridge a revised Post-Closure Environmental Monitoring and Maintenance Plan (Post-Closure Plan). Submission of a revised Post-Closure Plan was required by Condition 5(c) of the MassDEP approval of the category BWP SW36, Major Post-Closure Use, permit application to construct the new Danehy Park Universal Design Playground (Authorization Number: SW36-0000025). The revised Post-Closure Plan, which is under review by MassDEP, proposed adding 29 sampling locations to the 40 locations currently included in the program, including 16 locations at the new Universal Design Playground. Although the revised Post-Closure Plan has not yet been approved by MassDEP, where possible the proposed additional sampling locations were included in this round of monitoring. Some sampling locations have been destroyed or have not yet been constructed, and other sampling locations have been added as described below.

Subsequent to the routine quarterly post-closure landfill gas monitoring round, methane was measured in excess of 10% of the lower explosive limit (LEL) in one of the catch basins included in the quarterly monitoring program (CB-2) as well as several other utilities not included in the quarterly monitoring program. On March 22, 2023, in accordance with BWP SW45 Application Number 23-





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SW45-0005-APP (MassDEP Authorization Number SW45-0000207), CDM Smith oversaw the installation of a soil boring intended to provide geotechnical and environmental data to support the construction and environmental monitoring for the planned Gateway Pavilion Project. At a depth of approximately 8-10 feet below ground surface, methane was measured in the borehole in excess of 100% of the LEL. CDM Smith immediately called the fire department and MassDEP Solid Waste. It was decided to terminate the soil boring and backfill with hydrated bentonite chips to seal the borehole.

At the request of MassDEP Solid Waste, CDM Smith monitored nearby utilities for landfill gas. Methane was detected in catch basin CB-2 at a concentration 12% of the LEL. Methane was also measured in electrical manhole EM-2 at 90% of the LEL and drain manhole DM-8 at 63% of the LEL. The detections of methane in excess of 10% of the LEL in utilities prompted notification to the MassDEP Emergency Response line within two hours. MassDEP issued Release Tracking Number (RTN) 3-38051 and an Immediate Response Action (IRA) initially consisting of daily monitoring of the utilities was implemented. Results of the daily monitoring through the end of the quarter (March 31, 2023) are presented below. Other response actions will be described in IRA Status Report(s) and/or IRA Completion Report.

Quarterly landfill sampling locations are shown on Figure A-1 in **Appendix A**.

CDM Smith notified MassDEP of exceedances of the regulatory limit for landfill gas detected at the property boundary within the required 24-hour period. Results of the March 2023 landfill gas monitoring are included in this letter.

Quarterly Landfill Gas Monitoring – March 2023

Analytical Parameters

Concentrations of methane (CH₄) in percent by volume, carbon dioxide (CO₂), hydrogen sulfide (H₂S), oxygen (O₂), and atmospheric pressure were obtained using a Landtec GEM 5000 Gas Analyzer. Atmospheric pressure ranged from 29.90 to 30.05 inches mercury during sampling. The lower explosive limit (LEL) for methane was calculated based on the methane concentration reading from the GEM 5000. Volatile organic compound (VOC) concentrations were obtained using a Photo Ionization Detector (PID), Lamp eV 10.6.

Analytical Results

Tables 1 through 4 in **Appendix B** summarize the landfill gas results for this round. The monitoring results exhibit the typical variability of historical gas readings across the former landfill:

- CH₄ was detected at monitoring well locations W-5 and MW-101 at final concentrations of 338% and 118% of the Lower Explosive Limit (LEL), respectively, which exceed the regulatory



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limit of 25% of the LEL at the property boundary or beyond. CDM Smith notified MassDEP of these exceedances via email within the required 24-hour period. A copy of the exceedance notification is provided in **Appendix C**. CH₄ was also detected below the regulatory limit of 25% of the LEL at monitoring well locations W-3 and GW-9R at final concentrations of 16% and 18% of the LEL.

- CO₂ was detected at several locations at final concentrations up to 6.5%, at W-5.
- VOCs were detected at HYD-4 and HYD-5 with maximum concentrations of 0.9 and 1.5 ppm, respectively.
- H₂S was not detected at any of the locations during this round.

Methane was detected in wells W-3 and W-5 located southwest and northwest of Briston Arms property boundary, respectively at concentrations of 16% and 338% of the LEL, respectively. Recent investigations have detected methane on both sides of the City's property boundary with Briston Arms in excess of the 25% of the LEL. Historic investigations have indicated that buried waste materials are also present on the Briston Arms property. The current owner of 247 Garden Street, the Briston Arms Preservation Associates Limited Partnership (the BAPALP), conducts routine quarterly monitoring of soil gas probes, utilities, and buildings on the Briston Arms property and reports the results to MassDEP.

Methane was detected at well MW-101, located northeast of the Evolve Fitness Building. Methane was not detected at nearby well MWW-3 located east of the Evolve Fitness building, nor at wells MMW-5 or GW2 located in the former Evolve Fitness parking lot. As discussed below, the catch basins located in the Evolve Fitness parking lot were flooded and could not be monitored. CDM Smith was unable to gain access to the inside the Evolve Fitness building due to Evolve Fitness being permanently closed. The area beyond well MW-101 is mostly businesses and paved private property, so no further probes could be conducted to assess gas migration.

Methane was not detected at MW-102 or PROBE #7 located east of the William J. Malcolm & Son Plumbing and Heating Inc. (Malcolm & Son) property boundary or at MW-103 located just north of and adjacent to the building on the Malcolm & Son Property (Figure A-1). PROBE #7 was added to the program in September 2019 to provide an additional gas monitoring point in this area after gas monitoring well GW-3 (located approximately 40 feet southeast of the Malcolm & Son building) was paved over in 2016. Monitoring well GW-3R, which was installed earlier this year to replace GW-3, was also sampled this round and found to be non-detect. The City has requested a right-of-entry access agreement for potential indoor monitoring of the building on the Malcolm & Son property.

CDM Smith monitored the catch basins along New Street and at the intersection on Concord Avenue (CB-1, CB-2, CB-3, CB-4, CB-4A, CB-5, CB-6, CB-7, CB-8, CB-9, CB-10, CB-11, CB-12, CB-13, CB-14, CB-15,



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CB-16, and CB-17). CDM Smith also monitored catch basin CB-22, located in the Apple Cinema parking lot at the north entrance to New Street. Catch basins in the parking lot of Evolve Fitness (CB18 and CB19) were flooded and not able to be sampled during the March 2023 round. Catch basins at the Universal Design Playground (U-CB-1, U-CB-2, U-CB-3, U-CB-4, U-CB-5, U-CB-6, U-CB-7, U-CB-8, U-CB-9, U-CB-10, U-CB-11, U-DB-1, U-DB-2, U-DB-3, U-DB-4) were also screened for landfill gas. The two catch basins formerly located on the 77 New Street property (CB-20 and CB-21) were permanently removed during construction of the residential building on the property in late 2018. Methane was not detected in any catch basins monitored during this sampling round.

Measurements were also collected at the Sherman Street Comfort Station. Combustible gas was not detected inside the comfort station. The proposed restroom facility to be located west of the Field Street parking lot has not yet been installed, and the City is not moving forward with construction of this restroom facility at this time.

Landfill gas probes PROBE-1P and PROBE-5, located northwest of the residential buildings at 77 New Street and 87 New Street, respectively, were sampled in March 2023, and no combustible gas concentrations were detected. PROBE-3, PROBE-4, and PROBE-6 were not sampled, as landfill gas was not detected in catch basin CB-6 or monitoring wells GW-1 or GW-2P, respectively.

CDM Smith monitored the interiors of the three hydrants that remain at the site (HYD-4, HYD-5, and HYD-11) for the presence of landfill gas. HYD-4 and HYD-5 are located inside the park, within the site boundary and gas vent trench. HYD-11 is a relatively new hydrant installed just outside the gas vent trench near the City's salt storage shed and winter brine facility. Methane was not detected in hydrant HYD4, HYD5, or HYD11. VOCs were detected at HYD-4 and HYD-5 with maximum concentrations of 0.9 and 1.5 ppm, respectively.

Daily IRA Monitoring

Analytical Parameters

Concentrations of LEL, H₂S, O₂, and carbon monoxide (CO) were obtained using an Industrial Scientific Multi-Gas Detector, 4 Gas. If the LEL exceeded 100%, concentrations of CH₄ were obtained using a Landtec GEM 5000 Gas Analyzer and the LEL was calculated based on the methane concentration reading from the GEM 5000.

Analytical Results

Results of the daily monitoring from March 22, 2023 through the end of the quarter (March 31, 2023) are shown in Table 5 in **Appendix B** and summarized below:

- CH₄ was detected on one occasion at catch basin CB-2 on March 22, 2023 at a concentration of 12% of the LEL.



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- CH₄ was detected on two occasions at electrical manhole EM-1 on March 29 and March 31, 2023 at concentrations of 104% of the LEL and 6% of the LEL, respectively.
- Most measurements of CH₄ exceeded 10% of the LEL at drain manhole DM-8, with concentrations up to 246% of the LEL.
- Every measurement of CH₄ exceeded 10% of the LEL at electrical manhole EM-2, with concentrations ranging from 18% of the LEL to 182% of the LEL.
- CH₄ was detected on two occasions at irrigation control box ICB-1 on March 29 and March 31, 2023 at concentrations of 16% of the LEL and 6% of the LEL, respectively.
- CH₄ was detected on one occasion at catch basin CB-7 on March 31, 2023 at a concentration of 6% of the LEL.
- Every measurement of CH₄ exceeded 10% of the LEL at hydrant HYD-12, with concentrations ranging from 40% of the LEL to 1,312% of the LEL.
- CH₄ was detected at hydrant HYD-5 on March 28, 2023 at a concentration of 2% of the LEL.

Conclusions and Recommendations

Recent landfill gas monitoring results are generally consistent with the variability of previous historical monitoring data at the site. Except for the detection of CH₄ at 12% of the LEL at catch basin CB-2, the utility locations where CH₄ was detected in excess of 10% of the LEL during daily IRA monitoring are not included in the quarterly monitoring program. Exceedances of the regulatory limit of 25% of the LEL at the property boundary were observed near the former Evolve Fitness and Briston Arms. Exceedances of 10% of the LEL in a utility were observed during daily IRA monitoring at catch basin CB-2, electrical manholes EM-1 and EM-2, drain manhole DM-8, irrigation control box ICB-1, and hydrant HYD-12. Conclusions and recommendations include the following:

- Combustible gas was detected at wells W-3 and W-5, located southwest and northwest of Briston Arms, respectively, between the gas vent trench and the property boundary. The concentration exceeded the regulatory limit of 25% at W-5. The gas vent trench northeast of the Briston Arms is in good condition with no observable sediment or vegetation. The gas vent trench northwest of the Briston Arms has vegetation growth. Maintenance and vegetation removal are recommended for the portion of the gas vent trench north of the Briston Arms property. The vent trench southwest of Briston Arms was replaced with a modified vent trench as part of the Universal Design Playground. The owner of Briston Arms Apartments, BAPALP, conducts routine landfill gas monitoring on the apartment complex property.



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- Combustible gas detections greater than 25% LEL continue to be detected at well MW-101, located northeast of the former Evolve Fitness Building. Methane was not detected at nearby well MMW-3 (located east of the former Evolve Fitness Building) or at wells MMW-5 or GW2 (located in the former Evolve Fitness parking lot). The catch basins in the Evolve Fitness parking lot were flooded and could not be monitored. CDM Smith was unable to gain access to the inside the Evolve Fitness building due to Evolve Fitness being permanently closed. It is CDM Smith's understanding that the former Evolve Fitness building will be demolished, and the 52 New Street property redeveloped.
- Although methane was not detected at PROBE-7, located near the William J. Malcom & Son building (75 Bay State Road, Cambridge) in June 2022, since methane has periodically been detected at this probe since it was first installed in September 2019, PROBE-7 will continue to be monitored to assess landfill gas in this area. If LEL exceedances continue at wells and probes near the Malcom & Son building, indoor gas sampling within the building should be considered. The City should continue efforts to obtain a right-of-entry access agreement for potential indoor monitoring at this property.
- Response actions to address CH₄ in utilities in excess of 10% of the LEL are ongoing under the supervision of MassDEP Emergency Response. A sitewide landfill gas assessment is recommended to assess other utilities in and around the park for the presence of CH₄.

The next landfill gas monitoring event is scheduled for June 2023. Please do not hesitate to call me at (617) 452-6532 if you have any questions.

Very truly yours,

Nathan E. Jones, P.E., PMP
Project Manager
CDM Smith Inc.

Appendices

- Appendix A – Site Plan
- Appendix B – Sampling Results Summary Tables
- Appendix C – Danehy Park Landfill – 24-hour Landfill Gas Exceedances Notification

cc: James Wilcox, Cambridge

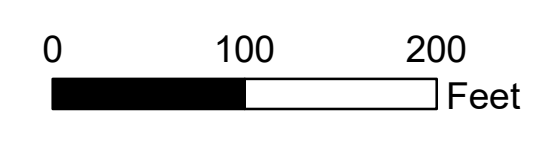
Appendix A

Site Plan

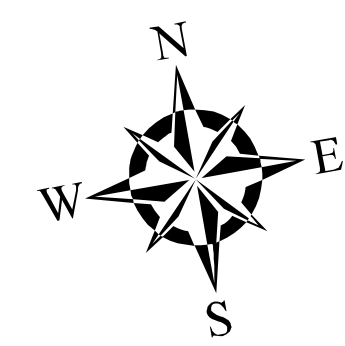
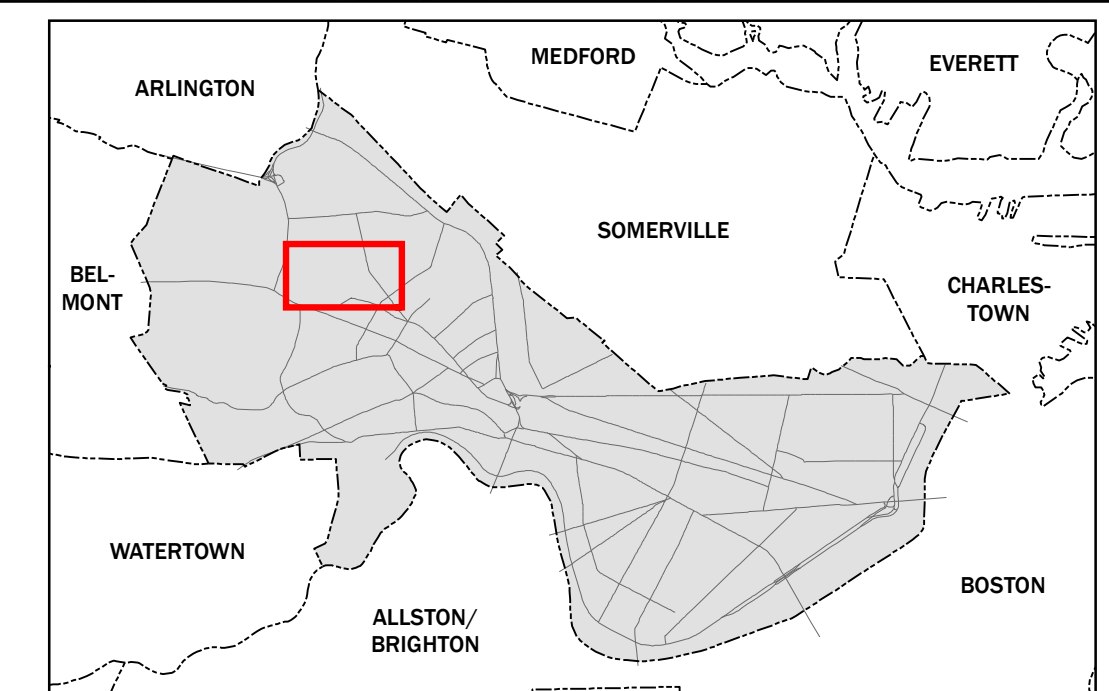


Legend	Monitoring Location	Water System	Sewer System	Stormwater System
Proposed Monitoring Location	□ Catch Basin	♦ Hydrant	□ Pump Station	□ Catchbasin
● Detention Basin	♦ Hydrant	♦ Gate Valve	○ Combined Manhole	○ Stormwater Manhole
■ Catch Basin	□ Indoor Gas Sampling	♦ Hydrant/Valve	○ Sewage Manhole	○ Storm Lateral
— Site Boundary	♦ Monitoring Well	— Service Lateral	— Combined Wastewater	— Storm Main
— Gas Vent Trench	▲ Surface Water Sampling	— Hydrant Lateral	— Sewage Main	
— Limit of Former Clay	⊕ Probe	— Water Main		
— Pit Excavations				
□ Parcel Boundaries (2019)				

**Former New Street Landfill
Daney Park
City of Cambridge, MA**



Basemap: City of Cambridge 2018 Imagery
Source: City of Cambridge, MassGIS and ESRI ArcGIS Online
Coordinate Sys: NAD83 Mass. State Plane Mainland (feet)



**FIGURE A-1
Environmental
Monitoring Plan
November 2020**



Appendix B

Sampling Results Summary Tables

**TABLE 1
MONITORING WELLS & BUILDINGS
LANDFILL GAS MONITORING - MARCH 2023
DANEHY PARK**

Sampling Location	Date	CH ₄ (%)	%LEL	CO ₂ (%)	O ₂ (%)	VOC (ppm)	H ₂ S (ppm)
Background	3/10/2023	0.0	0.0	0.0	20.9	0.0	0.0
Evolve Fitness [^]	3/10/2023	0.0	0.0	0.0	20.9	0.0	0.0
Outside Office Door ^{**}	3/10/2023	0.0	0.0	0.0	20.9	0.0	0.0
Garage Door ^{**}	3/10/2023	0.0	0.0	0.0	20.9	0.0	0.0
Men's Floor Drain ^{**}	3/10/2023	0.0	0.0	0.0	20.9	0.0	0.0
Women's Floor Drain ^{**}	3/10/2023	0.0	0.0	0.0	20.9	0.0	0.0
C-111 [*]	3/10/2023	0.0	0.0	0.0	20.9	0.0	0.0
GW-1 [*]	3/10/2023	0.0	0.0	0.3	20.7	0.0	0.0
GW-2 [*]	3/10/2023	0.0	0.0	0.2	20.8	0.0	0.0
GW-2P [*]	3/10/2023	0.0	0.0	3.5	14.0	0.0	0.0
GW-3R ^{*2}	3/10/2023	0.0	0.0	0.0	20.9	0.0	0.0
GW-9R ^{*3}	3/13/2023	0.9	18.0	0.5	20.5	0.0	0.0
MMW-2	3/13/2023	0.0	0.0	0.2	20.8	0.0	0.0
MMW-3 [*]	3/13/2023	0.0	0.0	0.2	20.8	0.0	0.0
MMW-4 [*]	3/10/2023	0.0	0.0	0.0	20.9	0.0	0.0
MMW-5 [*]	3/10/2023	0.0	0.0	0.0	20.9	0.0	0.0
MW-101 [*]	3/13/2023	5.9	118.0	3.5	14.0	0.0	0.0
MW-102 [*]	3/13/2023	0.0	0.0	0.4	20.7	0.0	0.0
MW-103 [*]	3/13/2023	0.0	0.0	0.0	20.9	0.0	0.0
MW-105 [*]	3/10/2023	0.0	0.0	0.0	20.9	0.0	0.0
MW-1A [*]	3/13/2023	0.0	0.0	0.0	20.9	0.0	0.0
W-3 [*]	3/13/2023	0.8	16.0	0.7	20.2	0.0	0.0
W-5 [*]	3/13/2023	16.9	338.0	6.5	9.6	0.0	0.0
W-14	3/13/2023	0.0	0.0	0.0	20.9	0.0	0.0

NOTES:

* 2013 Environmental Monitoring Plan (EMP) sampling location

[^] Proposed additional sampling location (2021 EMP)

+ Indicates location is at the onsite comfort station (insided locations not sampled this round due to building being closed because of COVID-19)

1. Wells were purged for approximately 10 minutes before final readings were recorded.

2. GW-3R was installed on 3/19/2021 to replace GW-3, which had been paved over, and sampled the same day.

3. GW-9R was installed on 3/19/2021 to replace GW-9, which had been destroyed by construction at 77 New Street, and sampled the same day.

NS - Not Sampled

**TABLE 2
CATCH BASINS AND MANHOLES
LANDFILL GAS MONITORING - MARCH 2023
DANEHY PARK**

Sampling Location	Date	CH ₄ (%)	%LEL
CB1^	3/10/2023	0.0	0.0
CB2^	3/10/2023	0.0	0.0
CB3*	3/10/2023	0.0	0.0
CB4*	3/10/2023	0.0	0.0
CB4A^	3/10/2023	0.0	0.0
CB5*	3/10/2023	0.0	0.0
CB6*	3/10/2023	0.0	0.0
CB7*	3/10/2023	0.0	0.0
CB8^	3/10/2023	0.0	0.0
CB9*	3/10/2023	0.0	0.0
CB10^	3/10/2023	0.0	0.0
CB11*	3/10/2023	0.0	0.0
CB12*	3/10/2023	0.0	0.0
CB13*	3/10/2023	0.0	0.0
CB14^	3/10/2023	0.0	0.0
CB15*	3/10/2023	0.0	0.0
CB16^	3/10/2023	0.0	0.0
CB17*	3/10/2023	0.0	0.0
CB18*	NS	NS	NS
CB19*	NS	NS	NS
CB20* ¹	NS	NS	NS
CB21* ¹	NS	NS	NS
CB22^	3/10/2023	0.0	0.0

NOTES:

- * 2013 Environmental Monitoring Plan (EMP) sampling location
- ^ Proposed additional sampling location (2021 EMP)
- 1. CB20 and CB21 were destroyed in late 2018 during construction
- 2. CB18 and CB19 were flooded and unable to access for sampling
- NS - Not Sampled

**TABLE 3
 TEMPORARY PROBES & HYDRANTS
 LANDFILL GAS MONITORING - MARCH 2023
 DANEHY PARK**

Sampling Location	Date	CH ₄ (%)	%LEL	CO ₂ (%)	O ₂ (%)	VOC (ppm)	H ₂ S (ppm)
PROBE-1P*	3/10/2023	0.0	0.0	1.3	19.5	0.0	0.0
PROBE-3 ²	NS	NS	NS	NS	NS	NS	NS
PROBE-4 ³	NS	NS	NS	NS	NS	NS	NS
PROBE-5* ⁴	3/10/2023	0.0	0.0	0.6	20.4	0.0	0.0
PROBE-6* ⁵	NS	NS	NS	NS	NS	NS	NS
PROBE-7 ⁶	3/13/2023	0.0	0.0	2.0	18.6	0.0	0.0
HYD-4*	3/10/2023	0.0	0.0	0.0	15.5	0.9	0.0
HYD-5*	3/10/2023	0.0	0.0	0.0	16.1	1.5	0.0
HYD-11 [^]	3/10/2023	0.0	0.0	0.0	20.9	0.0	0.0

NOTES:

* 2013 Environmental Monitoring Plan (EMP) sampling location

[^] Proposed additional sampling location (2021 EMP)

1. Probes were purged for approximately 10 minutes before final readings were recorded.
 2. Although not a 2013 EMP sampling location, PROBE-3 remains available if methane is detected at location CB-6.
 3. Although not a 2013 sampling location, PROBE-4 remains available if methane is detected at location GW-1.
 4. PROBE-5 was re-installed. Building construction is completed and area is accessible.
 5. PROBE-6 was not sampled, as methane was not detected in GW-2P.
 6. Not a 2013 EMP sampling location, PROBE-7 was added in 2019 to temporarily replace destroyed well GW-3.
- NS - Not Sampled

TABLE 4
UNIVERSAL DESIGN PLAYGROUND SAMPLING LOCATIONS
LANDFILL GAS MONITORING - MARCH 2023
DANEHY PARK

Sampling Location	Date	CH ₄ (%)	%LEL	CO ₂ (%)	O ₂ (%)	VOC (ppm)	H ₂ S (ppm)
U-CB-1	3/13/2023	0.0	0.0	0.0	20.9	0.0	0.0
U-CB-2	3/13/2023	0.0	0.0	0.0	20.9	0.0	0.0
U-CB-3	3/13/2023	0.0	0.0	0.0	20.9	0.0	0.0
U-CB-4	3/13/2023	0.0	0.0	0.0	20.9	0.0	0.0
U-CB-5	3/13/2023	0.0	0.0	0.0	20.9	0.0	0.0
U-CB-6	3/13/2023	0.0	0.0	0.0	20.9	0.0	0.0
U-CB-7	3/13/2023	0.0	0.0	0.0	20.9	0.0	0.0
U-CB-8	3/13/2023	0.0	0.0	0.0	20.9	0.0	0.0
U-CB-9	3/13/2023	0.0	0.0	0.0	20.8	0.0	0.0
U-CB-10	3/13/2023	0.0	0.0	0.0	20.9	0.0	0.0
U-CB-11	3/13/2023	0.0	0.0	0.0	20.9	0.0	0.0
U-DB-1	3/13/2023	0.0	0.0	0.0	20.9	0.0	0.0
U-DB-2	3/13/2023	0.0	0.0	0.0	20.9	0.0	0.0
U-DB-3	3/13/2023	0.0	0.0	0.0	20.9	0.0	0.0
U-DB-4	3/13/2023	0.0	0.0	0.0	20.9	0.0	0.0
Bathroom Facility	NS	NS	NS	NS	NS	NS	NS

NOTES:

1. Bathroom Facility was not constructed during this round and could not be sampled.

NS - Not Sampled

**TABLE 5
UTILITY SCREENING RESULTS
MARCH 22 - MARCH 31, 2023
RTN: 3-38051
DANEHY PARK**

Sample Location	Sample Date	Hydrogen Sulfide	LEL	Carbon Monoxide	Oxygen
		(ppmv)	(% vol.)	(% vol.)	(% vol.)
Utility Screening Locations					
SWC-1	3/22/2023	0.0	0.0	0.0	20.9
	3/24/2023	0.0	0.0	0.0	20.9
	3/25/2023	0.0	0.0	0.0	21.2
	3/26/2023	0.0	0.0	0.0	20.9
	3/27/2023	0.0	0.0	0.0	21.0
	3/28/2023	0.0	0.0	0.0	21.1
	3/29/2023	0.0	0.0	0.0	20.9
	3/30/2023	0.0	0.0	0.0	21.1
	3/31/2023	0.0	0.0	0.0	21.0
SWC-2	3/22/2023	0.0	0.0	0.0	20.9
	3/24/2023	0.0	0.0	0.0	20.9
	3/25/2023	0.0	0.0	0.0	21.1
	3/26/2023	0.0	0.0	0.0	20.9
	3/27/2023	0.0	0.0	0.0	21.0
	3/28/2023	0.0	0.0	0.0	21.1
	3/29/2023	0.0	0.0	0.0	20.9
	3/30/2023	0.0	0.0	0.0	21.1
	3/31/2023	0.0	0.0	0.0	21.0
W-19 (Well)	3/22/2023	0.0	0.0	0.0	20.9
	3/24/2023	0.0	0.0	0.0	20.9
	3/25/2023	0.0	0.0	0.0	21.1
	3/26/2023	0.0	0.0	0.0	20.9
	3/27/2023	0.0	0.0	0.0	21.0
	3/28/2023	0.0	0.0	0.0	21.1
	3/29/2023	0.0	0.0	0.0	20.7
	3/30/2023	0.0	0.0	0.0	20.9
	3/31/2023	0.0	0.0	0.0	20.8
CB-2	3/22/2023	0.0	12.0	0.0	20.7
	07:00 3/23/2023	0.0	0.0	0.0	20.9
	12:00 3/23/2023	0.0	0.0	0.0	20.9
	3/24/2023	0.0	0.0	0.0	20.9
	3/25/2023	0.0	0.0	0.0	21.0
	3/26/2023	0.0	0.0	0.0	20.9
	3/27/2023	0.0	0.0	0.0	20.9
	3/28/2023	0.0	0.0	0.0	21.1
	3/29/2023	0.0	0.0	0.0	20.9
	3/30/2023	0.0	0.0	0.0	21.1
	3/31/2023	0.0	0.0	0.0	21.1
DM-7	3/22/2023	0.0	0.0	0.0	20.9
	3/24/2023	0.0	0.0	0.0	20.9
	3/25/2023	0.0	0.0	0.0	21.2
	3/26/2023	0.0	0.0	0.0	20.9
	3/27/2023	0.0	0.0	0.0	20.9
	3/28/2023	0.0	0.0	0.0	21.1
	3/29/2023	0.0	0.0	0.0	20.9
	3/30/2023	0.0	0.0	0.0	21.1
	3/31/2023	0.0	0.0	0.0	21.1
EM-1	3/22/2023	0.0	0.0	0.0	20.9
	3/24/2023	0.0	0.0	0.0	20.9
	3/25/2023	0.0	0.0	0.0	21.1
	3/26/2023	0.0	0.0	0.0	20.9
	3/27/2023	0.0	0.0	0.0	20.9
	3/28/2023	0.0	0.0	0.0	21.0
	3/29/2023	0.0	104.0	1.0	18.1
	3/30/2023	0.0	0.0	0.0	21.1
	3/31/2023	1.0	6.0	1.0	20.5

TABLE 5
UTILITY SCREENING RESULTS
MARCH 22 - MARCH 31, 2023
RTN: 3-38051
DANEHY PARK

Sample Location	Sample Date	Hydrogen Sulfide	LEL	Carbon Monoxide	Oxygen
		(ppmv)	(% vol.)	(% vol.)	(% vol.)
Utility Screening Locations					
DM-8	3/22/2023	0.0	63.0	0.0	19.7
07:00	3/23/2023	0.0	30.0	0.0	NM
12:00	3/23/2023	0.0	61.0	0.0	18.0
	3/24/2023	0.0	12.0	0.0	20.9
	3/25/2023	0.0	104.0	0.0	19.6
	3/26/2023	0.0	8.0	0.0	20.1
	3/27/2023	1.0	136.0	1.0	18.5
	3/28/2023	0.0	246.0	0.0	17.7
	3/29/2023	1.0	186.0	1.0	18.0
	3/30/2023	0.0	0.0	0.0	21.1
	3/31/2023	0.0	76.0	0.0	18.8
EM-2	3/22/2023	0.0	90.0	0.0	19.7
07:00	3/23/2023	0.0	18.0	0.0	NM
12:00	3/23/2023	0.0	73.0	0.0	16.9
	3/24/2023	1.0	70.0	0.0	19.8
	3/25/2023	0.0	74.0	0.0	19.9
	3/26/2023	0.0	136.0	0.0	18.0
	3/27/2023	0.0	134.0	1.0	18.8
	3/28/2023	0.0	102.0	0.0	19.9
	3/29/2023	1.0	172.0	1.0	18.5
	3/30/2023	0.0	48.0	0.0	21.3
	3/31/2023	0.0	182.0	0.0	17.9
ICB-1	3/22/2023	0.0	0.0	0.0	20.9
	3/24/2023	0.0	0.0	0.0	20.9
	3/25/2023	0.0	0.0	0.0	20.6
	3/26/2023	0.0	0.0	0.0	20.9
	3/27/2023	0.0	0.0	0.0	20.9
	3/28/2023	0.0	0.0	0.0	20.9
	3/29/2023	1.0	16.0	1.0	20.7
	3/30/2023	0.0	0.0	0.0	21.1
	3/31/2023	0.0	6.0	0.0	20.5
CB-3	3/24/2023	0.0	0.0	0.0	20.9
	3/25/2023	0.0	0.0	0.0	21.1
	3/26/2023	0.0	0.0	0.0	20.9
	3/27/2023	0.0	0.0	0.0	20.9
	3/28/2023	0.0	0.0	0.0	20.9
	3/29/2023	0.0	0.0	0.0	20.9
	3/30/2023	0.0	0.0	0.0	21.1
	3/31/2023	0.0	0.0	0.0	21.1
CB-4	3/24/2023	0.0	0.0	0.0	20.9
	3/25/2023	0.0	0.0	0.0	21.1
	3/26/2023	0.0	0.0	0.0	20.9
	3/27/2023	0.0	0.0	0.0	20.9
	3/28/2023	0.0	0.0	0.0	21.0
	3/29/2023	0.0	0.0	0.0	20.9
	3/30/2023	0.0	0.0	0.0	21.1
	3/31/2023	0.0	0.0	0.0	21.1
CB-4A	3/24/2023	0.0	0.0	0.0	20.9
	3/25/2023	0.0	0.0	0.0	21.0
	3/26/2023	0.0	0.0	0.0	20.9
	3/27/2023	0.0	0.0	0.0	20.9
	3/28/2023	0.0	0.0	0.0	21.0
	3/29/2023	0.0	0.0	0.0	20.9
	3/30/2023	0.0	0.0	0.0	21.1
	3/31/2023	0.0	0.0	0.0	21.1

TABLE 5
UTILITY SCREENING RESULTS
MARCH 22 - MARCH 31, 2023
RTN: 3-38051
DANEHY PARK

Sample Location	Sample Date	Hydrogen Sulfide	LEL	Carbon Monoxide	Oxygen
		(ppmv)	(% vol.)	(% vol.)	(% vol.)
Utility Screening Locations					
CB-7	3/24/2023	0.0	0.0	0.0	20.9
	3/25/2023	0.0	0.0	0.0	21.1
	3/26/2023	0.0	0.0	0.0	20.9
	3/27/2023	0.0	0.0	0.0	20.9
	3/28/2023	0.0	0.0	0.0	21.0
	3/29/2023	0.0	0.0	0.0	20.9
	3/30/2023	0.0	0.0	0.0	21.1
	3/31/2023	0.0	6.0	0.0	20.9
CB-8	3/24/2023	0.0	0.0	0.0	20.9
	3/25/2023	0.0	0.0	0.0	21.0
	3/26/2023	0.0	0.0	0.0	20.9
	3/27/2023	0.0	0.0	0.0	20.9
	3/28/2023	0.0	0.0	0.0	21.0
	3/29/2023	0.0	0.0	0.0	20.9
	3/30/2023	0.0	0.0	0.0	21.1
	3/31/2023	0.0	0.0	0.0	21.1
HYD-12	3/24/2023	0.0	520 (initial)	0.0	20.9
	3/24/2023	0.0	356 (after venting)	0.0	16.8
	3/25/2023	0.0	324-350	0.0	17.2
	3/26/2023	0.0	454	1.0	14.1
	3/27/2023	1.0	442	1.0	14.5
	3/28/2023	0.0	220 (initial)	0.0	21.0
	3/28/2023	0.0	40 (after venting)	1.0	21.6
	3/29/2023	1.0	1,312 (initial)	5.0	14.9
	3/29/2023	1.0	96 (after venting)	1.0	19.6
	3/30/2023	0.0	70	0.0	21.6
	3/31/2023	1.0	136	1.0	17.9
GW-1 (Well)	3/25/2023	0.0	0.0	0.0	21.1
	3/26/2023	0.0	0.0	0.0	20.9
	3/27/2023	0.0	0.0	0.0	20.9
	3/28/2023	0.0	0.0	0.0	21.0
	3/29/2023	0.0	0.0	0.0	20.9
	3/30/2023	0.0	0.0	0.0	20.8
	3/31/2023	0.0	0.0	0.0	20.9
GW-2P (Well)	3/25/2023	NM	NM	NM	NM
	3/26/2023	NM	NM	NM	NM
	3/27/2023	0.0	0.0	0.0	20.9
	3/28/2023	0.0	0.0	0.0	21.0
	3/29/2023	0.0	0.0	0.0	20.9
	3/30/2023	0.0	0.0	0.0	20.9
	3/31/2023	0.0	0.0	0.0	20.9
CB-23	3/25/2023	0.0	0.0	0.0	21.0
	3/26/2023	0.0	0.0	0.0	20.9
	3/27/2023	0.0	0.0	0.0	20.9
	3/28/2023	0.0	0.0	0.0	20.9
HYD-13	3/27/2023	0.0	0.0	0.0	20.9
HYD-5	3/28/2023	2.0	2.0	0.1	19.3
EM-3	3/31/2023	0.0	0.0	0.0	21.0

Notes:

1. LEL = Lower Explosive Limit
2. NS = Not Sampled

Shaded Values Equal or Exceed MassDEP Limit of 10% LEL of Methane Within a Utility

-- = Not Measured

SWC - Storm Water Culvert

CB- Catch Basin

DM - Drain Manhole

EM - Electrical Manhole

ICB - Irrigation Control Box

HYD - Hydrant

Appendix C
Danehy Park Landfill, Cambridge – 24-hour Landfill Gas
Exceedances Notification

Jones, Nathan E.

From: Jones, Nathan E.
Sent: Monday, March 13, 2023 3:46 PM
To: Fairbrother, Mark (DEP)
Cc: Morey, John (DEP); Spieler, Richard (DEP); Wilcox, Jim; Friedman, Jerry; 'Greg Katz'; bhaskell@langdonenv.com; Miller, Andrew; Dolan, Michael
Subject: Danehy Park Landfill Cambridge - Notice of Landfill Gas Exceedance - 3/13/2023
Attachments: Danehy Park - Site Plan.pdf

Mark,

In accordance with 310 CMR 19.132(4)(h), CDM Smith on behalf of the City of Cambridge notifies MassDEP that during landfill gas sampling conducted today, Monday, March 13, 2023, at Danehy Park (former New Street Landfill), the concentrations of methane gas exceeded 25% of the Lower Explosive Limit (LEL) at the following landfill gas monitoring locations, shown on the attached figure:

Monitoring Well	Initial Methane (% LEL)	Final Methane (% LEL)
MW-101	268%	118%
W-5	392%	338%

These results are consistent with previous monitoring conducted at the Site.

Methane was detected above the 25% LEL regulatory limit in monitoring well MW-101, located northeast of the Evolve Fitness Building. No methane exceedances were found in nearby monitoring wells MWW-3, MWW-5, or GW-2. The area beyond well MW-101 is mostly businesses and paved private property, so no further probes could be conducted to assess gas migration. Methane was not detected inside the nearby Evolve Fitness Building. The last exceedance at MW-101 was during the December 2022 round.

Methane was detected above the 25% LEL regulatory limit in monitoring well W-5, located near Briston Arms Apartments. Methane was detected in nearby monitoring well W-3, but below the 25% LEL regulatory limit. Methane was last detected in excess of 25% LEL in well W-5 during the June 2022 round. The area beyond well W-5 is paved private property (Briston Arms). As noted in the revised Post-Closure Monitoring and Maintenance Plan (December 2020), currently under review by MassDEP, waste and methane in excess of 25% of the LEL are known to be present in the subsurface on both the Danehy Park and Briston Arms properties. Therefore, the City requested eliminating the compliance boundary between the two properties pursuant to the reporting requirements of 310 CMR 19.132(4)(h). The City will continue to report exceedances of 25% LEL in wells located along the property boundary with Briston Arms, which includes W-3 and W-5, while this request is under review by MassDEP.

Methane was also detected at well GW-9R, located in front of the new apartment building at 77 New Street, but both the initial and final readings were below 25% LEL. GW-9R was installed in March 2021 to replace GW-9, which had been destroyed by the construction at 77 New Street. GW-9R has had similar methane concentrations close to the 25% LEL regulatory limit during the previous six quarterly rounds. No methane was detected in PROBE-5, located behind (west of) the 77 New Street building.

If you have any questions or concerns, please feel free to contact me at (617) 452-6563.

Thank you,
Nathan

Nathan E. Jones, PE, PMP

Environmental Engineer | Project Manager

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