



Consulting
Engineers and
Scientists

July 14, 2023
Project 2203514

Mr. Isidoro Albino
Director of Operations
Empire Outlets at St. George
c/o Jones Lang LaSalle
35B Richmond Terrace, Suite MGMT
Staten Island, New York 10301

Dear Mr. Albino:

**Re: Quarterly and Annual Inspections: Methane Monitoring System and Sub-Slab
Depressurization System
Empire Outlets
55 Richmond Terrace, Staten Island, New York**

GEI Consultants, Inc., P.C. (GEI) is pleased to submit this annual inspection report describing the activities completed for the methane monitoring system and the sub-slab depressurization system (SSDS) for the Empire Outlets at St. George, Staten Island, New York (the Site). The Site is part of the New York State Brownfield Cleanup Program (BCP), and the remedial action approved for the Site by the New York State Department of Environmental Conservation (NYSDEC) required the implementation of engineering controls (EC) intended to address potential vapor intrusion into the buildings constructed as part of the site redevelopment. As described in the Site Management Plan (SMP) prepared for the Site by AKRF in 2016, the vapor intrusion mitigation requirements include a passive SSDS and a methane monitoring system.

This annual report is focused on the operation, maintenance, and monitoring activities performed during the reporting period. The SSDS and site cover system were inspected on June 7, 2023. The methane monitoring system was calibrated, and bump tested on July 12, 2023.

Site Description

The Site is situated on the waterfront between the Richmond County Bank Ballpark and the Staten Island Ferry in the St. George area of Staten Island. It comprises a multi-level shopping mall and attached parking. The building is supported by piles. The slab elevation of Parking Level 1 (P1) is approximately 5 ft lower than the elevation of the Retail Level 1 (R1) slab. Due to the presence of shallow groundwater, GEI understands that the P1 slab is designed to withstand hydrostatic pressure. There are no subsurface structures below the slabs. The floor of Parking Level 2 (P2), which sits above P1, is approximately 9 feet above the P1 floor.

The passive SSDS is comprised of perforated PVC piping placed in a layer of crushed stone beneath the floor slab in R1. Vapors that may accumulate beneath the slab are directed to the building roof by solid risers that vent to the atmosphere. Vapor barriers are installed on the bottom of the R1 and P1 slabs to mitigate the potential for vapors to migrate from the subsurface

into buildings. At the Empire Outlets, these vapors include volatile organic compounds (VOC) and methane.

The methane monitoring system is installed in the eight retail spaces located on R1, and in two enclosed spaces in P1. The retail location currently occupied by a Haagen-Dazs ice cream store is a stand-alone structure, and the conduit that connects the detector in that store to the control panel is underground. Each of the other monitored locations are part of the main retail and parking structure.

The methane monitoring system is comprised of three components: sensors that are specifically designed to detect methane as a percent of the lower explosive limit (% LEL); a control panel with integrated audible and visual alarms that allow an operator to monitor multiple sensor locations; and communication cables that connect the sensors to the control panels. A total of 16 sensors are installed at the facility.

The methane monitoring system is manufactured by Honeywell and includes the Sensepoint XCL detector and the 301C Controller. The Sensepoint XCL is designed to detect combustible gasses in a range from 0 to 100% LEL, calibrated to methane. Each sensor is fitted with a port that allows the sensor to be routinely bump tested and calibrated. Bump testing is a qualitative assessment to ensure that system components are functioning, whereas calibration ensures that readings made by sensors are accurate. In addition, the sensors include an LED status indicator facilitating confirmation of the operating condition of the sensor.

Annual Inspection

Annual inspections and post-construction Operations, Monitoring and Maintenance (OM&M) activities are described in the Site-specific OM&M Manual and in the SMP. As required for all sites in the BCP that incorporate ECs, the SMP requires an annual inspection of ECs installed at the site and documentation of the inspection in a report submitted to NYSDEC.

The inspection was conducted in accordance with Section 3.3 of the OM&M Manual and Sections 3.2, 3.3, 4.3 and 4.4 of the SMP and included:

- Observations of the integrity of the cover system.
- Visual inspection of accessible parts of the SSDS, principally SSDS monitoring points.
- Monitoring indoor air quality using a hand-held meter to measure percent methane by volume, concentrations of combustible gases (lower explosive limit or LEL) and percent oxygen.
- Using a hand-held meter to monitor sub-slab vapor for percent methane by volume, LEL and percent oxygen at installed vapor monitoring points.
- Review of maintenance and repairs made to the system during the prior year.
- Inspection, testing and calibration of the methane detection sensors and the system controller in accordance with the manufacturer's recommendations.

Cover System

Visual inspection of the integrity of the site cover system was performed on June 7, 2023. The cover system consists of building slabs with vapor barrier and paving materials along the waterfront esplanade. No evidence of damage to the site cover system or of soil disturbance

activities was observed. Facilities management at the site informed GEI that no soil disturbing activities have been performed, and no new penetrations of the building slabs have been made. A copy of the Site-Wide Inspection Form completed during this inspection is included in Appendix A.

Sub-Slab Depressurization System

All accessible parts of the SSDS were visually inspected on June 6, 2023. Six vapor monitoring points (MP-1 through MP-6) were opened and found to be in good condition. The headspace of each monitoring point was screened with a multi-gas meter, with the exception of MP-2, which requires a quick connect fitting that was not available during this inspection. The multi-gas meter used was a Rae Systems MultiRAE, serial number MBB3Z021P4. No field detections of VOCs or methane were observed in any of the monitoring points. Soil vapor screening data is recorded on the SSDS Inspection Form, included in Appendix A. Photos documenting the condition of the monitoring points are included in Appendix B.

Six SSDS roof vents (VR-1 through VR-6) were visually inspected and found to be in good condition. Photos documenting the condition of the roof vents are included in Appendix B.

Indoor Air Quality Screening

On June 7, 2023, GEI performed indoor air quality screening for methane and VOCs using a multi-gas meter in each room of the R1 and P1 spaces. The multi-gas meter used was a Rae Systems MultiRAE, serial number MBB3Z021P4. The handheld meter was used to screen indoor air in the breathing zone throughout each space and at each methane detector location.

Methane and VOCs were not detected in any of the monitored locations. A copy of the indoor air screening log is included in Appendix A.

Quarterly Methane Detector Bump Test

On July 12, 2023, GEI performed bump testing and field calibration of the methane monitoring system. Each of the 16 detectors was tested using vendor supplied calibration gas containing methane at a concentration of 50% LEL. Direct readings were obtained from each detector by connecting to the detector via Bluetooth using the Honeywell Sensepoint mobile app. All detectors were field calibrated using a two-point calibration to 0% LEL (ambient indoor air) and 2.5% by volume methane gas (50% LEL) (vendor supplied calibration gas). A confirmatory bump test was performed following each successful calibration.

All methane detectors were reading 0% LEL upon initial inspection. Nine detectors passed calibration and bump testing. Two detectors (Lids Front-of-House and Walgreens Back-of-House) were unable to connect to the Sensepoint mobile app and could not be tested or calibrated. The remaining five detectors passed zero calibration but failed multiple attempts at span calibration. Testing data is included in Appendix A.

Scheduled Maintenance

Based on the site inspection and indoor air quality readings the Institutional and Engineering Controls implemented at the site are functioning and are protective of human health. However, maintenance is required on some components of the methane monitoring system as described below:

- GEI will order the appropriate quick connect fitting to enable multi-gas meter readings to be taken from SSDS monitoring point MP-2 during future inspections.
- The system installer (Donovan Electric) will consult with their supplier and/or the manufacturer (Honeywell) regarding the two detectors that failed to connect to the Bluetooth app and the five detectors that failed span calibration. These seven detectors will be repaired, replaced, or reconfigured, as necessary, to restore functionality.
- Following restoration of the above-mentioned seven methane detectors, GEI will bump test the detectors to confirm functionality. Field calibration will be performed by GEI if bump test readings are found to be out of range.

Documentation of the implementation of the maintenance activities will be reported in the September 2023 quarterly inspection report described below.

Follow-up Inspection

The next anticipated site inspection is the quarterly methane monitoring system bump test scheduled for September 2023. This report will also include the results of the implementation of necessary maintenance activities.

Please contact Henry Gold (917-836-2011/hgold@geiconsultants.com) or Gary Rozmus (631-988-3089/grozmus@geiconsultants.com) if you have any questions.

Sincerely,

GEI CONSULTANTS, INC., P.C.



Henry Gold
Senior Environmental Professional



Gary A. Rozmus, P.E.
Senior Consultant

Attachments

HG/GR:ag

Appendix A

Inspection Documents

Michael Bobuski
 WED
 7/12/23

Semi-annual Methane Gas Detector Bump Test

Methane Monitoring System: Operation, Maintenance, and Monitoring Manual
 Empire Outlet Shops
 55 Richmond Terrace
 Staten Island, New York
 NYSDEC Site ID No. V-00228

Methane Gas Detectors						
Sensor #	Location	Initial (% LEL)	Bump Test (% LEL)	Condition Satisfactory (check one)		Notes (describe status if not satisfactory; requires maintenance or repair, etc)
				Yes	No	
* 1	Bake Culture - Front	0	50	X		Calibrated: 0/50% LEL
→ 2	Bake Culture - Rear	0	50	X		Calibrated: 0/50% LEL
* 3	Haagen Dazs - Front	0	97		X	Calibrated: 0/Failed span (97)
→ 4	Haagen Dazs - Rear	0	50	X		Calibrated: 0/50% LEL *Missing cover
→ 5	Lids - Front	—	—		X	Certificate verification failure
6	Lids - Rear	0	26		X	Calibrated: 0/Failed span
7	Starbucks - Front	0	20		X	Calibrated: 0/Failed span
8	Starbucks - Rear	0	26		X	"Failed to load device data" Calibrated: 0/Failed Span
9	Walgreens - Front	0	17		X	Calibrated: 0/Failed span
10	Walgreens - Rear	—	—		X	"Failed to load device data"
11	Wetzels Pretzels - Front	0	46	X		Calibrated: 0/50% LEL
* 12	Wetzels Pretzels - Rear	0	46	X		Calibrated: 0/50% LEL
13	Vacant Unit #102A	0	50	X		Calibrated: 0/50% LEL
* 14	Vacant Unit #104	0	50	X		Calibrated: 0/50% LEL
* 15	Guard Booth	0	50	X		Calibrated: 0/50% LEL
* 16	Fuel Oil Room	0	50	X		Calibrated: 0/50% LEL

Note:
 1. LEL = lower explosive limit

6/31
 Michael Bohuski
 6/7/23
 WED

Annual Indoor Air Quality Screening

Methane Monitoring System: Operation, Maintenance, and Monitoring Manual
 Empire Outlet Shops
 55 Richmond Terrace
 Staten Island, New York
 NYSDEC Site ID No. V-00228

Location	VOCs [ppm]	Methane [%LEL]	Oxygen [%O2]	Notes
Bake Culture	0.5	0	20.9	
Haagen Dazs	0.0	0	20.9	
Lids	0.0	0	20.9	
Starbucks	0.0	0	20.9	
Walgreens	0.0	0	20.9	Store out of business
Wetzels Pretzels	0.0	0	20.9	
Vacant Unit #102A	0.0	0	20.9	Still vacant
Vacant Unit #104	0.0	0	20.9	Still vacant
Guard Booth	0.0	0	20.9	
Fuel Oil Room	0.0	0	20.9	
P1	0.0	0	20.9	

Note:
 1. LEL = lower explosive limit

Site-Wide Inspection Form
Ballpark at St. George Stadium Site (VCA Site No. V-00228)
1 Bank Street, Staten Island, NY

Inspector: Michael Bohuski

Date: 6/7/23

1. Site Use Restrictions

No on-site vegetable gardens?

✓

No groundwater withdrawal for potable/non-potable use?

✓

Restricted commercial use maintained?

✓

2. Site Cap

Note the date that the annual site cover inspection was performed:

6/7/23

Repairs made as noted during inspection?

No repairs needed.

3. Soil Management

Note the date(s) of any soil disturbance activities conducted during the past year:

None

Proper soil management procedures implemented (cite appropriate close-out reports)?

N/A

4. Recordkeeping

Check that the following records/reports are being maintained/completed (note report/log dates as appropriate):

1) Annual site cover inspection log

Last annual inspection report 10/13/22

2) Close-out report(s) for soil disturbance activities (including manifests for soil disposal)

N/A

5. Comments

(Note any deficiencies and recommendations for corrective actions.)

None.

SUB-SLAB DEPRESSURIZATION SYSTEM INSPECTION FORM

BALLPARK AT ST. GEORGE STADIUM SITE - VCA Site No. V-00228

Inspector Name: <u>Michael Bohuski</u>	Date: <u>6/7/23</u>
Time IN: <u>9:30 AM</u>	Time OUT:

GENERAL

Weather: Cloudy Temperature: 73°F Barometric Pressure: 29.67

When was the last rain event? 6/6/23

Are all system fans operating? Yes / No / N/A (circle one)

If no, please list:

Any evidence of system tampering, vandalism or damage? No.

Are all cleanout/sampling port caps securely attached? Yes.

If no, please list location and corrective action:

BALLPARK SSDS/FAN OPERATIONS (IF APPLICABLE)

LOCATION	Vacuum Below Fan " H_2O "	PID ppb	Methane ¹ %	LEL %	O ₂ /CO ₂ %	Notes
1st base side vents - East 1 (easternmost)						
1st base side vents - East 2						
1st base side vents - East 3						
1st base side vents - East 4 (westernmost)						
3rd base side vents - West 1 (easternmost)						
3rd base side vents - West 2						
3rd base side vents - West 3						
3rd base side vents - West 4 (westernmost)						
Interior enclosed spaces						

Comments:

TERMINAL BUILDING SSDS/FAN OPERATIONS (IF APPLICABLE)

LOCATION	Vacuum Below Fan " H_2O "	PID ppb	Methane ¹ %	LEL %	O ₂ /CO ₂ %	Notes

Comments:

SUB-SLAB DEPRESSURIZATION SYSTEM INSPECTION FORM

BALLPARK AT ST. GEORGE STADIUM SITE - VCA Site No. V-00228

EMPIRE OUTLETS SSDS/FAN OPERATIONS (IF APPLICABLE)						
LOCATION	Vacuum Below Fan "H ₂ O	PID ppb ppm	Methane ¹ %	LEL %	O ₂ /CO ₂ %	Notes
⑥ MP-1		0.0		0	20.9	
⑤ MP-2						Need quick connect
④ MP-3		0.0		0	20.9	
③ MP-4		0.0		0	20.9	
① MP-5		0.0		0	20.9	
② MP-6		0.0		0	20.9	
Comments:						
Notes:						
1. Any methane levels above 3% by volume should be reported to AKRF immediately.						
1. Normal oxygen level is 19.5 - 21% in ambient air.						
CONDITION OF FOUNDATION SLABS						
Are there any signs of cracking or other damage? Yes (No (circle one))						
If yes, please list:						
Recommended corrective action: None						

Appendix B

Photo Log

**Appendix B – Photo Log
Annual Inspection Report
Empire Outlets
55 Richmond Terrace, Staten Island, New York**



Photo 1. June 7, 2023

SSDS inspection: vapor monitoring point MP-1.



Photo 2. June 7, 2023

SSDS inspection: vapor monitoring point MP-2.

**Appendix B – Photo Log
Annual Inspection Report
Empire Outlets
55 Richmond Terrace, Staten Island, New York**



Photo 3. June 7, 2023

SSDS inspection: vapor monitoring point MP-3.



Photo 4. June 7, 2023

SSDS inspection: vapor monitoring point MP-4.

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Photo 5. June 7, 2023

SSDS inspection: vapor monitoring point MP-5.



Photo 6. June 7, 2023

SSDS inspection: vapor monitoring point MP-6.

**Appendix B – Photo Log
Annual Inspection Report
Empire Outlets
55 Richmond Terrace, Staten Island, New York**

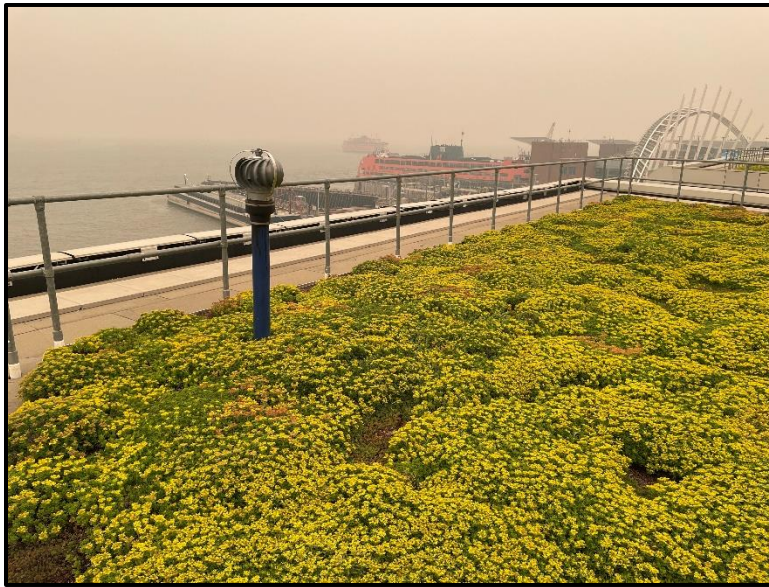


Photo 7. June 7, 2023

SSDS inspection: roof vent VR-1 with surrounding rooftop.

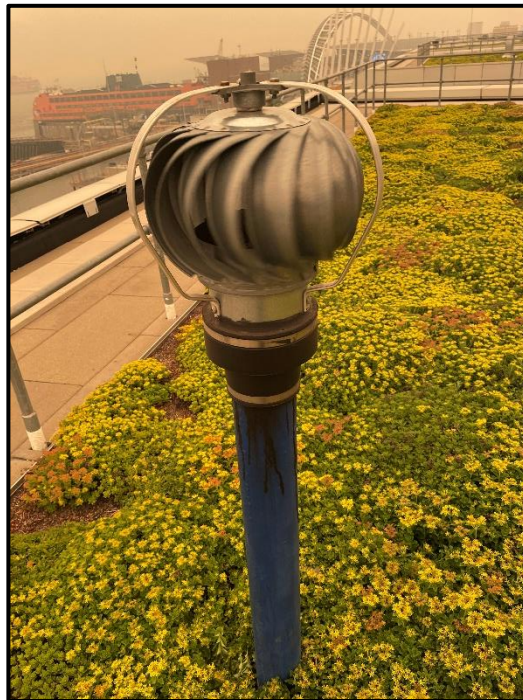


Photo 8. June 7, 2023

SSDS inspection: roof vent VR-1.

**Appendix B – Photo Log
Annual Inspection Report
Empire Outlets
55 Richmond Terrace, Staten Island, New York**

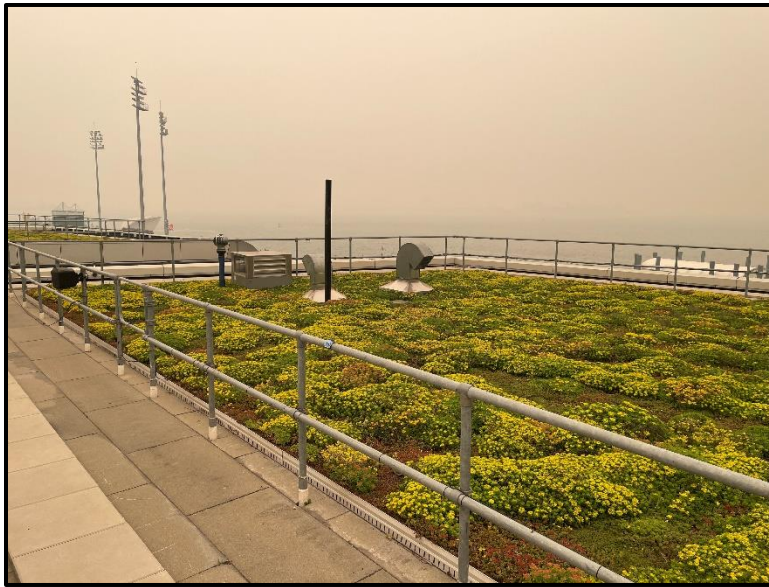


Photo 9. June 7, 2023

SSDS inspection: roof vent VR-2 and surrounding rooftop.



Photo 10. June 7, 2023

SSDS inspection: roof vent VR-2.

**Appendix B – Photo Log
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55 Richmond Terrace, Staten Island, New York**



Photo 11. June 7, 2023

SSDS inspection: roof vent VR-3 and surrounding rooftop.



Photo 12. June 7, 2023

SSDS inspection: roof vent VR-3.

**Appendix B – Photo Log
Annual Inspection Report
Empire Outlets
55 Richmond Terrace, Staten Island, New York**

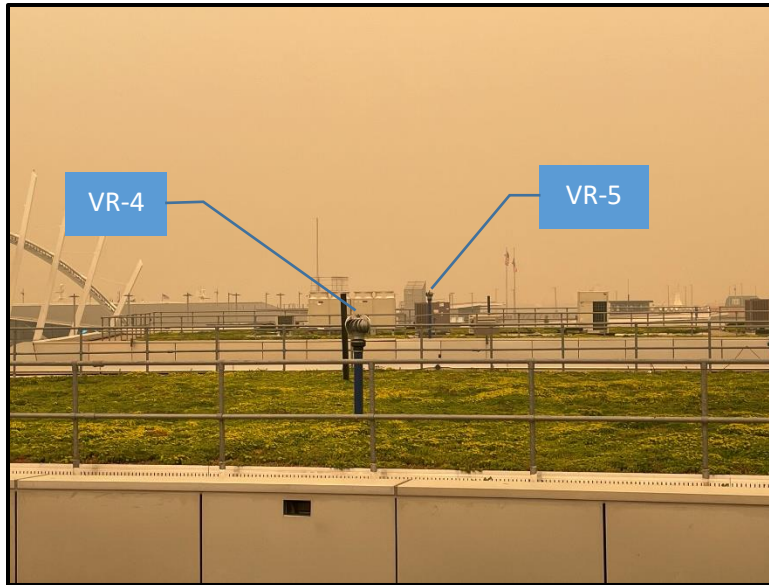


Photo 13. June 7, 2023

SSDS inspection: roof vents VR-4 and VR-5.

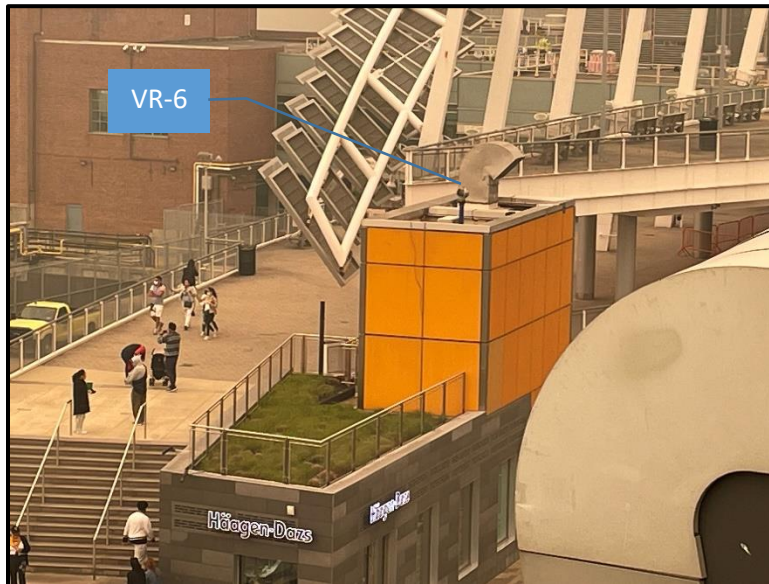


Photo 14. June 7, 2023

SSDS inspection: roof vent VR-6.