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# **2<sup>nd</sup> QUARTER LANDFILL GAS MONITORING June 2021**

**Berkley Landfill  
County Street  
Berkley, Massachusetts  
Facility #384031**

*Prepared for*

**Waste Management Disposal Services of Massachusetts, Inc.**  
c/o 600 New Ludlow Road  
South Hadley, Massachusetts 01075

*Prepared by*

Geosyntec Consultants, Inc.  
289 Great Road, Suite 202  
Acton, Massachusetts

Project Number BR03211

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## 1. INTRODUCTION

Geosyntec Consultants, Inc. (Geosyntec) has prepared this quarterly landfill gas monitoring report on behalf of Waste Management Disposal Services of Massachusetts, Inc. (WMDSM) for the former Berkley Landfill located on County Street in Berkley, Massachusetts (the Site). This landfill gas monitoring report is being submitted in accordance with the January 15, 2010 Post-Closure Monitoring Plan (the Plan) to the Massachusetts Department of Environmental Protection (MassDEP). On behalf of Geosyntec, Katahdin Analytical Laboratories, Inc. (Katahdin) conducted landfill gas monitoring at the Site on June 16, 2021 in accordance with 310 CMR 19.132(5). Geosyntec has reviewed the findings, and this report provides a summary of the monitoring.

The landfill gas monitoring wells and bar hole probe locations were sampled under initial conditions and steady state conditions. Initial condition concentrations were measured immediately after opening the stopcock valve or extracting the bar hole probe and are representative of landfill gas that might accumulate in a confined space over time. After initial conditions were recorded, each location was purged for approximately two minutes at five liters per minute using an air pump. After purging, the steady state landfill gas concentrations were measured. The landfill gas vents and catch basins were monitored under initial conditions only.

### 2.2 Results

As required by the Plan, five landfill gas probes (GP-1, GP-2, GP-9, GP-10, and GP-12) were monitored along the property boundary. Methane was detected only in GP-2 under both initial and steady state conditions at 0.7% (14% of LEL) and 0.3% (4% of LEL), respectively. Detected methane concentrations at GP-2 were below the 24-hour notification limit (2.3% LEL).

In response to previous methane exceedances at GP-1 and GP-5, and as required by the Plan, in November 2015 Katahdin began advancing bar hole probes at five locations beyond the property boundary. Four locations (BHP-1 through BHP-4) are located between the property line and the edge of County Street. The fifth location (BHP-5) is located across County Street from BHP-2 (Figure 1). In order to better delineate methane in soil gas along the northwest landfill property boundary near GP-4, Katahdin advanced bar hole probes at three additional locations (BHP-6, BHP-7, and BHP-8; see Figure 1 for approximate locations) starting during the September 2020 monitoring event. Methane was not detected under initial or steady state conditions at any of the BHP locations (BHP-1 through BHP-8) during the June 2021 field event.

Methane was detected at soil gas vent Vent-2 at 0.1% (0.3% of LEL). Methane was not detected at soil gas vent Vent-1, at either catch basin (CB-1 and CB-2), nor in the ambient air sample, which was collected near the front entrance to the landfill.

Oxygen was detected at all locations monitored during the June 2021 field event under initial and steady state conditions at concentrations ranging from 20.5% to 21.1%. The ambient oxygen concentration was measured as 21.1%.

Hydrogen sulfide was not detected at any of the locations monitored during the June 2021 field event including the ambient reading.

NMVOCs were detected at eleven of seventeen monitoring locations under initial conditions at concentrations ranging from 0.1 to 6 ppm<sub>v</sub>. Under steady state conditions, NMVOCs were detected at five of thirteen monitoring locations at concentrations ranging from 0.1 to 1.8 ppm<sub>v</sub>. The ambient NMVOC concentration was measured as 0.0 ppm<sub>v</sub>.



# TABLE

**Table 1**  
 Landfill Gas Monitoring Results  
 June 16, 2021

Berkley Landfill - Berkley, Massachusetts

Units	GP-1	GP-2	GP-9	GP-10	GP-12	Vent-1	Vent-2	CB-1	CB-2	BHP-1	BHP-2	BHP-3	BHP-4	BHP-5*	BHP-6	BHP-7	BHP-8	Ambient
<b>Initial Condition</b>																		
Methane	0.0	0.7	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
% of LEL	0	14	0	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0
Oxygen	20.8	20.5	20.9	20.9	20.7	20.9	21.0	21.1	21.0	21.0	21.0	21.0	20.8	20.9	20.8	20.8	20.8	21.1
Hydrogen Sulfide	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NMVOCS	2.0	0.4	0.0	0.0	0.2	0.1	0.1	0.0	0.0	4.0	0.1	0.0	0.1	0.2	0.1	0.0	6.0	0.0
<b>Steady-State Condition</b>																		
Methane	0.0	0.2	0.0	0.0	0.0					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
% of LEL	0	4	0	0	0					0	0	0	0	0	0	0	0	0
Oxygen	20.8	20.7	21.0	20.9	20.9					21.0	21.0	21.0	20.9	21.0	20.9	20.9	20.8	20.8
Hydrogen Sulfide	0	0	0	0	0					0	0	0	0	0	0	0	0	0
NMVOCS	0.7	0.3	0.0	0.0	0.1					1.8	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0

Notes:

Weather: Clear; wind ENE 0-5 mph

Time: 14:20

Temp: 76°F

Rel Humidity: 70%

Bar. Pressure: 29.71

Monitoring Data was collected by Katahdin Analytical Laboratories, Inc. on June 16, 2021.

Ground Conditions: Clear no mud or puddles

Abbreviations: ppm = parts per million

LEL = lower explosive limit

NMVOCS = non-methane volatile organic compounds

\*BHP-5 is located across the street from landfill gated entrance. BHP-1-4 and 6-8 are located on same side of street as the landfill.

FIGURE