Brookfield Avenue Landfill

Staten Island, New York
NYSDEC Site No. 243006

Post-Closure Operation, Maintenance And Monitoring Program

Tenth Post-Closure Year Annual Summary Report

And

Second Five-Year Review Report and Second Periodic Review Report

July 2025

New York City Department of Parks and Recreation
Olmsted Center
Flushing Meadows Corona Parky
Flushing, New York 11368

NYC Parks

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Acronyms and Abbreviations

40 CFR Part 98.340	Title 40 of the Code of Federal Regulations, Air Programs – Mandatory Greenhouse Gas Reporting, Subpart HH – Municipal Solid Waste Landfills
6NYCRR	Title 6 New York Codes, Rules, and Regulations
ANS	Ancillary Systems
BAL	Brookfield Avenue Landfill
BWT	Bureau of Wastewater Treatment
CH_4	Methane
Class GA	New York State Class GA Ambient Water Quality Standards and Guidance Values for groundwater presented in the NYSDEC Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1, "Ambient Water Quality Standards and Guidance Values"
CO_2	Carbon Dioxide
CPP	Corrugated Plastic Pipe
DP-1	Deficiency and Problems Form
ECs	Engineering Controls
ESD	Emergency Shutdown
FCS	Final Cover System
FDNY	Fire Department of New York
FER	Final Engineering Report
gpd	gallons per day
gpm	gallons per minute
ICs	Institutional Controls
InWC	Inches of Water Column
IWD	Industrial Wastewater Discharge
JMP	JMP Statistical Discovery, LLC
LEL	Lower Explosive Limit
LFG	Landfill Gas
LFGMS	Landfill Gas Management System
LGM	Landfill Gas Management
LLDPE	Linear Low Density Polyethylene
LMS	Leachate Management System
LSE	Leachate Sump East
LSW	Leachate Sump West
LTMWs	Long-term Monitoring Wells
MCL	Maximum Contaminant Level
NA	Not Applicable
NS	Not Satisfactory
NYCDPR	New York City Department of Parks and Recreation
NYCDEP	New York City Department of Environmental Protection
NYSDEC	New York State Department of Environmental Conservation
O&M	Operation and Maintenance
O2	Oxygen

OM&M	Operation, Maintenance, and Monitoring
OU1	First Operable Unit
OU1 Monitoring Plan	OU1 Post-Closure Monitoring, Sampling, and Analysis Plan
OU2	Second Operable Unit
PCBs	Polychlorinated Biphenyls
PFAS	Per- and Polyfluoroalkyl Substances
ppm	Parts per million
PRR	Periodic Review Report
PVC	Polyvinyl Chloride
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPZ	Reduced Pressure Zone
SCF	Standard cubic feet
SCFM	Standard cubic feet per minute
SCS	SCS Field Services
SEM	Surface Emissions Monitoring
SMP	Site Management Plan
SMR	Self-Monitoring Report
SVOCs	Semivolatile Organic Compound
SWM	Stormwater Management
TC	Thermocouple
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
TRC	TRC Engineers, Inc.
UPS	Uninterruptible Power Supply
USEPA	United States Environmental Protection Agency
UV	Ultraviolet
VOCs	Volatile Organic Compounds
WILO	WILO USA Pump & Pump System Manufacturers

1. Introduction

The Brookfield Avenue Landfill (BAL) site completed its tenth annual post-closure reporting period on March 31, 2025. This Report was prepared by the New York City Department of Parks and Recreation (NYCDPR) to fulfill the reporting requirements contained in the BAL Operation and Maintenance (O&M) Manual, which also serves as the Site Management Plan (SMP) dated April 2013, as well as the Addendum to the SMP issued in October 2021, the BAL Monitoring Plan (as modified), and 6NYCRR Parts 363 and 375. A copy of the O&M, SMP, and addendum to the SMP are provided in **Appendix J**.

This Report is organized into the following Sections:

- Section 2: Site Background – This Section provides a description of the BAL site and summarizes its pertinent history and significant remedial events from the initial Remedial Investigation Report in 1998 through 2017 when NYCDPR opened the site to the public as Brookfield Park in accordance with its end use plan.

- Section 3: Tenth Post-Closure Year Annual Summary Report – This Section summarizes the operation, maintenance and monitoring (OM&M) activities conducted at the site during the tenth annual post-closure reporting period from April 2024 through March 2025.

- Section 4: Second Five-Year Review and Periodic Review Report – This Section provides an overall summary and review of the post-closure OM&M activities at the site during the second five post-closure years as required by 6NYCRR Part 363, including a summary of the status and condition of the BAL Institutional Controls (ICs) and Engineering Controls (ECs) during the periodic review period (April 1, 2020 through March 31, 2025) as required by 6NYCRR Part 375. The executed Institutional and Engineering Controls Certification Form for the periodic review period accompanies this Report.

- Section 5: Conclusions and Recommendations – This Section provides conclusions and recommendations related to the site's remedial systems and post-closure OM&M activities based on the second five years of post-closure work.

The combined purpose of this Report has been accepted by the New York State Department of Environmental Conservation (NYSDEC) and provides an efficient reporting and review process that meets the requirements of 6NYCRR Parts 363 and 375. Unless otherwise directed by the NYSDEC, the Third Five Year Review and Periodic Review Report (PRR) for the site will be submitted at the end of the third five-year review period, covering the period from April 1, 2025, through March 31, 2030. That Report will follow the same format and will include the 15th Annual Summary Report.

2. Site Background

The BAL site is located at 575 Arthur Kill Road, north of Arthur Kill Road and east of Richmond Avenue in Staten Island, New York 10308, as shown in **Figure 1**. Prior to remediation, the site was listed as a Class 2 site on the NYSDEC's Registry of Inactive Hazardous Waste Disposal Sites (Site #243006). From 1966 through 1980, the City of New York placed 5.1 million cubic yards of municipal solid waste on 132-acres of the 272-acre site. Illegal industrial and hazardous waste dumping, including waste oil, sludges, metal-plating wastes, lacquers, and solvents, is also reported to have occurred at the BAL during this period.

Beginning in 1982, a number of site investigations were undertaken in response to the reports of illegal dumping. In 1983, the NYSDEC listed the BAL site as a Class 2a Inactive Hazardous Waste Disposal Site. A 1992 Order of Consent issued by the NYSDEC required the City of New York to develop and implement a remedial program for the site. Between 1993 and 2000, a Remedial Investigation/Feasibility Study (RI/FS) was conducted to investigate the nature and extent of contamination and assess hazards to human health and the environment. The RI/FS was designed to augment previous studies and assist selection of the appropriate remedial action alternative.

Operable Unit 1 (OU1) at the site was remediation of the landfill. A Record of Decision (ROD) for OU1 was published in March 2002. It presented several remedial alternatives, and the selected alternative entailed: capping, active landfill gas collection, leachate collection, and a barrier wall. The specific components of the selected OU1 remedy are summarized below:

- Construction of a 6NYCRR Part 360 landfill cap, featuring a gas-venting layer, synthetic membrane barrier layer, barrier soil protection layer, and vegetated topsoil layer.
- Construction and operation of an active gas-collection system.
- Installation of a barrier wall around the landfill perimeter to prevent the subsurface discharge of leachate and landfill gas.
- Construction of a surface water runoff collection system.
- Construction of a leachate collection system bordering Richmond Creek.
- Minimization of encroachment into freshwater and tidal wetlands.
- Institutional controls to ensure groundwater beneath the site is not extracted for potable use.
- Initiation of a long-term monitoring program to ensure the contained hazardous waste does not leave the site. This long-term monitoring program is a component of the O&M Plan/SMP for the site, developed in accordance with 6NYCRR Part 360 regulations.

The selected OU1 remedy also entailed the construction of landscaping, roadways, vehicle parking areas, walking trails and associated facilities. Following completion of the OU1 remedial activities, the Final Engineering Report (FER) was submitted to the NYSDEC and approved on April 6, 2015, officially initiating the post-closure period for the BAL site. In August 2017, the NYSDEC reclassified the BAL site as a Class 4 site on its Registry of Inactive Hazardous Waste Disposal Sites, recognizing that the site had been properly remediated but required ongoing site management. On December 12, 2017, the NYCDPR opened the site to the public as Brookfield Park, consistent with the approved end use plan. Post-closure OM&M activities were initially performed under the oversight of the New York City Department of Environmental Protection Bureau of Wastewater Treatment (NYCDEP BWT) until June 30, 2018, at which point

responsibility for the site was transferred to NYCDPR. The NYCDEP BWT continues to operate the Eltingville Pumping Station, located between the East and West Cells, which lies outside the boundaries of the landfill property.

The objective of the BAL OM&M program is to ensure the integrity of the remedial systems and to prevent adverse impacts to public health, safety, and the environment. The OM&M work is being conducted in accordance with the BAL Post-Closure Monitoring and Maintenance Operations Manual (O&M Manual), which was developed pursuant to 6 NYCRR Part 360 regulations and approved by the New York State Department of Environmental Conservation (NYSDEC) as the SMP dated April 2013, as well as the Addendum to the SMP issued in October 2021, as required under 6 NYCRR Part 375. The replacement landfill regulations under 6 NYCRR Part 363 became effective on November 4, 2017 and were updated on July 22, 2023, and the applicable provisions have been implemented at the site, as detailed in this Report.

The ROD for the BAL Second Operable Unit (OU2) requires monitoring the chemical characteristics of surface water and sediment in Richmond Creek, as well as sediment quality in the adjacent tidal marsh and tributaries. This monitoring is to be conducted during the 5th, 10th and 20th years following completion of the OU1 remedy. Baseline monitoring for OU2 was conducted in the fourth quarter of 2013, following the substantial completion of the OU1 remediation. The 5th-year monitoring event was conducted during the third quarter of 2018, coinciding with the five-year review period, and the results were submitted to the NYSDEC in a separate report. The 10th-year monitoring event was conducted in September 2024 as part of this monitoring period, with the results documented and submitted to the NYSDEC in a separate report.

The BAL is also subject to the United States Environmental Protection Agency (USEPA) Greenhouse Gas Reporting Program, as specified under 40 CFR Part 98, Subpart HH regulations – Municipal Solid Waste Landfills of the Mandatory Greenhouse Gas Reporting Rule. Accordingly, a greenhouse gas monitoring plan for the site was prepared, the required data was collected, and the annual greenhouse gas reports were submitted to the USEPA.

3. Tenth Post-Closure Year Annual Summary Report

This BAL Annual Post-Closure OM&M Summary Report section was prepared by NYCDPR to fulfill the reporting requirements contained in the O&M Manual, which also serves as the SMP dated April 2013, as well as the Addendum to the SMP issued in October 2021, the OU1 Post-Closure Monitoring, Sampling and Analysis Plan (OU1 Monitoring Plan), and 6NYCRR Parts 360 and 363. This section of the report documents the OM&M activities performed between April 1, 2024, and March 31, 2025. The field and laboratory data related to these OM&M activities, as well as summary tables and figures for the post-closure environmental monitoring sample results, are provided in subsequent subsections.

3.1 Leachate Management System

3.1.1 System Description

The leachate management system (LMS) is one of the components of the selected remedy in the BAL ROD**.** The leachate collection, pre-treatment, and disposal system were designed to control leachate produced via the percolation of rainwater through the waste materials and infiltration of groundwater through waste material and to produce a treated effluent acceptable for discharge to the Eltingville Pumping Station. From there, it is pumped to the Oakwood Beach Water Pollution Control Plant for subsequent treatment.

The primary elements and components of the LMS are the leachate collection trenches located around the periphery of the landfill cells inside their barrier walls, with a total of nine pumps that direct flow to the on-site oil/water separator system before discharge to the on-site Eltingville Pumping Station (**Figure 2**). The East and West Cells of the landfill have separate leachate collection and pumping systems, which run along their northern boundaries. The leachate trench systems consist of 6-inch-diameter perforated, corrugated polyethylene piping within stone-filled trenches underlying each cell's final cover system. The East Cell has approximately 4,000 linear feet of leachate collection trench, and 1,800 linear feet in the West Cell.

The BAL leachate management system includes six (6) collection sumps within the East Cell trench and three (3) within the West Cell trench, with leachate conveyed to these sumps via gravity. Each sump is equipped with two (2) approximately 20-gallon per minute (gpm) pumps (one operating and one standby). The pumps convey leachate to two (2) 150-gpm oil/water separator units, which are designed to reduce the free-oil content of the collected leachate to below the required sanitary sewer discharge limits. Additionally, trace condensate from the landfill gas collection system is directed to the oil/water separator. Following oil/water separation, the treated leachate flows by gravity through a Parshall flume metering manhole and then into the influent manhole of the Eltingville Pumping Station. From there, it is pumped to the Oakwood Beach Water Pollution Control Plant for subsequent treatment. Under the current NYCDEP Industrial Wastewater Discharge (IWD) Permit No. 23-P3149-1 (expires August 9, 2028), the maximum allowed leachate discharge rate is 288,000 gallons per day (gpd), although long-term flows are expected to decrease to approximately half this volume. Monthly discharge water quality sampling and quarterly reporting are performed as required under the IWD Permit.

3.1.2 System Operation, Maintenance and Monitoring Summary

During this annual reporting period, the leachate management system was operated, monitored, inspected and maintained in accordance with the O&M Manual/SMP requirements. The preventative maintenance required on the leachate management system consisted of inspections of the piping, sumps and manholes to ensure the system was operating properly. Periodic inspections of the areas around the sump manholes were conducted to ensure no overflows had occurred and verify no obstructions were affecting the under-drain pipes where they exit the drainage system. The inspection and maintenance tasks performed during this annual reporting period are summarized on forms submitted to NYCDPR. When necessary, a DP-1 form, "Description of Deficiencies and Problems," is used to highlight specific problems requiring timely attention. The leachate management system inspection and monitoring documentation for this annual reporting period is included in **Appendix F**. The deficiencies and issues as of March 2025 are included in the following table:

BROOKFIELD AVENUE LANDFILL SITE	
Description of Stormwater System Deficiencies and Problems – Tenth Post-Closure Year	
Description	**Location**
Excess vegetation around outfall structure	2EN, 7EN, 2ES, 4ES, 2WN, 4WE, 6WE, and 4WW
Damage to the outfall structure	2EN and 7EN
Erosion control fabric visible – erosion/washout	Not observed
Sediment build-up at the outfall structure	Not observed
Standing water in the pipe at outfall structure	3ES, 9ES, 5EW, 3WN, 2WS, 3WS, 2WE, 4WE, 5WE
Erosion around the outfall pipe	Not observed
Sediment build-up in the pipe	4ES

On July 23, 2023, the NYCDEP IWD Permit for the leachate management system discharge was updated to reflect NYCDPR as the Permit's Industrial User. Permit No. 23-P3149-1 is effective August 10, 2023, through August 9, 2028. Monthly leachate sampling and analysis were performed during this annual reporting period as required by the permit. The results indicate that no exceedances of the permitted discharge limits occurred during this annual reporting period. The Quarterly Self-Monitoring Reports were submitted to the NYCDEP Industrial Pre-Treatment & Permit Section by the due dates. A copy of the Quarterly Self-Monitoring Reports for this annual reporting period, including laboratory results, along with a copy of the IWD Permit is provided in **Appendix C.**

Throughout this annual reporting period, all 18 leachate pumps, two (2) per sump, were tested for live electrical load and operational functionality. Water-level elevations and pump run-time hours were also recorded. As presented in **Table 1**, the total cumulative pump run time was 16,989.1 hours, with an average of 943.8 hours per pump. **Table 2** shows that the total volume of

leachate collected and treated during this reporting period was 14,359,329.6 gallons, corresponding to an average daily flow of 39,440.9 gpd.

The frequency of sump pump maintenance has been adjusted based on the recommendations contained in the WILO USA Pump & Pump System Manufacturers (WILO) Pump O&M Manual (Appendix B of BAL O&M Manual Appendix E, Equipment Manual). Specifically, the WILO Pump O&M Manual recommends maintenance be performed once every 8,000 operating hours or after two years, whichever occurs first. Based on data from the first three years of post-closure operations, it has been determined that routine maintenance is required biennially, rather than annually, unless an individual pump reaches 8,000 hours of run time prior to the two-year interval.

The biannual maintenance service on all 18 sump pumps was completed during this annual reporting period, between August 12, 2024, and August 14, 2024. During this manufacturer's maintenance event, the pumps were inspected for wear, checked for proper rotation, electrical frequency was tested, and their pump seal oil was removed and replaced.

In addition, the oil/water separator and the Parshall flume were visually inspected for flow conditions and water clarity. No free oil was observed or detected during the reporting period. Throughout the year, stormwater accumulation within the vault was routinely managed, with weekly inspections and pumping from the east and west sections of the oil/water separator as needed. Weekly inspections of the oil/water separator will continue, and any accumulated stormwater will be pumped out as necessary to maintain system functionality.

During the annual reporting period, from November 2023 through May 2024, the virtual totalizer system experienced programming errors that resulted in incorrect data tabulation. On April 9, 2024, TRC Engineers, Inc. (TRC) and JMP Statistical Discovery, LLC (JMP) were on-site to install an Uninterruptible Power Supply (UPS) at the flare station panel and to install new bypass switches in both the flare and leachate control panels. During this visit, JMP identified a faulty UPS in the leachate panel, which was subsequently removed and sent to Falcon for warranty repair.

On May 9, 2024, TRC re-installed the repaired UPS in the Leachate Management System. However, on June 28, 2024, due to continued alarm conditions, TRC again removed the UPS and returned it to the manufacturer, Falcon Electric, for further diagnosis and potential replacement. In addition, from June through July 2024, the virtual totalizer system continued to experience programming issues, further affecting data accuracy.

On September 4, 2024, TRC installed a new UPS in the leachate control panel. This replacement unit, provided under warranty, resolved the system issues and restored normal operations.

NYCDPR is currently evaluating the feasibility of automating system operational data collection for the LMS. As part of this assessment, NYCDPR is considering the installation of telemetry at the three (3) West Cell sumps and East Cell sump LSE-6. This consideration is based on operational data collected to date, which indicates that these sumps operate more frequently and play a critical role in maintaining LMS water levels. In contrast, sumps with lower operating frequency, specifically LSE-1, LSE-2, LSE-4, and LSE-5, would continue to be monitored on a

less frequent basis. Recommendations regarding future monitoring frequency for sump LSE-3 will be developed once additional data is collected and analyzed.

3.2 Landfill Gas Management System

3.2.1 System Description

The site's active landfill gas management system was designed to limit off-site migration of landfill gas and ensure compliance with applicable regulatory limits. Under the 6NYCRR Part 360 regulations in effect at the time of system design, the allowable methane limits were (1) the lower explosive limit (LEL) at the property line (i.e., 5% gas in the air) and (2) 25% of the LEL within on-site structures (i.e., 1.25% gas in the air). Under the 6 NYCRR Part 363, which went into effect on November 4, 2017 and were updated on July 22, 2023, the limit for methane at the property line was reduced to 1.25% gas in the air, while the structure limit for methane remained unchanged. The landfill gas management system continues to operate in accordance with NYSDEC Air Facility Registration Certificate No. 2-6403-00207/00005 (expires August 28, 2033).

The landfill gas collection system services the entire BAL footprint, as shown in **Figure 3.** During the OU1 remediation, 84 vertical and 16 horizontal gas-collection wells were installed across the site. Each cell is equipped with a dedicated gas collection header, both of which are connected to the centralized Landfill Gas Management Compound (Gas Compound), a fenced area (e.g., concrete barrier/fence) located north of the Eltingville Pumping Station within the central corridor between the cells.

Each blower is capable of operating within a range of 50 to 500 standard cubic feet per minute (scfm). Under typical conditions, a single blower is sufficient to manage the gas collection needs of both cells. The second blower is a backup to maintain system operation during blower maintenance or repair. The blowers are configured in parallel and discharge via a common header to the landfill gas flare. This parallel configuration allows for flexibility in the operation of the landfill gas management system and, over time, has proven to be the most effective mode of operation.

The flare is five feet in diameter and 25 feet in height and provides complete thermal destruction of methane and other landfill gas trace compounds while operating at 50-500 scfm capacity. The flare contains a flame detector and thermocouple(s) mounted in close proximity to the combustion zone to provide confirmation of combustion. In the event the flare flame is extinguished due to high wind, low combustible concentrations, or other events, the flare will automatically attempt to relight. If a relight is not accomplished, the system will automatically shut down.

3.2.2 System Operation, Maintenance and Monitoring Summary

During this annual reporting period, the components of the landfill gas management system including the gas collection system, condensate system, enclosed flare system, electrical systems, fire alarm systems, below and above ground piping, and valves, were operated, monitored,

inspected and maintained in accordance with the O&M Manual/SMP requirements. The system has been in service since startup on May 9, 2013.

Initially, the landfill gas flare was only operated when the OM&M contractor was onsite (i.e., 8 hours/day on non-holiday weekdays) due to restrictions set by the Fire Department of New York (FDNY). However, on November 2, 2016, the FDNY issued a permit authorizing continuous flare operation (24 hours/day, 7 days/week). On August 1, 2024, TRC remotely adjusted the system to reduce flare runtime to 22 hours per day. Further refinements were implemented on September 3, 2024, and October 3, 2024, reducing flare operation to 20 and then 18 hours per day, respectively, with a scheduled daily shutdown at midnight. On November 6, 2024, TRC adjusted the flare to improve flare operations, reducing the runtime to 16 hours per day, with a scheduled shut off at midnight, daily. On March 27, 2025, TRC implemented an additional adjustment, reducing flare operation to 12 hours per day, maintaining the scheduled midnight shutdown. Since that adjustment, the system has been operating consistently on this revised schedule. To date, a total of 44,593 blower operating hours have been recorded.

On November 6, 2024, a brush fire occurred in the eastern section of the site in two (2) areas along Zones 4, 5, and 6. TRC performed an inspection of the affected areas on November 7, 2024, and confirmed that no damage was observed to the Flare Station or landfill gas collection wells.

During this annual reporting period, the flare occasionally shut down automatically due to low flame temperature and insufficient available methane conditions. On each occasion, the percentage of methane available was below the 25% minimum threshold required for proper flare operation. As per the routine quarterly maintenance schedule, Blowers 301 and 302 were lubricated.

Additionally, during this annual reporting period, several operational adjustments and troubleshooting activities were performed on the landfill gas flare system by TRC to maintain optimal performance.

On May 28, 2024, TRC remotely adjusted the flare system landfill gas (LFG) inlet vacuum rate from 5.5 inches of water column (InWC) to 5.0 InWC as part of planned adjustments to improve flare performance. On May 31, 2024, TRC reverted the flare settings to the original parameters due to issues with the ultraviolet (UV) flame detector, which had triggered incorrect Low Flame Shutdown alarms. The flare returned to regular operation following this adjustment. On August 9, 2024, TRC cleared a soft fault on-site due to a thermocouple (TC) failure and a burner module fail. The flare returned to normal operation after the fault was resolved. Subsequent flame failures occurred throughout August 2024, requiring the following interventions:

- August 14, 2024: TRC and SCS Field Services (SCS) inspected and restarted the flare on-site due to a flame failure.
- August 19, 2024: TRC reset the flare on-site following another flame failure.
- August 28, 2024: TRC remotely reset the flare due to a repeat flame failure.

Further remote resets were performed by TRC due to low methane levels causing low flame conditions on October 22, 2024 and November 1, 2024. On December 23, 2024, TRC reset the flare after TRC and SCS detected a flame failure. The flare system has since returned to normal operations.

In compliance with permit requirements, the FDNY conducted the annual Emergency Shutdown (ESD) testing on June 17 and 18, 2024. Testing included mechanical, electrical, and control system features, such as combustible gas sensors, the fire alarm, manual pull box, and ESD button. All systems were found to be operable and satisfactory.

During this annual reporting period, the landfill gas flaring system processed 20,419,272 standard cubic feet (SCF) of landfill gas, with an average methane concentration of 21.4%. The flare operated for 2,854 hours. The monthly operating data for this annual reporting period are summarized in the table below:

BROOKFIELD AVENUE LANDFILL SITE			
Monthly Flare Operation – Tenth Post-Closure Year			
Month	**Average CH_4 (% by Volume)**	**Time in Service (Hours)**	**Total Flow (SCF)**
24-Apr*	31.6	579	6,637,752
24-May*	27.3	493	4,777,170
24-Jun*	27.6	368	2,854,978
24-Jul*	30.6	439	4,261,227
24-Aug*	15.4	123	255,019
24-Sep	24.1	255	475,830
24-Oct*	24.2	156	520,839
24-Nov*	20.9	97	206,228
24-Dec*	25.0	75	129,630
25-Jan	9.6	56	54,096
25-Feb	9.0	106	200,113
25-Mar	11.4	107	46,390
Monthly Average	**21.4**	**237.8**	**1,701,606**
Totals	**NA**	**2,854**	**20,419,272**

* Includes some interpolated data.
CH_4 – Methane
NA – Not applicable
SCF – Standard cubic feet

Throughout the annual reporting period, landfill gas extraction wells were monitored monthly for gas composition (percent methane [CH_4], carbon dioxide [CO_2], and oxygen [O_2]), temperature, and vacuum pressure. In addition to performance monitoring, accumulated stormwater was removed from well vaults, and condensate was drained as needed to maintain system functionality. Gas wells were also routinely inspected for physical damage and parts fatigue. Repairs, including the installation of new Fernco fittings and other minor components, were performed as required to maintain system integrity.

During winter months, de-icing of filters and valves was often necessary to remove frozen condensation that accumulated during offline periods. The landfill gas management system inspection and monitoring documentation for this annual reporting period are provided in **Appendix D**.

3.3 Final Cover System

3.3.1 System Description

The final cover system at BAL was designed to prevent infiltration of stormwater into the landfill and minimize the migration of landfill gas into the atmosphere. In accordance with the OU1 ROD, a 6 NYCRR Part 360-compliant landfill cap was constructed in 1982. The final cover system is comprised of the following components:

- A vegetated topsoil layer with a minimum thickness of 6 inches;
- A minimum 12-inch-thick barrier protection layer;
- A geocomposite drainage layer;
- A 40-mil-thick textured linear low density polyethylene (LLDPE) geomembrane liner; and
- A geocomposite gas-collection layer over 12 inches of intermediate cover material.

Additionally, the final surface includes tree planting islands, small constructed wetlands, walking trails, and designated observation areas. The final cover system components are detailed in **Figure 4**.

The O&M Manual/SMP requires the final cover system to be inspected on a quarterly basis, as well as after storm events equal to or greater than a 5-year storm event. As shown in **Figure 4**, the system is divided into seven zones for inspection. Each zone is evaluated for surface cracking, vegetative growth, vector penetration, settlement, erosion, slope stability, seepage, and signs of vandalism. Inspections are conducted by walking up and down the side slopes and traversing each zone multiple times to ensure thorough observation.

Records of each final cover system inspection are summarized on an Inspection Checklist Form FCS-1 in accordance with the requirements of the O&M Manual/SMP. Any deficiencies or items marked as Not Satisfactory (NS) on the checklist are summarized on the Deficiency and Problems Form (DP-1), which is used to guide corrective actions.

3.3.2 System Inspection and Maintenance Summary

During this reporting period, the final cover system was inspected in accordance with the O&M Manual/SMP requirements, with the exception that inspections were conducted on a monthly basis rather than quarterly. Routine vegetation management activities included grass cutting, which was performed from October 8 through October 10, 2024. Invasive tree removal and herbicide application was performed from October 23 through October 25, 2024, and November 4 through November 5, 2024. Additional tree cutting was performed on March 31st, 2025.

On November 6, 2024, a brush fire occurred in the eastern section of the site, affecting areas along Zones 4, 5, and 6. TRC conducted a follow-up inspection of the impacted zones on November 7, 2024, and confirmed that no damage had occurred to the final cover system.

During this annual reporting period, the vegetative portions of the cover system remained in satisfactory condition and did not demonstrate any significant concerns. Documentation of the final cover system inspections for this annual reporting period is provided in **Appendix E.**

3.4 Stormwater Management System

3.4.1 System Description

The stormwater management system is an integral component of the capping and closure system required under the 6NYCRR Part 360 regulations to protect the integrity of the landfill's final cover system. The system was designed to collect, transport, and discharge stormwater away from the landfill into wetland planting areas and Richmond Creek. The system reduces overall stormwater runoff rates and improves the quality of stormwater discharging to Richmond Creek. To ensure proper function, stormwater must flow unimpeded from the landfill's vegetated cover and paved surfaces into drainage swales, detention basins, and other designated conveyance features.

The stormwater management system consists of various components, shown in **Figure 5**, which require monitoring, inspection, and periodic maintenance. For inspection and reporting purposes, the system is divided into three (3) subsystems:

- **Stormwater Management (SWM)-1:** Geocomposite drainage flaps and stormwater drainage channels;
- **SWM-2:** Outlets, culverts, rip-rap inlet and outlet protection and revetment area, rock buttress areas; and
- **SWM-3:** Corrugated Plastic Pipe (CPP) down drain pipes, pipe trenches, and energy dissipation structures.

These components are kept free of obstructions to ensure conveyance through the stormwater system as designed.

Routine maintenance of the stormwater management system includes removal of accumulated sediment or obstructions, as necessary. The O&M Manual/SMP requires that the stormwater management system be inspected on a monthly basis and following major rainfall events (defined as a 5-year storm or greater). Inspection findings are documented using Monthly Inspection Checklist Forms SWM-1, SWM-2, and SWM-3. Any components marked as NS on these forms are summarized on a Deficiency and Problems Form DP-1 to facilitate corrective actions.

3.4.2 System Inspection and Maintenance Summary

During this reporting period, the stormwater management system was inspected in accordance with the O&M Manual/SMP requirements. Asphalt distress (i.e., cracking) was observed in Zones 1 and 4A. Additional deficiencies noted included vegetation overgrowth and debris accumulation at outfall structures, damaged outfall structures, and areas of exposed erosion control fabric. The deficiencies identified during this annual reporting period did not affect the overall performance of this system.

When debris, sediment, or obstructions were encountered during inspections, they were promptly removed to maintain proper stormwater flow. Drainage features, including structures, piping, swales, and culverts, were assessed for efficient flow and competence. During this period, cleanout activities were performed at all stormwater outfall structures to remove accumulated debris and vegetation. Riprap was replenished as necessary.

Typically, inspections were routinely performed following storm events, and any issues identified were addressed in a timely manner to ensure continued system functionality.

On November 6, 2024, a brush fire occurred in the eastern section of the site, affecting two (2) areas along Zones 4, 5, and 6. A 12-inch square local catch basin located along the eastern boundary of Zone 5 was damaged by the fire. TRC has scheduled the replacement of the damaged catch basin for April 2025.

The stormwater management system inspection documentation for this annual reporting period is provided in **Appendix F**.

3.5 Ancillary Systems

3.5.1 System Description

The ancillary systems (ANS) at BAL support site access and security and include access roads, fencing, signage, gates, and locks.

The main components of these systems are shown in **Figure 4**. The access roadways are essential in providing access to perform required inspection, monitoring, and maintenance activities, while the security fencing and gates are critical for preventing unauthorized entry to the site.

The O&M Manual/SMP requires roadway inspections on a monthly basis and following storm events equal to or greater than a 5-year storm. The remaining ancillary systems (i.e., fences, gates, locks, and signs) are inspected on a weekly basis. Inspection results are documented on the Monthly Inspection Checklist Form ANS-1, as specified in the O&M Manual/SMP. Any items found to be NS during these inspections are recorded on the Deficiency and Problems Form DP-1 to ensure appropriate corrective action is taken.

3.5.2 System Inspection and Maintenance Summary

During this reporting period, the ancillary systems were inspected in accordance with the O&M Manual/SMP requirements. Locks, gates, site identification signs, and lamp bulbs were found to be functional. Winter storm conditions necessitated snow and ice removal to maintain site accessibility. Additional activities included the removal of outdated project signs, routine vehicle maintenance, weed removal around the gas wellheads, and repairs to the site trailers (including flashing and siding).

Inspections also included the annual certification of fire safety equipment. On June 18, 2024, fire extinguishers located inside the office trailers and within the Flare Compound Area were inspected and certified. Additionally, the Reduced Pressure Zone (RPZ) Backflow Prevention Apparatus housed in the fire waterline Hot Box was inspected and certified as required.

On November 6, 2024, a brush fire occurred in the eastern portion of the site, impacting two (2) areas along Zones 4, 5, and 6. A follow-up inspection conducted by TRC on November 7, 2024, confirmed that no damage occurred to the ancillary systems as a result of the fire.

While there was a change in personnel responsible for performing inspections during the final quarter of this reporting period, this transition did not affect the overall performance of the ancillary systems. All inspections and maintenance activities were conducted as required.

The ancillary system inspection documentation for this annual reporting period is provided in **Appendix G**.

3.6 Post-Closure Environmental Monitoring

The OU1 Monitoring Plan went into effect in April 2015, following NYSDEC approval of the OU1 FER. The OU1 Monitoring Plan outlines the performance evaluation measures for assessing the effectiveness of the OU1 remedy and includes requirements for monitoring groundwater, leachate, and landfill gas at the site. Results from the leachate and landfill gas monitoring programs are discussed in Sections 3.1 and 3.2 of this Report, respectively. This section summarizes the activities related to perimeter landfill gas monitoring, landfill surface emissions monitoring, and groundwater monitoring conducted during this annual reporting period. Although landfill surface emissions monitoring is not a regulatory requirement at the BAL site, the O&M Manual/SMP recommends it due to the site's recreational end-use designation.

The OU1 Monitoring Plan also specifies that surface water and sediment monitoring in Richmond Creek will be addressed under BAL OU2. The monitored segment of Richmond Creek extends from the Richmond Avenue overpass to the eastern boundary of the landfill, including tributaries and adjacent marsh/wetlands. As part of the OU2 remedy, post-closure monitoring requires the evaluation of the chemical characteristics of surface water and sediment during the 5th, 10th, and 20th years following completion of the OU1 remedy. The 5th year OU2 monitoring event was performed in October 2018 and the 10th-year OU2 monitoring event was completed in September 2024. The 20th-year OU2 monitoring event is anticipated to be completed in 2034.

3.6.1 Perimeter Gas Monitoring Program

In addition to the active landfill gas collection and flaring discussed in Section 3.2, a total of 32 gas-monitoring wells were installed as part of the OU1 construction. These wells are located both within the interior of the site, specifically between the two (2) landfill cells along their perimeters, and along the site property boundaries adjacent to Arthur Kill Road, Richmond Avenue, and the eastern edge of the site, as shown in **Figure 3**. The objective of the gas monitoring program is to determine the presence and extent of subsurface landfill gas (i.e., methane) migration. This monitoring is performed on a quarterly basis.

As initially discussed in Section 3.2.1, the previous regulatory requirement under 6NYCRR 360-2.17 (f) regulation, which was in effect until November 3, 2017 and was updated on July 22, 2023, limited subsurface combustible gas level concentrations to the LEL (i.e., 5% gas in air) at or beyond the site property boundary, and 25% of the LEL (i.e., 1.25% gas in air) within onsite structures, excluding landfill gas control/recovery system components. With the implementation of the revised 6NYCRR Part 363-7.1(e)(2) regulations on November 4, 2017 and were updated on July 22, 2023, the permissible limit for subsurface combustible gas was lowered to 25% of the LEL (1.25%) at or beyond the property boundary, while the threshold for buildings remained unchanged.

Monitoring was conducted utilizing a GEM 5000 Multi Gas Monitor to measure concentrations of CH_4, CO_2 and O_2. As summarized in **Table 3**, 28 of the 32 gas monitoring wells indicated methane concentrations below the 6 NYCRR Part 363 action level in all four (4) quarterly monitoring rounds during the 10th-year reporting period. Exceedances were observed in four (4) interior wells (LFG-E-18, LFG-E-19, LFG-W-11, and LFG-W-12), located between the East and West landfill cells, and far from the site's property boundaries. These wells exceeded the LEL threshold in all four quarters of the 10th year reporting period.

The valves on the landfill gas management system extraction wells closest to this area are fully open and both landfill cells are surrounded by a 25 to 40 foot deep slurry wall. The presence of methane in this interior area may be attributed to the naturally occurring meadow mat soils present at depth, as documented in the Final Remedial Investigation Report

Methane levels observed in these wells will continue to be monitored during the post-closure period and appropriate measures will be implemented, if necessary.

In summary, four (4) extraction wells recorded exceedances for subsurface methane occurring during this annual reporting period. These exceedances are not considered significant for the following reasons:

- Wells LFG-E-18, LFG-E-19, LFG-W-11, and LFG-W-12 are located in the interior section of the site between the East and West landfill cells and located far from the site property boundary. The regulatory action level pertains to conditions at or beyond the property boundary;
- The valves on the landfill gas management system extraction wells closest to these wells are fully open, ensuring maximum gas collection efficiency, and both landfill cells are surrounded by a 25 to 40 foot deep slurry wall;
- Methane was historically detected at these locations and may be associated with the naturally occurring meadow mat soils present in the subsurface at depth in this area, as described in the Final Remedial Investigation Report; and
- Methane concentrations encountered at the wells in this vicinity will continue to be monitored throughout the post-closure period, with responsive measures implemented as necessary.

The only permanent building onsite is the Eltingville Pumping Station, which is operated by the NYCDEP. Combustible gas levels within the building have been monitored by NYCDEP

operational personnel. To date, no concentration has been reported that exceeded 25% of the LEL. To document these findings, monitoring of combustible gases within the building has been incorporated into the Quarterly Perimeter Gas Monitoring Program. Gas monitoring is performed utilizing an Industrial Scientific Ventis MX-4 portable gas meter. As shown in **Table 4**, combustible gas was not detected in the building areas monitored throughout this annual reporting period. The results of this monitoring for this annual reporting period are included in **Appendix D**.

3.6.2 Surface Emissions Monitoring Program

Although the BAL site does not meet the criteria for landfill surface emissions monitoring stipulated under 6NYCRR Part 208, this monitoring was included in the O&M Manual/SMP due to the site's recreational end use. Surface emissions monitoring is performed semi-annually to verify that the gas collection and final cover systems are effectively limiting fugitive methane emissions to less than 500 parts per million (ppm) above background at the surface of the landfill, consistent with 6 NYCRR 208.4.

For this annual reporting period, semi-annual landfill surface emissions monitoring was performed on April 30, 2024, and October 9, 2024. A total of 477 monitoring points across the landfill surface were screened for volatile organic compounds (VOCs), including methane, using a Foxboro TVA-1000B flame ionization detector. Monitoring results indicated that methane concentrations at all locations were below the 500 ppm threshold above background. These results for this annual reporting period, as well as a plan showing the locations monitored, are included in **Appendix H**.

3.6.3 Groundwater Monitoring Program

The first round of post-closure groundwater monitoring at the BAL site was conducted during the second quarter of 2015. Although the OU1 Monitoring Plan originally required quarterly monitoring, a reduction to annual monitoring in rotating calendar quarters (i.e., once every fifth quarter) was approved by the NYSDEC in September 2015.

In accordance with the revised schedule, post-closure ground water-monitoring rounds have been performed during the second quarter of 2015, the third quarter of 2016, the fourth quarter of 2017, the first quarter of 2019, the second quarter of 2020, the third quarter of 2021, the fourth quarter of 2022, and the first quarter of 2024. The next post-closure groundwater monitoring event will occur in the second quarter of 2025.

4.0 Second Five-Year Review and Periodic Review Report

This section represents the second five-year review of BAL post-closure OM&M activities required by 6 NYCRR Part 363, and covers the period from April 1, 2020, through March 31, 2025. The following subsections discuss the status and conditions of the BAL site's remedial systems, the results of the post-closure environmental monitoring specific to OU1, and the pertinent activities that occurred during this five-year review period.

4.1 Leachate Management System

Leachate discharge was originally regulated under the NYCDEP IWD Permit 15-P3149-1, effective from April 30, 2015, through April 29, 2020. On August 7, 2018, the permit was updated to reflect NYCDPR as the new Industrial User and was issued as Permit 18-P3149-1, effective from August 10, 2018, through August 9, 2023. Most recently, on July 26, 2024, the NYCDEP IWD Permit for the leachate management system discharge was again updated and issued as Permit 23-P3149-1 and is effective August 10, 2023, through August 9, 2028. A copy of Permit 23-P3149-1 is included in **Appendix C**.

Monthly leachate sampling and analysis were performed throughout this five-year review period, as required by the permits. The Quarterly Self-Monitoring Reports were submitted to the NYCDEP Industrial Pre-Treatment & Permit Section by the required due dates. A copy of the Quarterly Self-Monitoring Reports for this reporting period, along with the results of the laboratory analyses, are included in **Appendix B** of the April 2020 through March 2025 Quarterly reports.

To date, the sample results have continued to show that discharge requirements are being met. As shown in **Table 5**, the total pump run-time for the review period was 90,122.9 hours, with an average run-time of 5,006.8 hours per pump. The total volume of leachate treated during the review period was 78,511,030 gallons, at an average rate of 50,756.4 gpd as summarized in the following table. A review of the total volume of leachate treated and the average daily flow reported during each post-closure year in the second five-year review period shows an overall increase after the 6th post-closure year, followed by a decline after the 9th post-closure year. By Year 10, both the total volume and the average daily flow were approximately 61% of the values recorded in Year 1. This trend is consistent with the anticipated that long-term leachate flows would eventually reduce to 50% of the initial flow as suggested in the O&M Manual/SMP.

Brookfield Avenue Landfill Site						
Leachate Management System Operation – First Five-Year Review Period						
Post-Closure Year	**Total Monthly Volume Treated (Gallons)**	**Average Flow (GPM)**	**Average Daily Flow (GPD)**	**Maximum Daily Flow (GPD)**	**Number of Days in Service**	**Percent of Time in Service**
6	13,735,707	27.7	39,584	145,960	347	95%
7	21,125,970	40.2	57,879	180,710	365	100%
8	19,785,925	37.7	54,208	119,420	365	100%
9*	22,095,165	44.0	62,770	130,400	352	93.2%
10*	14,395,930	27.4	39,441	109,893	365	100%
Average	18,227,739.4	35.4	50,776.4	137,276.6	NA	98%
Maximum	22,095,165	44.0	62,770	180,710	NA	100%
Totals	**91,138,697**	NA	NA	NA	**1,794**	NA

* Year 9 and 10 values includes interpolated data.
gpd – gallons per day
gpm – gallons per minute
NA – Not applicable

During this five-year review period, the leachate management system was operated, monitored, inspected and maintained in accordance with the requirements of the O&M Manual/SMP, as summarized in the Quarterly and Annual Reports. Preventative maintenance included inspections of piping, sumps, and manholes to ensure proper system operation. The 18 sump pumps were tested for live electrical load and operation. Measurements of water-level elevation and pump run-time hours were performed. The results of the inspections and maintenance were summarized in **Appendix A** of the April 2020 through March 2025 Quarterly reports.

In 2017, the frequency of pump maintenance outlined in the O&M Manual/SMP was adjusted based on recommendations contained in the WILO Pump O&M Manual (Appendix B of BAL O&M Manual Appendix E, Equipment Manual). Specifically, the WILO Pump O&M Manual recommends maintenance be performed once every 8,000 operating hours or after two years, whichever occurs first. Based on data from the first three years of post-closure operations, it has been determined that routine maintenance is required biennially, rather than annually, unless an individual pump reaches 8,000 hours of run time prior to the two-year interval.

Accordingly, during this review period, sump pump maintenance and repairs were performed in February 2022, October 2022, and August 2024. During servicing, pumps were inspected for wear, checked for proper rotation, electrical frequency was tested, and pump seal oil was removed and replaced. The next maintenance service for all 18 sump pumps is scheduled for August 2026 or when the pumps reach an additional 8,000 operating hours, whichever occurs first.

The oil/water separator and Parshall flume were visually inspected for flow and clarity. No free oil was detected during this review period. However, annual flushing of the LMS piping as

recommended in the O&M Addendum was not performed during this review period due to a presumed blockage in the pipe. TRC is in the process of evaluating the presumed blockage and will resume annual flushing of the LMS piping once removed. The pumps ran during the reporting period. TRC is unsure when and/or how complete the presumed blockage is within piping. TRC anticipates that the investigation of the presumed blockage will occur in Q2 2026.

Throughout this reporting period, stormwater accumulation in the vault was pumped during weekly inspections from the east and west sections of the oil/water separator. The oil/water separator will continue to be inspected weekly for accumulated stormwater, which will be pumped out if necessary.

During February 2022 sump pump servicing, seven (7) of the 18 pumps across six (6) of the nine (9) pump stations (LSE1, LSE2, LSE3, LSE4, LSE6, LSW1, LSW2, and LSW3) were found to have operational issues related to pump cables, breakers, shortages, bearings, and seal fails. These pumps were subsequently repaired and reinstalled.

NYCDPR is presently evaluating the feasibility of automating system operational data collection for the LMS. Specifically, it is considering adding telemetry to the flow meter at the discharge manhole, as well as to the three (3) West Cell sumps and East Cell sump LSE-6. These sump locations were selected based on operational data showing that they operate more frequently to maintain water levels. Sumps with lower operational frequency (LSE-1, 2, 4, and 5) would be monitored less frequently. Recommendations for the monitoring frequency of sump LSE-3 will be developed as more data is collected and assessed.

4.2 Landfill Gas Management System

During this five-year review period, the components of the landfill gas management system, including the gas collection system, condensate system, enclosed flare system, electrical systems, fire alarm systems, below and above ground piping, and valves, were operated, monitored, inspected, and maintained in accordance with the requirements of the O&M Manual/SMP, as summarized in the Quarterly and Annual Reports. The system has been in service since the initial startup was performed on May 9, 2013.

Initially, the landfill gas flare was operated only when the OM&M contractor was onsite (i.e., 8 hours/day on non-holiday weekdays) due to restrictions imposed by the FDNY. However, on November 2, 2016, the FDNY issued a permit authorizing continuous operation of the flare (24 hours/day, 7 days/week).

During this review period, multiple operational adjustments were made to improve flare performance:

- On August 1, 2024, TRC remotely adjusted the flare settings, reducing runtime to 22 hours per day.
- On September 3, 2024, further system adjustments reduced runtime to 20 hours per day.
- On October 3, 2024, TRC reduced the flare's runtime to 18 hours per day, with a scheduled shutdown at midnight daily.

- On November 6, 2024, the runtime was reduced again to 16 hours per day, with a scheduled shutdown at midnight daily.
- On March 27, 2025, the runtime was reduced to 12 hours per day, with a scheduled shutdown at midnight daily.

Since then, the system has operated on this reduced schedule. As of the end of this review period, a total of 44,593 blower operating hours have been recorded.

The FDNY conducts annual ESD testing as required by the system's permit. These tests were performed in September 2020, October 2021, November 2022, July 2023, and August 2024.

Testing includes verification of the functionality of mechanical, electrical, and control system features. The next ESD test is scheduled for June 2025.

During this review period, the landfill gas flare processed a total of 204,493,589 SCF. The flare was operational for 19,308 hours, which represents an average of 44.69% of total available hours. The average methane concentration entering the flare during this period was 26.60%. The annual landfill gas collection system flow and methane concentration data are summarized in the following table.

Brookfield Avenue Landfill Site

Flare Operation – Five-Year Review Period

Post-Closure Year	Average CH_4 (% by Volume)	Time in Service (Hours)	Percent Time in Service	Average Blower Flow (SCFM)	Flow (SCF)
6	29.62%	4,329	49.36%	218.17	56,914,305
7	29.43%	4,505	51.24%	175.93	49,325,677
8	25.43%	4,066	46.18%	149.17	35,410,903
9*	27.16%	3,969	45.38%	168.29	40,758,252
10*	21.39%	2,854	36.49%	74.13	20,419,272
Average	**26.61%**	NA	**45.73%**	**157.14**	NA
Total	NA	**19,723**	NA	NA	**202,828,409**

* Year 9 and 10 values include interpolated data.
CH_4 – Methane
NA – Not Applicable
SCF – Standard Cubic Foot
SCFM – Standard Cubic Foot per Minute

As noted above, the Landfill Gas Management System (LFGMS) was in service for 44.69% of the time during the review period. During the remaining time, the system was out of service due to various reasons, including:

- Routine inspections, calibration, maintenance, repair, and/or equipment replacement;
- Controlled shutdowns to protect equipment from anticipated severe weather conditions;

- Flame failures caused by low methane content in the gas;
- Low-flow faults attributed to condensate blockages;
- System evaluations conducted by the manufacturer's representative;
- FDNY restrictions and inspections; and,
- Occasional power failures related to poor weather conditions.

The landfill gas flare system is designed to operate with one blower in service and one as redundant standby. Although designed to collect up to 375 scfm of landfill gas, the system averaged 157.14 scfm during the five-year review period. The average methane concentration of the gas entering the flare was 26.60% based on the annual post-closure averages. The lowest average monthly methane concentration was 9%, recorded in February 2025, while the highest was 36.6%, recorded in June 2021. Overall, the average annual methane concentration ranged between 9% and 36.6%, which is typical for a landfill in this stage of post-closure management. Methane quality is expected to continue diminishing over time as the landfill ages.

The LFGMS was inspected in accordance with the O&M Manual/SMP. These inspections and related maintenance activities are summarized in **Appendix C** of the April 2020 through March 2025 Quarterly reports. Deficiencies encountered and upgrades at the flare and blower station during this period included:

- Telemetry was added to the flare system, allowing remote access to the flare control panel and remote flare re-start;
- TRC, SCS, and NYCDPR electricians were onsite to troubleshoot and install a new flare thermocouple, thermocouple input card, and Honeywell burner module;
- After these installations, the flare continued to malfunction. Further troubleshooting identified solar flare interference as the cause of recurring shutdowns; and,
- Following the reinstallation of the original thermocouple input card, the landfill gas system returned to normal operation.

Throughout the five-year review period, landfill gas extraction wells were monitored monthly for gas content (percent CH_4, CO_2, and O_2), temperature, and vacuum pressure. On occasion, accumulated stormwater had to be removed from well vaults before monitoring could proceed.

Additionally, an HD-1 header condensate drain vault located between Gas Wells E-15 and E-17 on the northern portion of the West Cell, required occasional draining to restore system vacuum. Wells were also monitored for damage and parts fatigue. Blowers 301 and 302 were lubricated, per the quarterly maintenance schedule. The landfill gas management system inspection and monitoring documentation for this five-year review period are included in **Appendix C** of the April 2020 through March 2025 Quarterly reports.

4.3 Final Cover System

During this five-year review period, the final cover system was inspected, maintained and repaired in accordance with the requirements of the O&M Manual/SMP. Inspections were performed and

reported quarterly from April through June 2015 in accordance with the OM&M Manual and 6NYCRR Part 360. In July 2015, the initial OM&M contractor increased the inspection frequency to monthly to coincide with other inspections conducted monthly. In January 2016, the reporting frequency was increased to monthly. Monthly inspections and reporting continued through December 2019, at which point the initial OM&M contract concluded. The successor OM&M contractor commenced work in March 2020, and resumed inspection activities on a quarterly basis in accordance with the O&M Manual/SMP during the first quarter of 2020 through the first quarter of 2025. The successor OM&M Contractor did not note any significant deficiencies during their first inspection.

Throughout the review period, the final cover system was found to be in overall good condition. Areas where erosion or other deficiencies were observed were promptly addressed. The repairs were followed by the installation of stabilization and protection measures, including coir logs, erosion control fabric, vegetative reestablishment, etc. These mitigation measures were effective in preventing further disturbance to the repaired areas.

Routine vegetation management activities including grass cutting was performed twice per year during the growing season. The grass cutting was performed to provide access to the landfill gas management system components, groundwater monitoring points, outfalls, and leachate pumps. Invasive tree removal and herbicide application was also performed on nine (9) days between October 23, 2024 and April 3, 2025.

On November 6, 2024, a brush fire occurred within the eastern portion of the site, in two areas along Zones 4, 5, and 6. The total area impacted by the fire was estimated at approximately 3.5 acres. TRC, conducted a field inspection on November 7, 2024, and reported that no damage was observed to the final cover system, landfill gas system, or ancillary systems. However, one (1), 12 inch square local catch basin located on the eastern boundary of Zone 5 sustained fire damage. TRC has scheduled the replacement of the damaged catch basin for April 2025. Overall, the system was working adequately during this reporting period. NYSDEC was notified of the brush fire. The affected areas will continue to be monitored during routine inspections.

The final cover system inspection documentation for this five-year review period is included in **Appendix D** of the April 2020 through March 2025 Quarterly reports.

4.4 Stormwater Management System

During this five-year review period, the stormwater management system was inspected, monitored, and maintained in accordance with the requirements outlined in the approved O&M Manual/SMP, and as summarized in the Quarterly and Annual Reports. The system remained operational throughout the five-year review period. Minor deficiencies identified during routine inspections, such as vegetative overgrowth, sediment accumulation, and localized debris blockages, were promptly addressed through standard maintenance practices. These deficiencies were not considered to have impacted the overall functionality or performance of the system. Routine maintenance activities performed during this period included the removal of excessive vegetative growth from drainage swales and culverts, clearing of accumulated sediment and debris

from stormwater structures, and renewal and reinforcement of riprap as needed to maintain erosion control and structural integrity.

During this review period, on November 6, 2024, a brush fire occurred in the eastern portion of the site, affecting two (2) areas along Zones 4, 5, and 6. As a result of the fire, a 12 inch square catch basin located along the eastern border of Zone 5 sustained fire damage. TRC plans to replace the damaged catch basin in April 2025.

The stormwater management system inspection documentation for this five-year review period is included in **Appendix E** of the April 2020 through March 2025 Quarterly reports.

4.5 Ancillary Systems

During this five-year review period, the ancillary systems were inspected and maintained in accordance with the O&M Manual/SMP requirements, as summarized in the Quarterly reports. The ancillary systems include site access roads, fencing, gates, locks, signage, and site trailers. These components are essential to maintaining site security and ensuring accessibility for monitoring and maintenance personnel.

Throughout the review period, the majority of the ancillary systems remained in good working condition. Routine site maintenance was conducted as needed and included updating and removal of outdated project signs, vehicle maintenance to ensure operability of inspection and utility vehicles, weed control activities in critical areas such as around gas wellheads and access paths, repairs to the site trailers, including flashing and siding, and snow and ice removal during winter storm conditions to maintain safe access to the site.

During routine inspections, distressed asphalt conditions (i.e., cracking) were observed in Zones 1 and 4A. These conditions were noted for ongoing monitoring and future repair.

The inspection and annual certification of the site fire extinguishers located inside the office trailers and in the Flare Compound Area were performed as necessary throughout the past five years. In addition, the RPZ Backflow Prevention Apparatus located inside the Hot Box housing the fire-waterline was inspected and certified per the annual requirement.

The ancillary system inspection documentation for this five-year review period is included in **Appendix F** of the April 2020 through March 2025 Quarterly reports.

4.6 Post-Closure Environmental Monitoring

The OU1 Monitoring Plan became effective in April 2015, following its approval by the NYSDEC as part of the OU1 FER. The OU1 Monitoring Plan establishes a framework for evaluating the performance and effectiveness of the implemented OU1 remedy. It includes requirements for the monitoring of groundwater, leachate, and landfill gas at the BAL site.

Monitoring activities associated with the leachate management system and the landfill gas management system were previously detailed in Sections 4.1 and 4.2 of this Report, respectively.

The subsections below provide a summary of post-closure monitoring activities specifically related to perimeter gas monitoring, landfill surface emissions monitoring, and groundwater monitoring conducted during this five-year review period.

While landfill surface emissions monitoring is not required under current regulatory frameworks for the BAL site, it has been encouraged under the O&M Manual/SMP due to the recreational end-use of the site.

4.6.1 Gas Monitoring Program

The NYSDEC updated the 6NYCRR Solid Waste Management Facility regulations on July 22, 2023, transitioning landfill post-closure management requirements from Part 360 to Part 363. The new Part 363 requirements lower the limit for subsurface methane concentrations at the property line from the LEL (i.e., 5% gas in air) to 25% of the LEL (i.e., 1.25% gas in air). The methane concentration limit inside structures remained unchanged (i.e., 1.25% gas in air).

Perimeter gas monitoring is conducted quarterly using a GEM 5000 Multi-Gas Monitor. The quarterly perimeter gas monitoring rounds prior to November 2017 were performed in accordance with 6 NYCRR Part 360, and the subsequent rounds were performed in accordance with Part 363. A total of 32 perimeter gas monitoring wells are installed, as shown on **Figure 3**.

During this five-year review period, results for 27 of the 32 wells consistently registered methane concentrations below the regulatory action level, as shown in **Table 6**.

Exceedances of the LEL action level were recorded at five (5) wells: LFG-W11, LFG-W12, LFG-E17, LFG-E18, and LFG-E19. These wells are located within the interior of the site, between the two (2) landfill cells, and not at the site property boundary, where the regulatory limit is applicable.

Methane exceedances in these six (6) interior area perimeter wells included: LFG-E-17 (5.0%), LFG-E-18 (ranging from 1.7% to 42.9%), LFG-E-19 (ranging from 1.1% to 57.2%), LFG-W-11 (ranging from 22.1% to 77%), and LFG-W-12 (ranging from 3.9% to 77.7%).

For each exceedance event, bar-hole surveys were conducted in the immediate vicinity of the affected wells. Bar-hole surveys concluded that no methane concentrations were detected (i.e., all readings were 0.0%). In addition, the valves on the landfill gas management system extraction wells closest to the wells that registered exceedances were fully open and both landfill cells are enclosed by a 25 to 40 foot deep slurry wall, acting as a gas containment barrier. Furthermore, the methane in the wells located in the center of the site between the landfill cells may be associated with the naturally occurring meadow mat soils present at depth in these locations, as reported in the Final Remedial Investigation Report. Methane levels at these wells will continue to be tracked during the post-closure period and corrective measures will be implemented if conditions change or warrant action.

Additionally, the only permanent on-site structure is the Eltingville Pumping Station, operated by NYCDEP. Combustible gas levels within this structure are monitored by DEP personnel. To date, no readings have exceeded 25% of the LEL. This monitoring has been incorporated into the

Quarterly Perimeter Gas Monitoring Program, using an Industrial Scientific Ventis MX-4 portable gas meter. All monitoring results are included in Tables 3 and 4 of the of the April 2020 through March 2025 Quarterly reports.

4.6.2 Surface Emissions Monitoring Program

While the BAL site does not meet the criteria for landfill surface emissions monitoring stipulated under 6NYCRR Part 208, such monitoring was encouraged under the O&M Manual/SMP due to the site's recreational end use. Therefore, semi-annual surface emissions monitoring was conducted during the five-year review period to confirm that the methane concentrations at the landfill surface did not exceed 500 ppm above background levels, as per 6NYCRR 208.4.

The semi-annual landfill surface emissions monitoring during this five-year review period was conducted in June 2020, December 2020, June 2021, October 2021, June 2022, October 2022, May 2023, October 2023, April 2024 and October 2024. The results indicated the methane concentrations at the landfill surface were consistently less than 500 ppm above the background levels. The results of this monitoring, as well as a plan showing the monitoring locations, are included in **Appendix H** of this report.

4.6.3 Groundwater Monitoring Program

The initial round of groundwater monitoring was conducted in late March 2015 in anticipation of NYSDEC's approval of the FER. With subsequent NYSDEC approval, this sampling event was designated as the first official post-closure groundwater monitoring round. Based on an evaluation of the results of this round and two (2) preliminary rounds performed in 2014, the NYCDEP submitted a request to the NYSDEC on September 23, 2015, to reduce the monitoring frequency to once every fifth quarter (i.e., annually, on a rotating quarterly schedule). NYSDEC approved this request, including a concurrent reduction in monitoring frequency for polychlorinated biphenyls (PCBs) to once during each five-year review period.

A groundwater monitoring well network was installed at the BAL in accordance with the environmental monitoring requirements in 6 NYCRR 360-2.11(c). As shown in **Figure 6**, the current network consists of 24 long-term monitoring wells (LTMWs) comprised of 20 shallow (Upper Glacial Aquifer) wells and four (4) deeper (Cretaceous Aquifer) wells. A 25th well (LTMW-14) was decommissioned during this reporting period due to casing damage and formally abandoned with NYSDEC approval.

Of the remaining wells, 21 are constructed with 2-inch diameter polyvinyl chloride (PVC) screens and casings, while three (3) wells, LTMW-18C, LTMW-22, and LTMW-23, utilize 4-inch diameter PVC construction. All wells are equipped with 6-inch diameter locking steel protective casings. Twenty-two of the wells were installed following the completion of the OU1 remedy; LTMW-18C and LTMW-23 were installed in 1994 during the Remedial Investigation and remain suitable for post-closure monitoring. Well construction logs are provided in **Appendix I** of this report.

Groundwater flow in the Upper Glacial Aquifer generally trends from south to north across the BAL site, with localized radial flow converging between the West and East Cells near the northern site boundary. Wells located on the southern site boundary are typically upgradient, while those on the west and east sides are side-gradient, and those bordering Richmond Creek on the north side are downgradient. The highest concentrations of site-related contaminants are typically found in wells between the two cells, in the northern area of the site.

Groundwater flow directions in the Cretaceous Aquifer are more variable, influenced by temporal fluctuations in water levels observed in the limited number of deeper monitoring wells. Groundwater contour maps based on 2024 data are provided in **Figure 7** and **Figure 8**.

Results from the current five-year review period indicate that the BAL site is not a significant source of hazardous or toxic substance releases to groundwater. Detected concentrations of site-related constituents remain stable or are declining over time. Summary results for VOCs, Semivolatile organic compounds (SVOCs), PCBs, leachate indicator parameters, and metals are provided in **Tables 7** through **11**, respectively. These results are compared against NYSDEC Class GA standards and guidance values.

The groundwater beneath the BAL is naturally saline and therefore non-potable. Although the results were compared to Class GA potable water standards and guidance values (due to the lack of saline groundwater criteria), exceedances of these benchmarks do not necessarily indicate environmental or health concerns. Detailed summaries of analytical results by constituent group follow.

VOCs

During this five-year review period, six (6) VOCs were detected in groundwater at least once. However, the majority of these detections were sporadic, at low concentrations, and limited to one (1) or a few wells. In the most recent monitoring round, only two VOCs, acetone and 1,4-dioxane, were detected. The results for these compounds are summarized in **Table 7** and discussed below.

Acetone –Acetone detections occurred in LTMW-1 from 2020 through 2024, and in LTMW-22 in 2024. The concentrations were generally low, often estimated, and below the NYSDEC Class GA standard, with the exception of a single exceedance in LTMW-1 in 2021. Given acetone's common use as a laboratory solvent, and the sporadic nature of detections, the results are likely attributable to laboratory contamination rather than site-related impacts.

1,4-Dioxane –1,4-Dioxane detections occurred in LTMW-1 from 2020 to 2024, and in LTMW-8 from 2020 to 2022. All but one (1) of the detections occurred in LTMW-1, which is located downgradient of the West Cell in the area of groundwater convergence. As such, these detections are most likely site-related, although they could also originate from the trunk sewer that passes through this area of the site. The additional detection occurred in the 2020 to 2022 samples from LTMW-8. LTMW-1 concentrations were 100 µg/L in 2020 and 2021, 81 µg/L in 2022, and 93 µg/L in 2024. LTMW-8 concentrations were 100 µg/L in 2020 and 2022, and 130 µg/L in 2021. 1,4-Dioxane was not detected at LTMW-8 in 2024. 1,4-Dioxane was

analyzed under both EPA Method 8260 and EPA Method 8270. 1,4-Dioxane is often analyzed using EPA Method 8270, though some laboratories may also report it under Method 8260 as part of an extended VOC scan.

SVOCs

Two (2) SVOCs, 1,4-dioxane and caprolactam, were detected during the five-year review period, and similar to VOCs, the detections were generally sporadic and at low concentrations. The results for these SVOCs are summarized in **Table 8** and discussed below.

1,4-Dioxane – This compound was detected in LTMW-1 (2020–2024), LTMW-2 (2020–2021), LTMW-8 (2020–2024), LTMW-18UG (2020), and LTMW-19 (2020 and 2022). The highest concentrations were reported in 2022 for LTMW-1 and LTMW-8. These wells are located downgradient of the West and East Cells, within the area of groundwater flow convergence. Given their location, these detections are most likely site-related, though a potential contribution from the trunk sewer cannot be discounted.

Caprolactam – Caprolactam was detected in nine (9) wells within the East Cell and two (2) within the West Cell in 2020. It was subsequently detected in LTMW-18C (2020–2024) and LTMW-21 (2020–2022). The highest concentration occurred in the 2022 sample from LTMW-21, which is cross-gradient to the West Cell and screened in the Cretaceous Aquifer. Since no exceedances of the Class GA standard were observed and the well is not in a shallow, site-related unit, this detection is not considered site-related.

Based on the above information, 1,4-dioxane is the only SVOC detected on a somewhat consistent basis that appears to be site-related. While caprolactam was detected in multiple wells, its highest concentration was observed in the deeper Cretaceous Aquifer and did not exceed the Class GA standard, indicating it is not site related. Overall, the SVOC data from this five-year review period support the conclusion that the BAL site is not a significant source of SVOC impacts to groundwater.

Pesticides & PCBs

No detections of the 22 pesticides analyzed were recorded during the five-year review period, as shown in **Table 9**. Similarly, none of the nine (9) PCBs analyzed were detected in groundwater samples during this period, as shown in **Table 12.**

These results indicate that the BAL site is not a significant source of pesticide or PCB releases to groundwater during the second five-year review period.

Leachate Indicators

The leachate indicator data from this review period remain consistent with the characteristics of an old, closed, and capped municipal landfill underlain by naturally saline groundwater. The results indicate only minor site-related influences on groundwater quality.

As summarized in **Table 10**, six (6) of the ten (10) leachate indicator parameters analyzed, alkalinity, chloride, hardness, total dissolved solids (TDS), total organic carbon (TOC), and sulfate, were detected in most or all groundwater samples. While elevated concentrations of some parameters in certain downgradient wells (e.g., elevated alkalinity in LTMW-1, located downgradient of the West Cell in the groundwater convergence zone) suggest some site-related influence, the overall spatial patterns largely reflect natural variability in groundwater salinity across the site. For example, wells on the south side of the site tend to be less saline, whereas those near Richmond Creek exhibit higher salinity. Notably, exceedances of NYSDEC Class GA standards were observed in upgradient, cross-gradient, and downgradient wells, indicating that these conditions are not uniquely site-derived.

The remaining four (4) leachate indicator parameters analyzed, ammonia, bromide, cyanide and nitrate, were detected much less frequently, and were generally not detected in the deeper Cretaceous Aquifer wells. Ammonia and bromide were the only parameters consistently detected in more than one well. Elevated levels were primarily found in downgradient wells and may be site related. Cyanide was detected twice (in 2021 at LTMW-18UG and LTMW-19) and at very low concentrations and nitrate was detected once in 2022 in LTMW-23, also at a low concentration. No exceedances of Class GA standards were observed for cyanide or nitrate.

While several parameters exceeded Class GA standards and guidance values, these exceedances primarily relate to the inherent salinity of the groundwater beneath the site rather than landfill leachate. For example, ammonia, though occasionally elevated, is not considered a significant concern due to its natural occurrence in seawater, its low persistence in the environment, and the non-potable nature of the groundwater.

Metals

The groundwater monitoring results for metals during this five-year review period continue to indicate that the BAL is not a significant source of toxic metal releases to groundwater. The site may contribute to minor releases of less toxic metals, such as calcium, magnesium, potassium, and sodium, elements that are also naturally present in the saline groundwater underlying the site. These results are summarized in **Tables 11a** and **Table 11b**, for total and dissolved metals, respectively; and are discussed below.

Of the 23 metals analyzed, 13 were either not detected or detected only sporadically and at low concentrations. Where exceedances of NYSDEC Class GA standards or guidance values occurred, they were generally minor, infrequent, or associated with sample turbidity rather than dissolved-phase concentrations. Notably, antimony and thallium, while detected infrequently, showed low-level exceedances due to their exceptionally low regulatory thresholds.

Eight (8) metals were detected more frequently or at higher concentrations:

Arsenic – This metal was detected on a regular basis in ten (10) wells, specifically West Cell LTMW-1, LTMW-2, LTMW-3, LTMW-4, and LTMW-5A and East Cell LTMW-12, LTMW-15, LTMW-17, LTMW-19, and LTMW-20. All concentrations in the West Cell wells and the

East Cell wells were below the Class GA Maximum Contaminant Level (MCL) and no exceedances were observed. These detections are consistent with background levels in naturally saline groundwater.

Barium – This metal was detected in all wells but exceeded the Class GA standard only in LTMW-1 and LTMW-4, both located downgradient of the West Cell in the area of groundwater convergence. The highest concentrations were consistently recorded in LTMW-1 and are likely site-related. Concentrations in other wells were lower and relatively uniform, consistent with background conditions.

Calcium – This metal was detected in every sample, as expected in saline groundwater. The highest concentrations were consistently detected in LTMW-2, LTMW-3, LTMW-4 and LTMW-8 in the West Cell and LTMW-11, LTMW-19 and LTMW-20 in the East Cell. While elevated concentrations were also found in upgradient and side-gradient wells, the highest levels were generally in downgradient wells, suggesting some site-related contribution. There is no Class GA standard for calcium.

Iron – This metal was detected in 13 of 23 wells, with concentrations generally low in most wells and often associated with turbidity, with the exception of downgradient wells. In contrast, the higher iron concentrations in certain downgradient wells, specifically West Cell LTMW-1, LTMW-2 and LTMW-3, East Cell LTMW-19 and LTMW-20, and Cretaceous Aquifer LTMW-18C and LTMW-21 appear to be site-related and are primarily associated with dissolved iron. Based on these results, the BAL appears to contribute to iron releases to groundwater.

Magnesium – This metal was detected in all wells, as expected given the saline nature of the groundwater beneath the site. In most wells, concentrations were relatively low and did not exceed the Class GA guidance value. However, elevated concentrations were observed in specific wells across both the West and East Cells. In the West Cell, the highest concentrations occurred in LTMW-1, LTMW-2, LTMW-3, LTMW-4, and LTMW-8, while in the East Cell, elevated levels were found in LTMW-11, LTMW-15, LTMW-18UG, LTMW-19, and LTMW-20. These wells include upgradient, side-gradient, and downgradient locations, but in both cells the highest concentrations were consistently observed in downgradient wells. Based on these results, the BAL is considered a source of magnesium to groundwater during the five-year review period.

Manganese – This metal was detected in all wells except LTMW-17, which was not sampled for this parameter in 2021 and 2022. Most detected concentrations were relatively low and below the Class GA standard. However, elevated concentrations were observed in several wells, including LTMW-2, LTMW-3, and LTMW-8 in the West Cell, and LTMW-19 in the East Cell. Notably, the highest concentrations occurred exclusively in downgradient wells, indicating a localized influence. Based on these results, the BAL continued to be a source of manganese releases to groundwater during the five-year review period.

Potassium – This metal was detected in every well, as expected given its natural presence in groundwater. Overall, concentrations were relatively consistent across the site; however,

higher levels were observed in downgradient wells, specifically LTMW-1, LTMW-2, and LTMW-3 in the West Cell, and LTMW-19 and LTMW-20 in the East Cell. These elevated concentrations suggest that the BAL continued to be a source of potassium to groundwater during the five-year review period.

Sodium – This metal was detected in every well, consistent with the saline nature of the underlying groundwater. While concentrations were generally uniform throughout the monitoring network, higher values were recorded in the same downgradient wells as potassium: LTMW-1, LTMW-2, and LTMW-3 in the West Cell, and LTMW-19 and LTMW-20 in the East Cell. These elevated levels are consistent with natural salinity patterns and do not necessarily indicate landfill-related impacts.

The concentrations of certain metals exceeded the Class GA standards and guidance values; however, nearly all these exceedances, and the highest magnitude results, are attributable to the naturally saline character of the groundwater beneath the site. No significant exceedances for heavy metals were observed during this five-year review period, and overall, metal concentrations in groundwater remained comparable to, or lower than, those observed in previous monitoring events.

In summary, the groundwater monitoring results from this five-year review period indicate that the BAL continues to not be a significant source of toxic or hazardous substance releases to groundwater. Groundwater quality beneath the site remains stable over time. These findings support the conclusion that prior reductions in the scope and frequency of post-closure groundwater monitoring were appropriate and that additional reductions may be warranted in future monitoring cycles.

Emerging contaminant sampling was not required during this review period. The previous round of emerging contaminant sampling was conducted in March 2019, following a November 9, 2018, request from NYSDEC that one round of monitoring for 1,4-dioxane and per- and polyfluoroalkyl substances (PFAS) be performed at all remedial sites under NYSDEC jurisdiction. This request was not related to the OU1 remediation. The sampling was carried out at eight (8) selected upgradient and downgradient wells across both the East and West Cells, with results reported separately to NYSDEC. Based on that sampling, the BAL was not determined to be a significant source of emerging contaminants in groundwater. While PFAS sampling has not been conducted since 2019, 1,4-dioxane sampling has been included in the past four (4) sampling events. The next scheduled sampling for emerging contaminants will occur during the Once Every Fifth Quarter event in the second quarter of 2025.

4.7 Periodic Review Report (PRR) Requirement

Pursuant to 6 NYCRR Part 375, PRRs must include a certification that the Institutional and Engineering Controls remain in place and effective, and the certification is submitted according to the approved site-specific schedule. The information presented in Subsections 4.1 through 4.7 of this Report fulfills the PRR requirements for the BAL, covering the review period from April 1, 2020, through March 31, 2025. The executed Institutional and Engineering Controls Certification Form for the periodic review period is included as **Appendix A** of this report.

5. Conclusions and Recommendations

Based on the results of post-closure activities conducted during the Site's 10th Year Annual Report and the Second Five-Year Review period, the engineering and institutional controls at the BAL are in place, functioning as designed, and remain effective. The selected remedy continues to be protective of public health and the environment and is in compliance with the requirements outlined in the BAL OU1 and OU2 RODs.

The activities associated with the O&M Manual/SMP and the OU1 Monitoring Plan are being implemented. Routine maintenance and repairs of the remediation systems should continue in accordance with the O&M Manual/SMP to ensure ongoing system performance and regulatory compliance.

5.1 Leachate Management System

During the 10th Year Annual Report and Second Five-Year Review period, the leachate management system remained operational and effectively prevented off-site leachate migration. Monthly M-1 discharge sample results continued to comply with the effluent limits specified in the IWD permit.

It is recommended that the pump stations and associated system components continue to be operated, inspected, and maintained in accordance with the O&M Manual/SMP. Discharge monitoring should also continue on a monthly basis, as required by the IWD permit. Any deficiencies observed during operation or inspection should be promptly addressed through repair or replacement to minimize downtime and maintain system performance. Additionally, outstanding corrective actions identified in Form DP-1, Leachate Management System, Description of Deficiencies and Problems for this annual reporting period, are included in **Appendix B**, should be implemented as appropriate.

As noted in Section 3.1.2 of this Report, NYCDPR is evaluating the installation of telemetry at the flow meter located at the discharge manhole, as well as at all three (3) West Cell sumps and East Cell sump LSE-6. Once telemetry is installed and sufficient operational data are collected, NYCDPR may consider reducing the frequency of on-site data collection, from weekly to monthly, at East Cell sumps where pump operation is infrequent, and water levels appear stable. The proposed addition of telemetry to these four (4) key sumps would enhance real-time monitoring capabilities and provide valuable support for system operation, performance evaluation, and troubleshooting.

5.2 Landfill Gas Management System

Following approval from the FDNY on October 31, 2016, and the issuance of the annual permit on November 2, 2016, the LFG management system was placed into continuous operation, initially functioning 24 hours per day, seven (7) days per week. As of the conclusion of this 10th Year Annual Report and Second Five-Year Review period, the system remains operational on a 12-hour daily schedule, with routine shutdowns at midnight implemented to optimize flare performance.

During this reporting period, the system experienced intermittent downtime due to various planned and unplanned events, including routine inspection, calibration, maintenance, equipment repair or replacement, controlled shutdowns in anticipation of severe weather, flame failures resulting from low LFG quality, low-flow faults caused by condensate blockage, manufacturer evaluations, FDNY inspections, and weather-related power outages. Despite these events, monitoring conducted throughout the review period confirmed that the system continued to effectively prevent off-site gas migration.

As the landfill continues to age, the quantity and quality of methane generated will naturally decline. Therefore, ongoing monitoring of the LFG management system should continue in accordance with the O&M Manual/SMP to assess performance and determine whether operational adjustments or system modifications are necessary to optimize gas capture and treatment. Additionally, any outstanding corrective actions identified in Form DP-1, Landfill Gas Management System, Description of Deficiencies and Problems for this annual reporting period, are provided in **Appendix D** of this Report, should be implemented as warranted.

5.3 Final Cover System

Overall, the landfill final cover system remained protective of the underlying landfill cap throughout the Site's 10th Year Annual Report and Second Five-Year Review period. Observed conditions were consistent with those typically encountered during the post-closure phase, with only minor and infrequent deficiencies noted.

It is recommended that routine maintenance activities continue to be performed to address localized issues and prevent them from developing into more significant concerns. These activities should include repairing erosion-related ruts, reseeding disturbed or sparse vegetative areas, and maintaining the designed landfill surface slopes to ensure proper stormwater runoff. Additionally, outstanding corrective actions identified in Form DP-1, FCS-1, Description of Deficiencies and Problems, provided in **Appendix E** of this Report, should be implemented as appropriate to preserve the long-term integrity and functionality of the final cover system.

5.4 Stormwater Management System

The stormwater management system continued to effectively convey runoff to designated outfall locations throughout the Site's 10th Year Annual Report and Second Five-Year Review period. Observed conditions were typical for a landfill in the post-closure phase, with only occasional minor deficiencies noted.

It is recommended that periodic maintenance continue, including the removal of silt and vegetation from drainage swales, and sediment from other components of the drainage system to maintain optimal flow. Specifically, the outstanding corrective actions outlined in Form DP-1, SWM-1, SWM-2, and SWM-3, Description of Deficiencies and Problems for this reporting period, in **Appendix F** of this Report, should be implemented as appropriate. Additionally, the catch basin damaged by the brush fire on November 6, 2024, is scheduled to be replaced in April 2025.

5.5 Ancillary Systems

The roads and walking trails of the ancillary systems continued to provide access across the Site, while fencing and gates maintained controlled entry during the Site's 10th Year Annual Report and Second Five-Year Review period. Overall, conditions were typical for a landfill in post-closure, with only occasional minor deficiencies observed.

Since the site's opening to the public as Brookfield Park and the transfer of responsibility to NYCDPR in 2018, full-time NYCDPR staff have been stationed on-site. Certain Ancillary System maintenance tasks, such as upkeep of roads, walking trails, fencing, gates, guide rails, and park signage, are now managed by NYCDPR's Maintenance & Operations and Parks Enforcement Patrol personnel.

Routine maintenance should continue to prevent deterioration, including repairing cracks in paved roadways, filling ruts and depressions in stone walking trails, and addressing any necessary repairs to fencing, guide rails, and gates. Although the previously repaired cracks in the East Cell paved roadway have not reappeared, ongoing monitoring is recommended. Similarly, the 1-inch crack in Zone 1 of the West Cell should be regularly monitored and repaired if needed. Additionally, the outstanding corrective actions detailed in Form DP-1, ANS-1, Description of Deficiencies and Problems for this annual reporting period, in **Appendix G** of this Report should be implemented.

5.6 Post-Closure Environmental Monitoring

The overall conclusion for this 10th Year Annual Report and Second Five-Year Review period is that environmental monitoring, conducted in accordance with the OU1 Monitoring Plan as modified and described in Section 5.6.3 below and approved by NYSDEC, should continue. Specific conclusions and recommendations for each element of the Post-Closure Environmental Monitoring Program are detailed below.

5.6.1 Perimeter Gas Monitoring Program

Gas monitoring was conducted quarterly over this five-year review period at 32 perimeter gas wells, following the O&M Manual/SMP, the OU1 Monitoring Plan, and 6NYCRR Parts 360 and 363 requirements. Exceedances of the Part 360/363 action levels occurred at five (5) of the 32 wells, which are located within the interior area between the landfill cells and not adjacent to the property boundary (wells LFG-E17, LFG-E18, LFG-E19, LFG-W11, and LFG-W12); because the action levels apply to conditions at the property line, these exceedances are not directly relevant. Moreover, methane detected in these wells may originate from naturally occurring meadow mat soils identified during the Remedial Investigation. It is recommended that methane levels at these wells continue to be monitored during the post-closure period, with appropriate action taken if necessary. All perimeter gas wells located along the property boundary have maintained methane levels below regulatory action limits since 2016.

Throughout the monitoring period, including the current review, methane has not been detected above 25% of the lower explosive limit (LEL) in the Eltingville Pumping Station. To document

this, indoor gas monitoring has been incorporated into the Quarterly Perimeter Gas Monitoring Program.

Overall, perimeter gas monitoring results indicate no evidence of off-site gas migration. It is recommended that prior to sampling, each perimeter well be properly vented or purged after the cap removal to ensure readings accurately reflect soil gas conditions and not accumulated trace gases in the well casing. Additionally, if any perimeter well shows an exceedance of the Part 363 action level, a bar-hole survey should be performed between that well and the adjacent property line to assess conditions closer to the boundary.

Gas monitoring during this period confirms that the BAL landfill gas management system complies with 6NYCRR Part 363-7.1(e)(2), maintaining combustible gas levels below 25% of the LEL at or beyond the property boundary and within structures on or off-site, excluding gas control or recovery system

5.6.2 Surface Emissions Monitoring Program

Semi-annual landfill surface emissions monitoring conducted during the 10th Year Annual Report and Second Five-Year Review period consistently showed methane concentrations below 500 ppm above background levels. Although the BAL site does not fall under the applicability criteria for surface emissions monitoring as outlined in 6 NYCRR Part 208, the monitoring performed during this period confirms that the landfill cover and gas management systems are effectively controlling surface emissions and are in compliance with the methane concentration limits specified in 6 NYCRR 208.4. The monitoring data, including the locations of the surface scan routes, are documented in **Appendix H** and continue to support the conclusion that the BAL landfill is not contributing to surface gas emissions in excess of regulatory thresholds.

5.6.3 Groundwater Monitoring Program

The results of the four (4) post-closure groundwater monitoring events conducted during the 10th Year Annual Report and Second Five-Year Review period, completed in May 2020, September 2021, November 2022, and February 2024, indicate that the BAL site is not a significant source of organic pollutant or heavy metal releases to groundwater. The site has been found to be only a relatively minor additional source of certain less-toxic metals and leachate indicator parameters that are already present in the naturally saline groundwater beneath the site. Nearly all organic parameters analyzed during this period were not detected. The only apparently site-related VOCs identified at low but consistent concentrations were acetone and 1,4-dioxane, found in Wells LTMW-1, LTMW-8, and LTMW-22. For SVOCs, low levels of 1,4-dioxane and caprolactam were detected somewhat consistently, but no site-related pesticides or PCBs were detected during this period. While leachate indicators were present in the groundwater, the majority were naturally occurring due to the saline groundwater conditions. Site-related contributions were mainly limited to ammonia and bromide.

Regarding metals, 15 of the 23 analyzed were either not detected or were only found sporadically and at low concentrations. The only site-related heavy metal consistently detected was barium, observed in Wells LTMW-1 and LTMW-4. In addition, the site was identified as a source of

additional calcium, iron, magnesium, manganese, potassium, and sodium in groundwater at downgradient wells, particularly in West Cell Wells LTMW-1 and LTMW-2 and East Cell Wells LTMW-19 and LTMW-20, located in the area of groundwater convergence between the two cells. However, these metals are also naturally present in the site's saline groundwater.

Overall, the groundwater monitoring results from this second five-year review period remain consistent with previous results and align with expectations for a closed and capped municipal landfill underlain by fine-grained soils and located adjacent to a saline water body. Based on the current schedule, the next round of groundwater monitoring is due in the second quarter of 2025 and should include the parameters and groups listed in Tables 2-2 and 2-3 of the OU1 Monitoring Plan, including PCBs. However, in light of consistent findings over time, it is recommended that NYCDPR formally request a reduction in monitoring frequency, specifically, as discussed with NYSDEC, the next sampling event following the Quarter 2 2025 sampling event will be scheduled for Quarter 3 of 2026 and will include a reduced number of monitoring wells and a limited suite of analytical parameters. Following the completion of the Quarter 3 2026 sampling event, the SMP will be updated to incorporate the revised Once Every Fifth Quarter monitoring framework.

6. References

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- Layout Inc., 2014, "Figure 3 – Landfill Gas Management System Plan."
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- Layout Inc., 2014, "Figure 5 – Stormwater Management System Plan."
- Layout Inc., 2015, "Figure 6 – Long-Term Groundwater Monitoring Well Location Plan."
- Lockwood, Kessler & Bartlett, Inc., "Post-Closure Monitoring and Maintenance Operations Manual Addendum No. 1," August 2021
- NYSDEC, 6 NYCRR § 208: Landfill Gas Collection and Control Systems for Certain Municipal Solid Waste Landfills, September 4, 2019.
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FIGURES



Layeux Inc.
PROFESSIONAL LAND SURVEYORS
CONSTRUCTION SURVEYING SPECIALISTS
GPS CONSULTANTS
1 Entin Road, Unit 8
Clifton, N.J. 07014
Ph: 973-249-0900 Fax: 973-249-0988

SITE LOCATION MAP

Brookfield Avenue Landfill Remediation Project

Prepared For:
Brookfield Construction Associates, LLC
136 Central Avenue
Clark, NJ 07066

Drawn By:	MP
Scale:	NTS
Date:	09-28-15
Proj. No.:	2857
	Figure 1

C:\Layout\Brookfield\2857-Brookfield-Landfill\CIVIL 3D\Drawings\081215\2857-SITE LOCATION PLAN-1.dwg - Layout Tab : FIGURE 1-A - Tue, 06 Oct 2015 - 1:05pm

LSE4
LEACHATE SUMP
RIM 17.1
INV. 1.8 (IN & OUT)

LSE3
LEACHATE SUMP
RIM 18.0
INV. 1.8 (IN)
INV. 1.7 (OUT)

6" PERFORATED
CORRUGATED PE LEACHATE
INTERCEPTOR TRENCH

LSE2
LEACHATE SUMP
RIM 17.8
INV. 1.7 (IN)
INV. 1.8 (OUT)

LSE1
LEACHATE SUMP
RIM 13.5
INV. 1.8 (IN & OUT)

LSE5
LEACHATE SUMP
RIM 13.7
INV. 1.8 (IN & OUT)

6" PERFORATED
CORRUGATED PE LEACHATE
INTERCEPTOR TRENCH

VALVE BOX (TYP.)
ELEC. PANEL (TYP.)

4" HDPE FORCE MAIN

CLEANOUT MANHOLE

LSE6
LEACHATE SUMP
RIM 8.9
INV. 1.8 (IN & OUT)

4" HDPE FORCE MAIN

6" PERFORATED
CORRUGATED PE LEACHATE
INTERCEPTOR TRENCH

LSW2
LEACHATE SUMP
RIM 18.3
INV. 1.8 (IN & OUT)

LSW1
LEACHATE SUMP
RIM 19.0
INV. 1.8 (IN & OUT)

4" HDPE FORCE MAIN

VALVE BOX (TYP.)
ELEC. PANEL (TYP.)

LSW3
LEACHATE SUMP
RIM 22.8
INV. 1.8 (IN)
INV. 1.7 (OUT)

EAST CELL

WEST CELL

CLEANOUT MANHOLE

CLEANOUT MANHOLE

OIL/WATER SEPARATOR
INV. 9.1

MONITORING MANHOLE
INV. 8.8

FLARE COMPOUND

CONNECTION TO EXISTING
PUMPING STATION
INV. 6.8

PUMP
STATION

48" PRCP INTERCEPTOR
SEWER

CENTERLINE OF BARRIER WALL

CENTERLINE OF BARRIER WALL

ARTHUR KILL ROAD

LEGEND

- LEACHATE COLLECTION SUMP
- LEACHATE COLLECTION VALVE BOX
- LEACHATE COLLECTION CLEANOUT MANHOLE
- 1+50 — CENTERLINE OF BARRIER WALL
- 6" PERFORATED CORRUGATED PE LEACHATE INTERCEPTOR TRENCH
- 4" HDPE FORCE MAIN
- 20 — AS-BUILT FINISHED GRADE

NOTES:

1. Horizontal and Vertical Datum is a project specific datum, referenced from "Topographical Survey of the Brookfield Avenue Landfill, situated on Staten Island in the Borough of Richmond, County of Richmond, City of New York, State of New York" dated June 4, 2003 prepared by Chas. H. Sells, Inc. To convert to NAD 83 and NGVD 1929 see RFI #7 and #31.
2. Coordinates and elevations are shown in U.S. Survey Feet.

REFERENCES:

"Contract No. LF-BAL-1G, Leachate Collection Plan" dated April 2007 and prepared by Camp Dresser & McKee.

0 75 150 300 450
(IN FEET)
1 inch = 150 ft.

CONTRACT NO. 1359-BRK

Layout Inc.
PROFESSIONAL LAND SURVEYORS
CONSTRUCTION SURVEYING SPECIALISTS
GPS CONSULTANTS
1 Entin Road, Unit 8
Clifton, N.J. 07014
Ph: 973-249-0900 Fax: 973-249-0988

LEACHATE MANAGEMENT SYSTEM PLAN

BROOKFIELD AVENUE LANDFILL

Prepared For:
CITY OF NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

BROOKFIELD CONSTRUCTION ASSOCIATES, LLC
136 CENTRAL AVENUE
CLARK, NJ 07066

Drawn By:	MP
Checked:	JB
Scale:	N.T.S
Date:	08-18-14
Proj. No.:	2857
	Figure 2

User Name: Layoutinc Date\Time: Mon, 21 Sep 2015 - 1:14pm Path\Xname: C:\Layout\Brookfield\2857-Brookfield-Landfill\CIVIL 3D\Drawings\081215\081215-ASBUILT LEACHATE COLLECTION-2.dwg - Layout Tab: LEACHATE COLLECTION SYSTEM-ASBUILT ALL



LEGEND

- **B12** — LANDFILL GAS COLLECTION WELL
- **E5** — LANDFILL GAS COLLECTION WELL (HORIZONTAL)
- **LFG-W1** — LANDFILL GAS MONITORING WELL
- CONDENSATE DRAIN
- ZONE VALVE
- 4" HDPE PIPING
- 6" HDPE PIPING
- 6" HDPE PIPING (HORIZONTAL GAS COLLECTION)
- 20 — AS-BUILT FINISHED GRADE

REFERENCES:

"Contract No. LF-BAL-1G, Landfill Gas Collection" dated April 2007, last revised 5/19/10 and prepared by Camp Dresser & McKee.

NOTES:

1. Horizontal and Vertical Datum is a project specific datum, referenced from "Topographical Survey of the Brookfield Avenue Landfill, situated on Staten Island in the Borough of Richmond, County of Richmond, City of New York, State of New York" dated June 4, 2003 prepared by Chas. H. Sells, Inc. To convert to NAD 83 and NGVD 1929 see RFI #7 and #31.

0 75 150 300 450
(IN FEET)
1 inch = 150 ft.

CONTRACT NO. 1359-BRK

Layout Inc.
PROFESSIONAL LAND SURVEYORS
CONSTRUCTION SURVEYING SPECIALISTS
GPS CONSULTANTS
1 Entin Road, Unit 8
Clifton, N.J. 07014
Ph: 973-249-0900 Fax: 973-249-0988

LANDFILL GAS MANAGEMENT SYSTEM PLAN

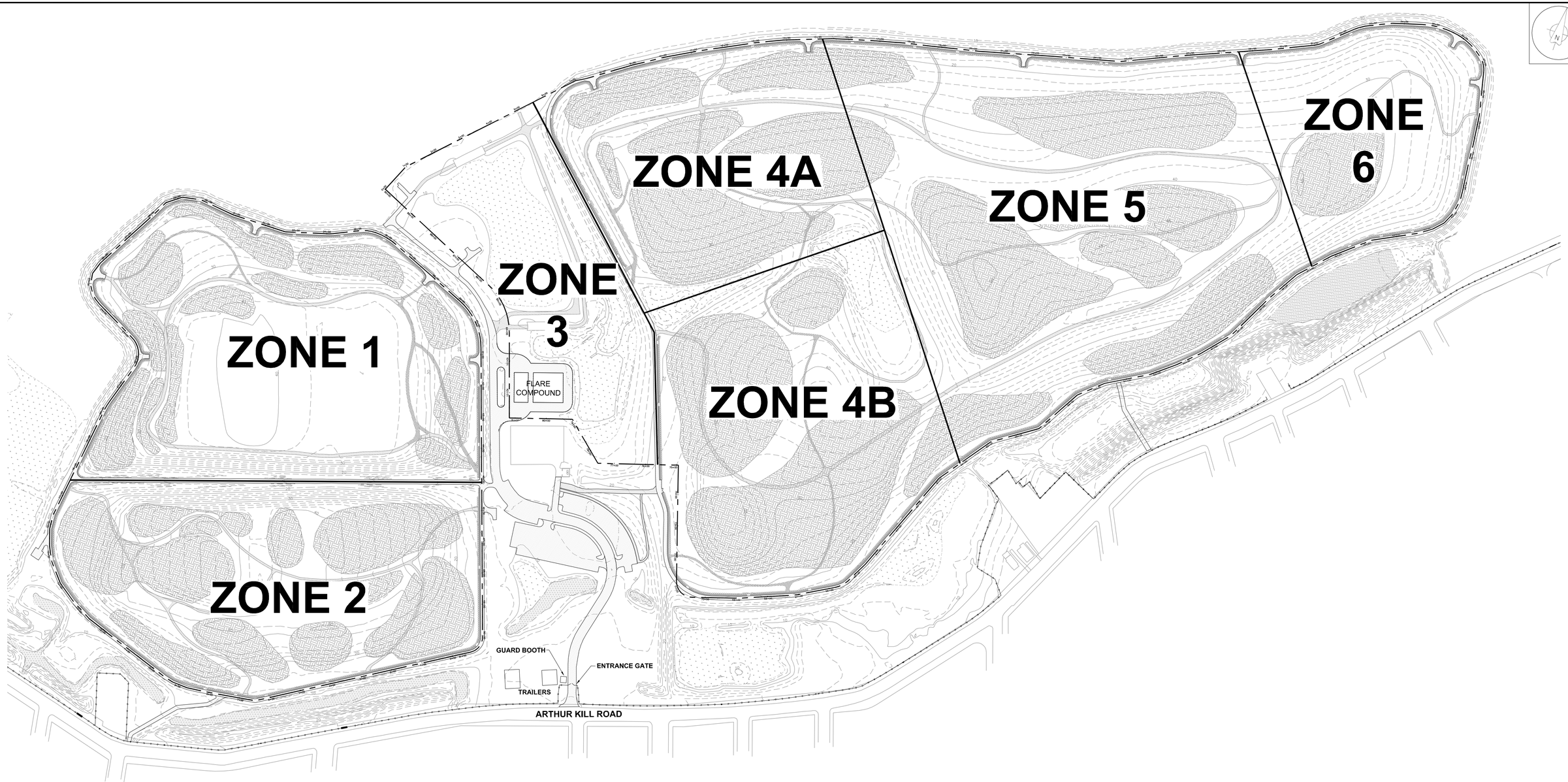
BROOKFIELD AVENUE LANDFILL

Prepared For:
CITY OF NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

BROOKFIELD CONSTRUCTION ASSOCIATES, LLC
136 CENTRAL AVENUE
CLARK, NJ 07066

Drawn By:	MP
Checked:	JB
Scale:	N.T.S
Date:	08-18-14
Proj. No.:	2857
	Figure 3

User Name: - Layout Inc. Data\Time: - Mon, 21 Sep 2015 - 3:35pm Path\Name: - C:\Layout\Brookfield\2857-Brookfield-Landfill\CIVIL 3D\Drawings\081215\081215-AS BUILT GAS COLLECTION-3.dwg - Layout Tab: 081215-GAS COLLECTION ALL



LEGEND

4+00 — CENTERLINE OF BARRIER WALL

20 — AS-BUILT FINAL GRADE

NOTES:

1. Horizontal and Vertical Datum is a project specific datum, referenced from "Topographical Survey of the Brookfield Avenue Landfill, situated on Staten Island in the Borough of Richmond, County of Richmond, City of New York, State of New York" dated June 4, 2003 prepared by Chas. H. Sells, Inc. To convert to NAD 83 and NGVD 1929 see RFI #7 and #31.
2. Coordinates and elevations are shown in U.S. Survey Feet.

0 75 150 300 450

(IN FEET)

1 inch = 150 ft.

CONTRACT NO. 1359-BRK

	FINAL COVER AND ANCILLARY SYSTEM PLAN	Drawn By: MP
	BROOKFIELD AVENUE LANDFILL	Checked: JB
		Scale: 1"=150'
	Prepared For: CITY OF NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION	Date: 07-28-15
	BROOKFIELD CONSTRUCTION ASSOCIATES, LLC 136 CENTRAL AVENUE CLARK, NJ 07066	Proj. No.: 2857
		Figure 4

Layeux Inc.
PROFESSIONAL LAND SURVEYORS
CONSTRUCTION SURVEYING SPECIALISTS
GPS CONSULTANTS
1 Entin Road, Unit 8
Clifton, N.J. 07014
Ph: 973-249-0900 Fax: 973-249-0998

User Name : Layoutinc Date\Time : Mon, 21 Sep 2015 - 3:44pm Path\Name : C:\Layout\Brookfield\2857-Brookfield-Landfill\CIVIL 3D\Drawings\GB12\GB12\2857-FINAL COVER SYSTEM-4-4.dwg - Layout Tab : FINAL COVER SYSTEM

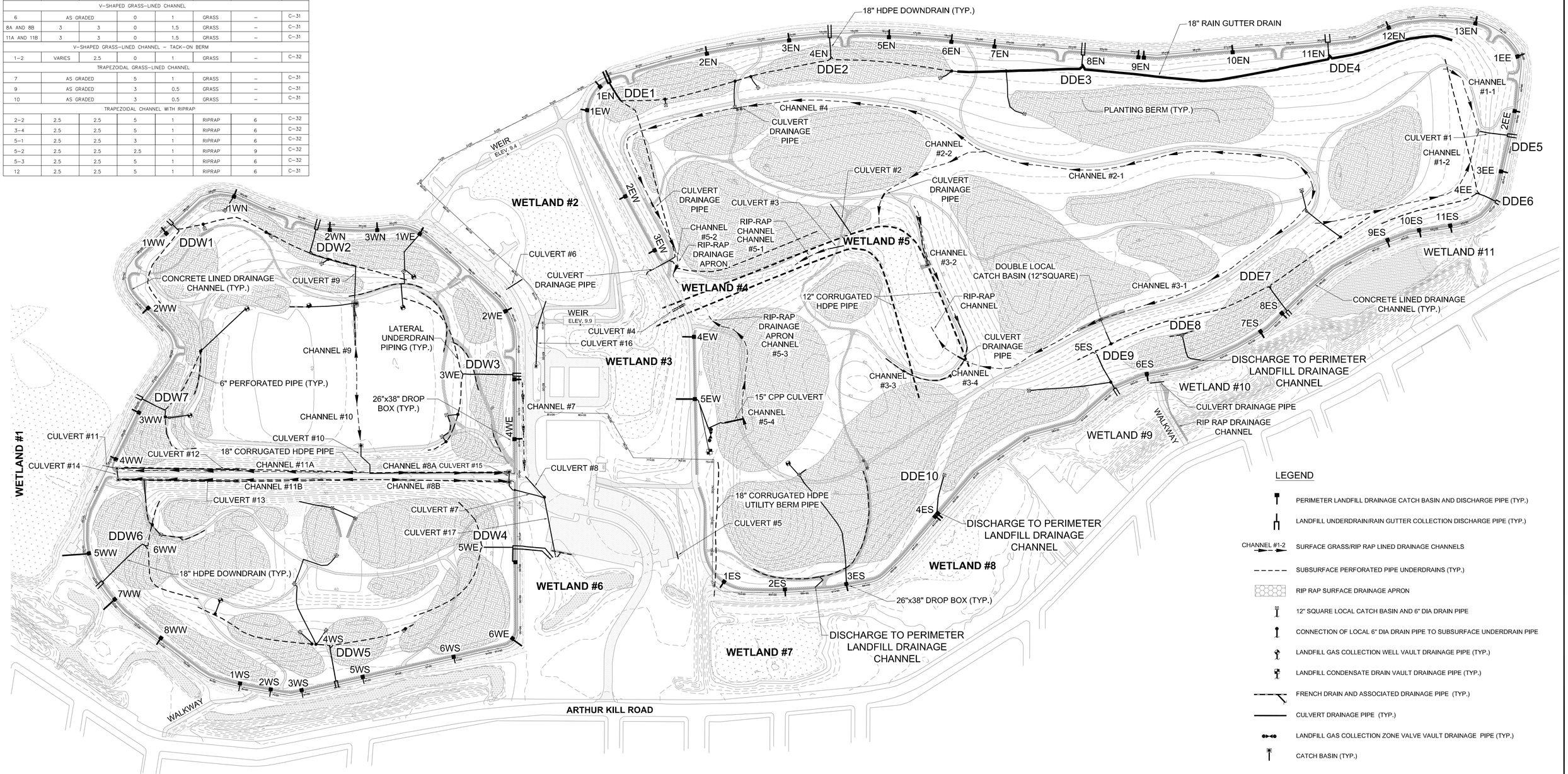
CHANNEL ID	CHANNEL DIMENSIONS (FEET)				CHANNEL LINING		SHEET LOCATION
	SIDE SLOPES		BOTTOM WIDTH	DEPTH	MATERIAL	RIPRAP THICKNESS d_{50} (INCHES)	
	LB	RB	BW	D		T	
V-SHAPED GRASS-LINED CHANNEL - RAISED ROAD/PATH							
1-1	2.5	VARIES	0	1	GRASS	–	C-32
2-1	2.5	VARIES	0	1.5	GRASS	–	C-32
3-1	2.5	VARIES	0	2	GRASS	–	C-32
3-2	VARIES	2.5	0	1	GRASS	–	C-32
3-3	2.5	VARIES	0	1	GRASS	–	C-32
4	VARIES	2.5	0	1.5	GRASS	–	C-32
5-4	2.5	VARIES	0	1	GRASS	–	C-32
V-SHAPED GRASS-LINED CHANNEL							
6	AS GRADED		0	1	GRASS	–	C-31
8A AND 8B	3	3	0	1.5	GRASS	–	C-31
11A AND 11B	3	3	0	1.5	GRASS	–	C-31
V-SHAPED GRASS-LINED CHANNEL - TACK-ON BERM							
1-2	VARIES	2.5	0	1	GRASS	–	C-32
TRAPEZOIDAL GRASS-LINED CHANNEL							
7	AS GRADED		5	1	GRASS	–	C-31
9	AS GRADED		3	0.5	GRASS	–	C-31
10	AS GRADED		3	0.5	GRASS	–	C-31
TRAPEZOIDAL CHANNEL WITH RIPRAP							
2-2	2.5	2.5	5	1	RIPRAP	6	C-32
3-4	2.5	2.5	5	1	RIPRAP	6	C-32
5-1	2.5	2.5	3	1	RIPRAP	6	C-32
5-2	2.5	2.5	2.5	1	RIPRAP	9	C-32
5-3	2.5	2.5	5	1	RIPRAP	6	C-32
12	2.5	2.5	5	1	RIPRAP	6	C-31

NOTES:

1. Horizontal and Vertical Datum is a project specific datum, referenced from "Topographical Survey of the Brookfield Avenue Landfill, situated on Staten Island in the Borough of Richmond, County of Richmond, City of New York, State of New York" dated June 4, 2003 prepared by Chas. H. Sells, Inc. To convert to NAD 83 and NGVD 1929 see RFI #7 and #31.
2. Coordinates and elevations are shown in U.S. Survey Feet.

REFERENCES:

"Contract No. LF-BAL-1G, Stormwater Drainage Plan" dated April 2007, last revised 11/14/11 and prepared by Camp Dresser & McKee.



LEGEND

- PERIMETER LANDFILL DRAINAGE CATCH BASIN AND DISCHARGE PIPE (TYP.)
- LANDFILL UNDERDRAIN/RAIN GUTTER COLLECTION DISCHARGE PIPE (TYP.)
- CHANNEL #1-2 — SURFACE GRASS/RIP RAP LINED DRAINAGE CHANNELS
- SUBSURFACE PERFORATED PIPE UNDERDRAINS (TYP.)
- RIP RAP SURFACE DRAINAGE APRON
- 12" SQUARE LOCAL CATCH BASIN AND 6" DIA DRAIN PIPE
- CONNECTION OF LOCAL 6" DIA DRAIN PIPE TO SUBSURFACE UNDERDRAIN PIPE
- LANDFILL GAS COLLECTION WELL VAULT DRAINAGE PIPE (TYP.)
- LANDFILL CONDENSATE DRAIN VAULT DRAINAGE PIPE (TYP.)
- FRENCH DRAIN AND ASSOCIATED DRAINAGE PIPE (TYP.)
- CULVERT DRAINAGE PIPE (TYP.)
- LANDFILL GAS COLLECTION ZONE VALVE VAULT DRAINAGE PIPE (TYP.)
- CATCH BASIN (TYP.)

DDW	WEST CELL DOWNDRAIN	WN	WEST CELL NORTH OUTLETS
DDE	EAST CELL DOWNDRAIN	WE	WEST CELL EAST OUTLETS
		WS	WEST CELL SOUTH OUTLETS
		WW	WEST CELL WEST OUTLETS
		EN	EAST CELL NORTH OUTLETS
		EW	EAST CELL WEST OUTLETS
		ES	EAST CELL SOUTH OUTLETS
		EE	EAST CELL EAST OUTLETS

0 75 150 300 450
(IN FEET)
1 inch = 150 ft.

CONTRACT NO. 1359-BRK

STORMWATER MANAGEMENT SYSTEM PLAN

BROOKFIELD AVENUE LANDFILL

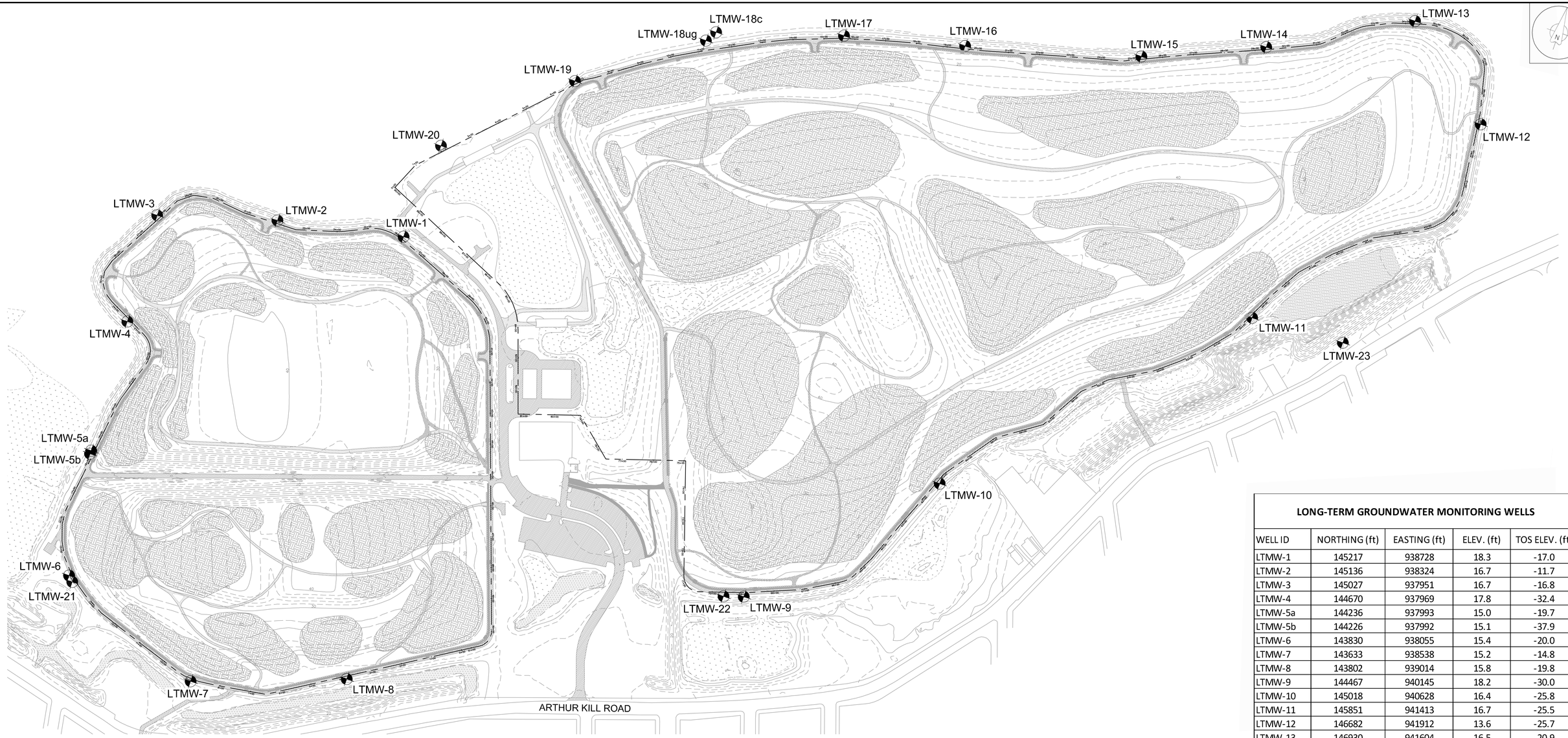
Prepared For:
CITY OF NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

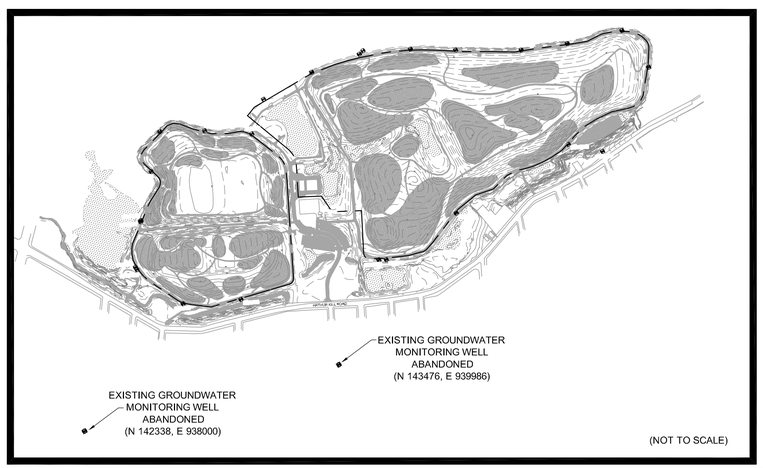
BROOKFIELD CONSTRUCTION ASSOCIATES, LLC
136 CENTRAL AVENUE
CLARK, NJ 07066

Layeux Inc.
PROFESSIONAL LAND SURVEYORS
CONSTRUCTION SURVEYING SPECIALISTS
GPS CONSULTANTS
1 Entin Road, Unit 8
Clifton, N.J. 07014
Ph: 973-249-0900 Fax: 973-249-0988

Drawn By:	MP
Checked:	JPL
Scale:	N.T.S
Date:	08-18-14
Proj. No.:	2857
	Figure 5

User Name : Layoutinc Date\Time : Mon, 21 Sep 2015 - 9:45pm Path\Name : C:\Layout\Brookfield\2857-BrookfieldLandfill\CIVIL 3D\Drawings\091215\2857-ASBUILT DRAINAGE MANAGEMENT SYSTEM PLAN-5.dwg - Layout Tab : DRAINAGE AS-BUILT ALL





REFERENCES:

"Contract No. LF–BAL–1G, Long–Term Groundwater Monitoring Plan, Monitoring Well Locations" dated April 2007, last revised 10/12/12 and prepared by Camp Dresser & McKee.

NOTES:

1. Horizontal and Vertical Datum is a project specific datum, referenced from "Topographical Survey of the Brookfield Avenue Landfill, situated on Staten Island in the Borough of Richmond, County of Richmond, City of New York, State of New York" dated June 4, 2003 prepared by Chas. H. Sells, Inc. To convert to NAD 83 and NGVD 1929 see RFI #7 and #31.
2. Coordinates and elevations are shown in U.S. Survey Feet.

LEGEND

LTMW-8 — LONG-TERM GROUNDWATER MONITORING WELL

—40.00— CENTERLINE OF BARRIER WALL

20 AS-BUILT FINAL GRADE

0 75 150 300 450
(IN FEET)
1 inch = 150 ft.

LONG-TERM GROUNDWATER MONITORING WELLS

WELL ID	NORTHING (ft)	EASTING (ft)	ELEV. (ft)	TOS ELEV. (ft)
LTMW-1	145217	938728	18.3	-17.0
LTMW-2	145136	938324	16.7	-11.7
LTMW-3	145027	937951	16.7	-16.8
LTMW-4	144670	937969	17.8	-32.4
LTMW-5a	144236	937993	15.0	-19.7
LTMW-5b	144226	937992	15.1	-37.9
LTMW-6	143830	938055	15.4	-20.0
LTMW-7	143633	938538	15.2	-14.8
LTMW-8	143802	939014	15.8	-19.8
LTMW-9	144467	940145	18.2	-30.0
LTMW-10	145018	940628	16.4	-25.8
LTMW-11	145851	941413	16.7	-25.5
LTMW-12	146682	941912	13.6	-25.7
LTMW-13	146930	941604	16.5	-20.9
LTMW-14	146696	941175	18.2	-25.3
LTMW-15	146537	940802	17.3	-20.2
LTMW-16	146386	940251	16.5	-22.1
LTMW-17	146292	939869	14.2	-18.2
LTMW-18ug	146133	939450	11.6	-22.5
LTMW-18c	146169	939473	13.0	-113.0
LTMW-19	145873	939091	12.8	-9.3
LTMW-20	145535	938748	9.2	-15.0
LTMW-21	143814	938072	15.7	-76.0
LTMW-22	144447	940083	19.9	-100.0
LTMW-23	145869	941717	24.1	-107.0

CONTRACT NO. 1359-BRK

Layeux Inc.
PROFESSIONAL LAND SURVEYORS
CONSTRUCTION SURVEYING SPECIALISTS
GPS CONSULTANTS
1 Entin Road, Unit 8
Clifton, N.J. 07014
Ph: 973-249-0900 Fax: 973-249-0988

LONG-TERM GROUNDWATER MONITORING WELL LOCATION PLAN

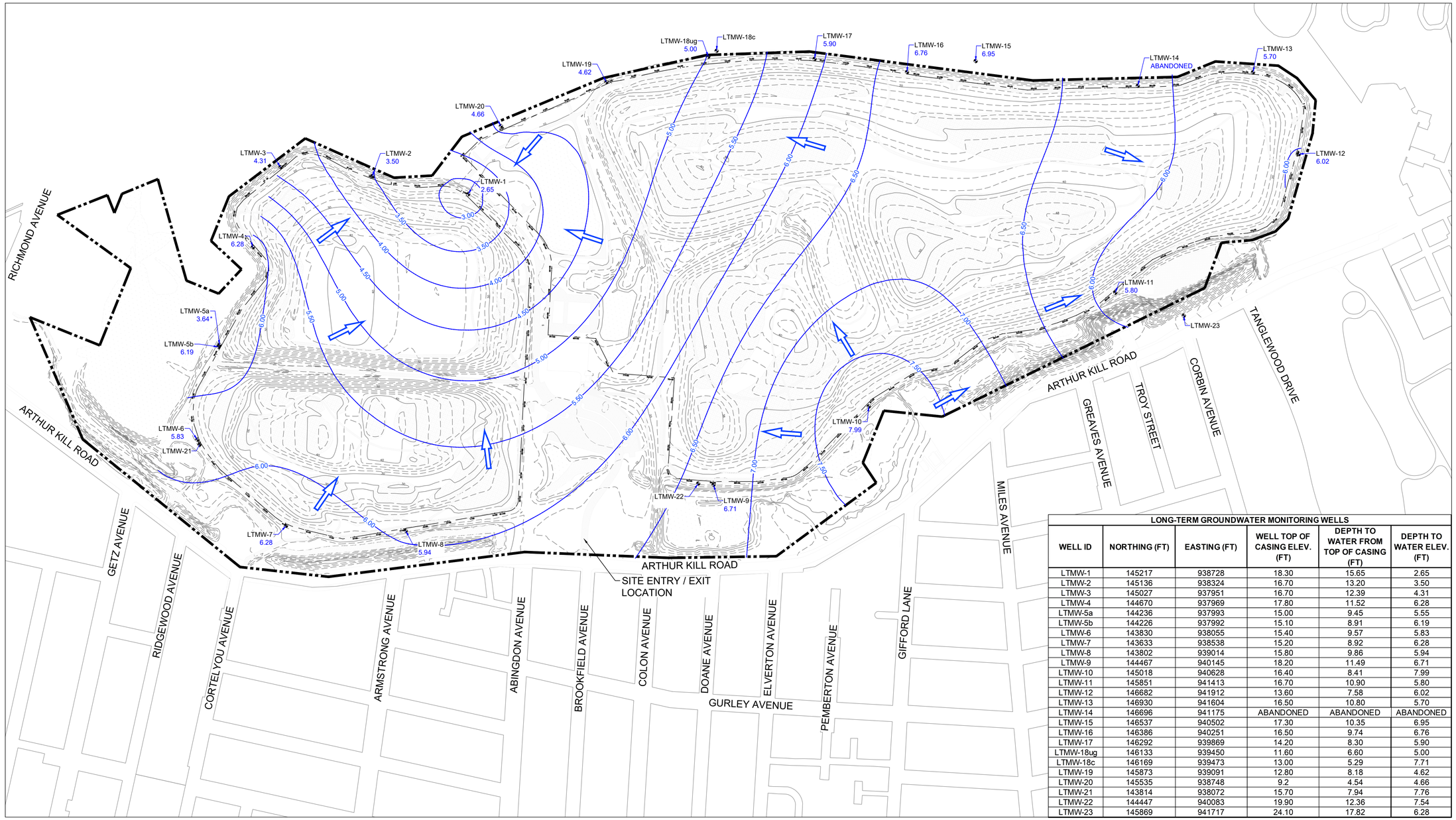
BROOKFIELD AVENUE LANDFILL

Prepared For:
CITY OF NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

BROOKFIELD CONSTRUCTION ASSOCIATES, LLC
136 CENTRAL AVENUE
CLARK, NJ 07066

Drawn By:	MP
Checked:	JB
Scale:	1"=150'
Date:	07-23-15
Proj. No.:	2857
	Figure 6

User Name: : Layoutinc Date\Time : Mon, 21 Sep 2015 - 10:18pm Path\Name : C:\Layout\Brookfield\2857-Brookfield-Landfill\Civil 3D\Drawings\081215\2857-LTGW MONITORING PLAN-6.dwg - Layout Tab : 081215-LTGW MONITORING



LONG-TERM GROUNDWATER MONITORING WELLS					
WELL ID	NORTHING (FT)	EASTING (FT)	WELL TOP OF CASING ELEV. (FT)	DEPTH TO WATER FROM TOP OF CASING (FT)	DEPTH TO WATER ELEV. (FT)
LTMW-1	145217	938728	18.30	15.65	2.65
LTMW-2	145136	938324	16.70	13.20	3.50
LTMW-3	145027	937951	16.70	12.39	4.31
LTMW-4	144670	937969	17.80	11.52	6.28
LTMW-5a	144236	937993	15.00	9.45	5.55
LTMW-5b	144226	937992	15.10	8.91	6.19
LTMW-6	143830	938055	15.40	9.57	5.83
LTMW-7	143633	938538	15.20	8.92	6.28
LTMW-8	143802	939014	15.80	9.86	5.94
LTMW-9	144467	940145	18.20	11.49	6.71
LTMW-10	145018	940628	16.40	8.41	7.99
LTMW-11	145851	941413	16.70	10.90	5.80
LTMW-12	146682	941912	13.60	7.58	6.02
LTMW-13	146930	941604	16.50	10.80	5.70
LTMW-14	146696	941175	ABANDONED	ABANDONED	ABANDONED
LTMW-15	146537	940502	17.30	10.35	6.95
LTMW-16	146386	940251	16.50	9.74	6.76
LTMW-17	146292	939869	14.20	8.30	5.90
LTMW-18ug	146133	939450	11.60	6.60	5.00
LTMW-18c	146169	939473	13.00	5.29	7.71
LTMW-19	145873	939091	12.80	8.18	4.62
LTMW-20	145535	938748	9.2	4.54	4.66
LTMW-21	143814	938072	15.70	7.94	7.76
LTMW-22	144447	940083	19.90	12.36	7.54
LTMW-23	145869	941717	24.10	17.82	6.28

LEGEND (SYMBOL NOT TO SCALE):

- SITE BOUNDARY
- LTMW-## — LONG-TERM GROUNDWATER MONITORING WELL
- 7.99 — GROUNDWATER ELEVATION (IN FEET ABOVE MEAN SEA LEVEL)
- 7.00 — GROUNDWATER SURFACE ELEVATION CONTOUR (IN FEET ABOVE MEAN SEA LEVEL)
- GROUNDWATER FLOW DIRECTION
- CENTERLINE OF BARRIER WALL
- AS-BUILT FINAL GRADE

NOTES:

1. HORIZONTAL AND VERTICAL DATUM IS A PROJECT SPECIFIC DATUM, REFERENCED FROM "TOPOGRAPHICAL SURVEY OF THE BROOKFIELD AVENUE LANDFILL, SITUATED ON STATEN ISLAND IN THE BOROUGH OF RICHMOND, COUNTY OF RICHMOND, CITY OF NEW YORK, STATE OF NEW YORK" DATED JUNE 4, 2003 PREPARED BY CHAS. H. SELLS, INC. TO CONVERT TO NAD 83 AND NGVD 1929 SEE RFI #7 AND #31.
2. COORDINATES AND ELEVATIONS ARE SHOWN IN U.S. SURVEY FEET.
3. MP ELEV = MEASURING POINT ELEVATION - THE TOP EDGE OF EACH WELL'S OUTER STEEL CASING.
4. TOS ELEV = TOP OF SCREEN ELEVATION.
5. TOP OF WELL CASING ELEVATIONS REFERENCE THE ELEVATIONS PROVIDED ON THE LONG-TERM GROUNDWATER MONITORING WELL LOCATION PLAN FIGURE 6 PREPARED BY LAYOUT INC. DATED 07-23-15.
6. DEPTH TO WATER FROM TOP OF CASING ELEVATIONS RECORDED BY TRC ON 02-26-2024.
7. * = DEPTH TO WATER ELEVATION WAS NOT USED IN PREPARATION OF GROUNDWATER CONTOURS.
8. DEPTH TO WATER ELEVATION AT LTMW-18c, LTMW-21, LTMW-22, AND LTMW-23 WERE NOT USED IN PREPARATION OF GROUNDWATER CONTOURS SINCE IT IS PART OF THE CRETACEOUS GROUNDWATER LEVEL MAP.

REFERENCES:

"CONTRACT NO. LF-BAL-1G, LONG-TERM GROUNDWATER MONITORING PLAN, MONITORING WELL LOCATIONS" DATED APRIL 2007, LAST REVISED 10/12/12 AND PREPARED BY CAMP DRESSER & MCKEE.

N

0 200' 400'

SCALE: 1"= 200'
SHEET SIZE: 24" X 36"

PROJECT:
NEW YORK CITY DEPARTMENT OF PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL - 375 ARTHUR KILL ROAD
STATEN ISLAND, NEW YORK 10308

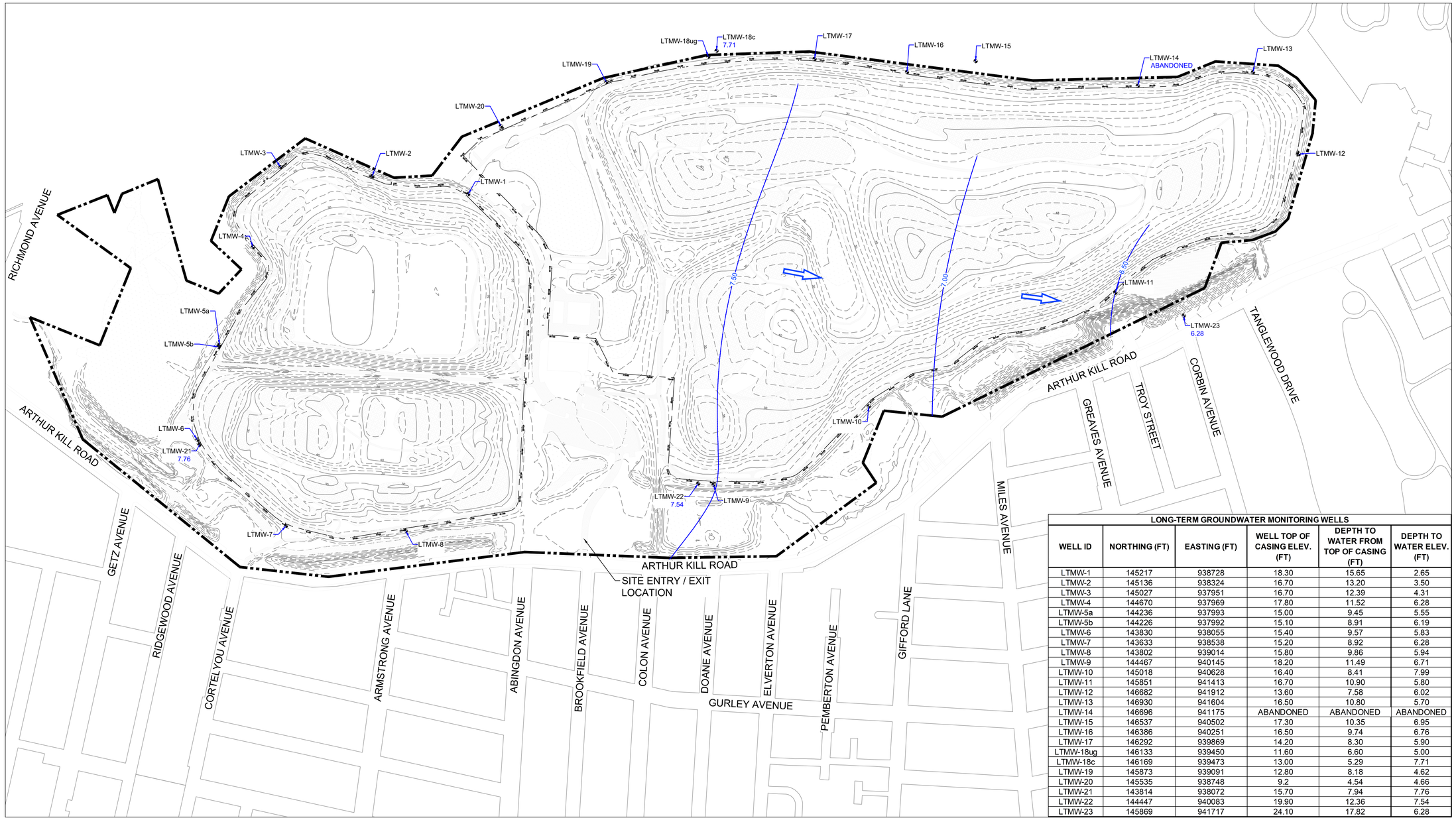
TITLE: LONG-TERM GROUNDWATER MONITORING WELL UPPER GLACIAL GROUNDWATER SURFACE ELEVATION CONTOUR MAP - 2024

DRAWN BY:	H. DELGADO	PROJ. NO.:	625454.0000.0000
CHECKED BY:	E. HE		
APPROVED BY:	W. LINDEMUTH		FIGURE 7
DATE:	MAY 2025		

TRC
1407 Broadway, Suite 3301
New York, NY 10018
Phone: 212.221.7822
www.TRCcompanies.com

FILE NO.: Fig 7 - Upper Glacial GW SEC Map-2024 (Brookfield LF).dwg

DATE: May 27, 2025 - 6:42PM — LAYOUT: 24X36L
DRAWING NAME: I:\env\Projects\Brookfield\NYC Parks Contract 2016\625201\81\384968.0000 - Brookfield Avenue Landfill\Deliverables\Annual Report\2025 - 10th Year, 2nd Five Year, 2nd PRR\Figures\TRC WD_Fig 7 - Upper Glacial GW SEC Map-2024 (Brookfield LF).dwg — PLOT DATE: May 27, 2025 -
Xref: c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut_Cut.dwg, c:\Users\hdelgado\Desktop\Xrefs\Brookfield_Base_Topo_Contours_Labels_Fill_Cut_Grid_Text_Cut



LONG-TERM GROUNDWATER MONITORING WELLS					
WELL ID	NORTHING (FT)	EASTING (FT)	WELL TOP OF CASING ELEV. (FT)	DEPTH TO WATER FROM TOP OF CASING (FT)	DEPTH TO WATER ELEV. (FT)
LTMW-1	145217	938728	18.30	15.65	2.65
LTMW-2	145136	938324	16.70	13.20	3.50
LTMW-3	145027	937951	16.70	12.39	4.31
LTMW-4	144670	937969	17.80	11.52	6.28
LTMW-5a	144236	937993	15.00	9.45	5.55
LTMW-5b	144226	937992	15.10	8.91	6.19
LTMW-6	143830	938055	15.40	9.57	5.83
LTMW-7	143633	938538	15.20	8.92	6.28
LTMW-8	143802	939014	15.80	9.86	5.94
LTMW-9	144467	940145	18.20	11.49	6.71
LTMW-10	145018	940628	16.40	8.41	7.99
LTMW-11	145851	941413	16.70	10.90	5.80
LTMW-12	146682	941912	13.60	7.58	6.02
LTMW-13	146930	941604	16.50	10.80	5.70
LTMW-14	146696	941175	ABANDONED	ABANDONED	ABANDONED
LTMW-15	146537	940502	17.30	10.35	6.95
LTMW-16	146386	940251	16.50	9.74	6.76
LTMW-17	146292	939869	14.20	8.30	5.90
LTMW-18ug	146133	939450	11.60	6.60	5.00
LTMW-18c	146169	939473	13.00	5.29	7.71
LTMW-19	145873	939091	12.80	8.18	4.62
LTMW-20	145535	938748	9.2	4.54	4.66
LTMW-21	143814	938072	15.70	7.94	7.76
LTMW-22	144447	940083	19.90	12.36	7.54
LTMW-23	145869	941717	24.10	17.82	6.28

LEGEND (SYMBOL NOT TO SCALE):

- SITE BOUNDARY
- LTMW-## — LONG-TERM GROUNDWATER MONITORING WELL
- 7.71 — GROUNDWATER ELEVATION (IN FEET ABOVE MEAN SEA LEVEL)
- 7.00 — GROUNDWATER SURFACE ELEVATION CONTOUR (IN FEET ABOVE MEAN SEA LEVEL)
- GROUNDWATER FLOW DIRECTION
- 41+00 — CENTERLINE OF BARRIER WALL
- 20 — AS-BUILT FINAL GRADE

NOTES:

1. HORIZONTAL AND VERTICAL DATUM IS A PROJECT SPECIFIC DATUM, REFERENCED FROM "TOPOGRAPHICAL SURVEY OF THE BROOKFIELD AVENUE LANDFILL, SITUATED ON STATEN ISLAND IN THE BOROUGH OF RICHMOND, COUNTY OF RICHMOND, CITY OF NEW YORK, STATE OF NEW YORK" DATED JUNE 4, 2003 PREPARED BY CHAS. H. SELLS, INC. TO CONVERT TO NAD 83 AND NGVD 1929 SEE RFI #7 AND #31.
2. COORDINATES AND ELEVATIONS ARE SHOWN IN U.S. SURVEY FEET.
3. MP ELEV = MEASURING POINT ELEVATION - THE TOP EDGE OF EACH WELL'S OUTER STEEL CASING.
4. TOS ELEV = TOP OF SCREEN ELEVATION.
5. TOP OF WELL CASING ELEVATIONS REFERENCE THE ELEVATIONS PROVIDED ON THE LONG-TERM GROUNDWATER MONITORING WELL LOCATION PLAN FIGURE 6 PREPARED BY LAYOUT INC. DATED 07-23-15.
6. DEPTH TO WATER FROM TOP OF CASING ELEVATIONS RECORDED BY TRC ON 02-26-2024.
7. DEPTH TO WATER ELEVATION AT LTMW-1, LTMW-2, LTMW-3, LTMW-4, LTMW-5, LTMW-6, LTMW-7, LTMW-8, LTMW-9, LTMW-10, LTMW-11, LTMW-12, LTMW-13, LTMW-14, LTMW-15, LTMW-16, LTMW-17, LTMW-18ug, LTMW-19, AND LTMW-20 WERE NOT USED IN PREPARATION OF GROUNDWATER CONTOURS SINCE IT IS PART OF THE UPPER GLACIAL GROUNDWATER LEVEL MAP.

REFERENCES:

"CONTRACT NO. LF-BAL-1G, LONG-TERM GROUNDWATER MONITORING PLAN, MONITORING WELL LOCATIONS" DATED APRIL 2007, LAST REVISED 10/12/12 AND PREPARED BY CAMP DRESSER & MCKEE.

N

0 200' 400'

SCALE: 1"= 200'
SHEET SIZE: 24" X 36"

PROJECT:
NEW YORK CITY DEPARTMENT OF PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL - 375 ARTHUR KILL ROAD
STATEN ISLAND, NEW YORK 10308

TITLE: LONG-TERM GROUNDWATER MONITORING WELL CRETACEOUS GROUNDWATER SURFACE ELEVATION CONTOUR MAP - 2024

DRAWN BY:	H. DELGADO	PROJ. NO.:	625454.0000.0000
CHECKED BY:	E. HE		FIGURE 8
APPROVED BY:	W. LINDEMUTH		
DATE:	MAY 2025		

TRC
1407 Broadway, Suite 3301
New York, NY 10018
Phone: 212.221.7822
www.TRCcompanies.com

FILE NO.: Fig 8 - Cretaceous GW SEC Map-2024 (Brookfield LF).dwg

Date: — Last saved by: — Last plotted by: — Xrefs: — Images: — Layouts: — Plot scale: — Plot offset:
DRAWING NAME: I:\env\625454.0000.0000 - Brookfield Avenue Landfill\Deliverables\Annual Report\2025 - 10th Year, 2nd Five Year, 2nd PRR\Figures\TRC WD\ Fig 8 - Cretaceous GW SEC Map-2024 (Brookfield LF).dwg — PLOT DATE: May 27, 2025 - 6:59PM — LAYOUT: 24X36L

TABLES

TABLE 1

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
LEACHATE MANAGEMENT SYSTEM
SUMP PUMP RUN TIMES

APRIL 2024 THROUGH MARCH 2025

Date	Monthly Total Pump Hours To Date Per Sump									Total
	LSW- 1	LSW-2	LSW-3	LSE-1	LSE-2	LSE-3	LSE-4	LSE-5	LSE-6	
4/23/2024	29,916.5	14,295.8	33,295.8	2,099.2	10,039.2	40,639.7	406.1	5,310.8	30,917.5	166,920.6
5/29/2024	29,916.5	14,295.8	33,614.1	2,337.0	10,277.0	41,461.7	406.1	6,192.3	31,781.2	170,281.7
6/26/2024	30,399.7	14,295.9	34,285.0	2,337.0	10,536.4	42,132.8	406.1	6,863.3	32,452.0	173,708.2
7/23/2024	31,045.1	14,295.9	34,930.6	2,337.0	10,749.3	42,777.8	406.1	7,508.2	33,097.1	177,147.1
8/29/2024	31,910.7	14,680.0	35,818.0	2,337.0	10,951.3	43,216.0	412.9	7,995.0	33,984.3	181,305.2
9/24/2024	32,009.3	14,778.6	35,916.5	2,337.0	11,061.4	43,230.1	412.9	8,046.5	34,608.2	182,400.5
10/28/2024	32,009.3	14,778.6	35,916.5	2,337.0	11,197.2	43,230.1	412.9	8,046.5	35,088.3	183,016.4
11/26/2024	32,009.3	14,778.6	35,916.5	2,337.0	11,317.8	43,230.1	412.9	8,046.5	35,088.3	183,137.0
12/30/2024	32,009.3	14,778.6	35,916.5	2,337.0	11,496.6	43,230.1	412.9	8,046.5	35,088.3	183,315.8
1/31/2025	32,009.3	14,778.6	35,916.7	2,337.0	11,666.0	43,230.1	412.9	8,046.5	35,088.3	183,485.4
2/25/2025	32,009.3	14,778.6	35,916.7	2,448.3	11,807.7	43,230.1	412.9	8,046.5	35,088.3	183,738.4
3/24/2025	32,009.3	14,778.6	35,916.7	2,448.3	11,979.0	43,230.1	412.9	8,046.5	35,088.3	183,909.7
Total Pump Hours this Annual Period	2,092.8	482.8	2,620.9	349.1	1,939.8	2,590.4	6.8	2,735.7	4,170.8	16,989.1
									Average Pump Hours this Annual Period per Sump:	1,887.7
									Average Pump Hours this Annual Period per Pump:	943.8

TABLE 2

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
LEACHATE MANAGEMENT SYSTEM
MONTHLY FLOW REPORT

APRIL 2024 THROUGH MARCH 2025

Period	Total Monthly Volume Treated (Gallons)	Average Flow (GPM)	Average Daily Flow (GPD)	Maximum Daily Flow (GPD)	Number of Day's in Service	Percent of Time in Service
Apr-24	2,420,864.0	56.0	80,695.5	109,892.9	30	100%
May-24	1,658,064.0	37.1	53,485.9	102,158.4	31	100%
Jun-24	1,573,260.3	36.4	52,442.0	72,833.8	30	100%
Jul-24	1,084,960.5	24.3	34,998.7	40,877.2	31	100%
Aug-24	1,266,510.9	28.4	40,855.2	76,493.7	31	100%
Sep-24	792,000.3	18.3	26,400.0	40,926.3	30	100%
Oct-24	567,490.2	12.7	18,306.1	36,439.3	31	100%
Nov-24	809,979.3	18.7	26,999.3	33,132.2	30	100%
Dec-24	742,531.2	16.6	23,952.6	31,828.0	31	100%
Jan-25*	1,088,178.7	24.4	35,102.5	68,028.7	31	100%
Feb-25*	975,141.5	24.2	34,826.5	50,486.5	28	100%
Mar-25*	1,416,948.7	31.7	45,708.0	50,897.1	31	100%
Average	1,199,660.8	27.4	39,440.9	59,500	NA	100%
Maximum	2,420,864.0	56.0	80,695.5	109,893	NA	100%
Total	14,395,929.6	NA	NA	NA	365	NA

Notes

*The 1Q2025 Quarterly report 'Flow Meter Reading' values are estimated using recorded totalizer values from on-site weekly inspections. The automated virtual private network totalizer program experienced ongoing maintenance during this reporting period.

GPD - Gallons Per Day

GPM - Gallons Per Minute

TABLE 3

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
POST-CLOSURE ENVIRONMENTAL MONITORING
QUARTERLY PERIMETER GAS MONITORING WELL RESULTS

APRIL 2024 THROUGH MARCH 2025

Sample Location	2Q24 4/30/2024				3Q24 9/27/2024				4Q24 11/13/2024				1Q24 2/5/2025			
	Concentration (% Volume)			Comments	Concentration (% Volume)			Comments	Concentration (% Volume)			Comments	Concentration (% Volume)			Comments
	Methane	CO2	Oxygen		Methane	CO2	Oxygen		Methane	CO2	Oxygen		Methane	CO2	Oxygen	
EAST CELL																
LFG-E-1	0.0	0.7	20.7		0.0	1.4	19.2		0.0	2.3	19.8		0.0	0.6	22.2	
LFG-E-2	0.0	3.1	16.9		0.0	2.1	19.4		0.0	3	20		0.0	1.2	20.5	
LFG-E-3	0.0	2.7	15.8		0.0	5.1	14		0.0	5.5	16.4		0.0	1.5	20.5	
LFG-E-4	0.0	0.7	20.7		0.0	3.1	17.3		0.0	6.8	14.7		0.0	6.1	9.3	
LFG-E-5	0.0	1.1	19.6		0.0	3.5	16.3		0.0	6.3	14.5		0.0	4.1	13.7	
LFG-E-6	0.0	0.8	19.3		0.1	2.6	17.4		0.0	2.5	18.9		0.0	1.1	21.2	
LFG-E-7	0.0	2	18		0.0	5.2	14.3		0.0	11.7	6.7		0.0	8.2	5.7	
LFG-E-8	0.0	1.4	18.8		0.0	2.1	18.2		0.0	5	14.9		0.0	2.6	18.2	
LFG-E-9	0.0	0.8	20.4		0.0	0.2	21.3		0.0	1.6	19.1		0.0	0.7	22.1	
LFG-E-10	0.0	6.4	10.2		0.0	2	18.8		0.0	4.6	15.7		0.0	5	14.6	
LFG-E-11	0.0	1.1	19.6		0.0	2.2	19.3		0.0	2.9	19.5		0.0	3.1	16.7	
LFG-E-12	0.0	0.3	21.6		0.0	0.8	21		0.0	0.2	21.6		0.0	2.3	18.7	
LFG-E-13	0.0	1.2	18		0.0	5.3	14.3		0.0	4.2	17.5		0.0	1.6	20	
LFG-E-14	0.0	0.4	21.1		0.0	3	17.4		0.0	1.1	20.6		0.0	0.4	22	
LFG-E-15	0.0	0.2	21.6		0.0	0.5	20.6		0.0	0.4	21.6		0.0	0.2	22.3	
LFG-E-16*	0.0	1.8	19.5		1.1	6.6	10.6		0.0	7	11.9		0.0	0.3	22.5	
LFG-E-17*	0.3	3.3	20.2		0.3	5	14.1		0.0	2.4	21		0.0	0.9	22.1	
LFG-E-18*	**1.7**	1.1	19.7		**42.1**	10.2	8.8		0.0	0.4	22.3		0.5	0.6	21.9	
LFG-E-19*	**48.8**	12.7	6.5		**17.5**	15.6	3.1		1.1	5.9	13.4		0.0	2	20.7	
WEST CELL																
LFG-W-1	0.0	2.7	14.3		0.0	0.7	19.2		0.0	1.9	17.6		0.0	1.7	19.7	
LFG-W-2	0.0	1.1	21.7		0.0	5.1	14.4		0.0	6.8	12.6		0.0	8.2	7.3	
LFG-W-3	0.0	6.2	7.5		0.0	9.5	12.8		0.0	9.1	13.5		0.0	6.5	14.9	
LFG-W-4	0.0	2.1	18		0.0	0.1	21.5		0.0	0.8	21.2		0.0	3.1	17.9	
LFG-W-5	0.0	0.6	21.8		0.0	0.1	21.5		0.0	0.3	21.8		0.0	5.5	15.9	
LFG-W-6	0.0	0.2	21.7		0.0	4.1	17.2		0.0	4.7	16.9		0.0	0.8	22.8	
LFG-W-7	0.0	3.1	16.8		0.0	5.4	15.9		0.0	5.9	16		0.0	5.6	14.1	
LFG-W-8	0.0	0.3	21.6		0.0	1.2	19.8		0.0	1.8	19.8		0.0	0.2	22.8	
LFG-W-9	0.0	0.4	20.3		0.0	0.3	21.6		0.0	2.7	18.4		0.0	0.7	22.4	
LFG-W-10	0.0	0.2	21.4		0.0	1.3	20.6		0.0	1.6	21.3		0.0	0.3	22.9	
LFG-W-11*	**68.5**	16.2	2.1		**60.9**	23.9	3.2		**67.9**	24	2.2		**23.6**	12.5	3.6	
LFG-W-12*	**70.2**	14.4	3.1		**70.8**	25.3	0.8		**56.4**	22.1	2.6		**46.2**	12.5	6.1	
LFG-W-13	0.0	3.8	18.2		0.0	0.2	21.5		0.0	0.7	21.5		0.0	0.2	23.7	

Notes

* The well is located in the interior area of the Site between the two cells and is not near the Site property boundary.
All wells were vented prior to monitoring.
Exceedances of the 6NYCRR Part 363-7.1(e)(2) limit of the 1.25% Volume (i.e., 25% of the Lower Explosive Limit) for Methane are shown in bold and gray shading.

TABLE 4

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
POST-CLOSURE ENVIRONMENTAL MONITORING
QUARTERLY ELTINGVILLE PUMPING STATION GAS MONITORING RESULTS

APRIL 2024 THROUGH MARCH 2025

Location	Floor ID	2Q24 4/30/2024				3Q24 8/8/2024				4Q24 11/13/2024				1Q25 2/5/2025			
		Concentration by %		Time	Comments	Concentration by %		Time	Comments	Concentration by %		Time	Comments	Concentration by %		Time	Comments
		Methane	LEL %			Methane	LEL %			Methane	LEL %			Methane	LEL %		
Dry Well	Main Floor	0.00	0.00	7:50		0.00	0.00	9:40		0.00	0.00	9:40		0.00	0.00	9:15	
	Sub Floor 1	0.00	0.00	7:55		0.00	0.00	9:45		0.00	0.00	10:35		0.00	0.00	9:35	
	Sub Floor 2	0.00	0.00	8:00		0.00	0.00	9:55		0.00	0.00	10:40		0.00	0.00	9:55	
Wet Well	Main Floor	0.00	0.00	7:30		0.00	0.00	9:10		0.00	0.00	10:20		0.00	0.00	9:20	
	Sub Floor 1	0.00	0.00	7:35		0.00	0.00	9:20		0.00	0.00	10:25		0.00	0.00	9:30	
	Sub Floor 2	0.00	0.00	7:40		0.00	0.00	9:30		0.00	0.00	10:30		0.00	0.00	9:45	
Generator Room	Main Floor	0.00	0.00	7:25		0.00	0.00	9:00		0.00	0.00	10:15		0.00	0.00	9:05	

Notes

LEL - Lower Explosive Limit

TABLE 5

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
LEACHATE MANAGEMENT SYSTEM
SUMMARY OF SUMP PUMP RUN TIMES DURING THE SECOND FIVE-YEAR REVIEW PERIOD

APRIL 2020 THROUGH MARCH 2025

Year	Yearly Total Pump Hours To Date Per Sump									Total
	LSW- 1	LSW-2	LSW-3	LSE-1	LSE-2	LSE-3	LSE-4	LSE-5	LSE-6	
6	913.4	436.9	723.7	0.0	905.4	5,714.4	0.0	599.9	7,007.2	16,300.9
7	362.2	938.2	1,080.3	49.8	1,234.6	6,034.8	3.1	1,445.2	7,125.0	18,273.2
8	2,967.9	1,342.0	4,218.3	18.9	1,243.0	4,122.7	0.0	0.0	1,080.3	14,993.1
9	5,214.1	336.0	7,512.2	600.0	1,472.8	7,314.1	0.0	0.0	1,117.4	23,566.6
10	2,092.8	482.8	2,620.9	349.1	1,939.8	2,590.4	6.8	2,735.7	4,170.8	16,989.1
Total Pump Hours this Annual Period	11,550.4	3,535.9	16,155.4	1,017.8	6,795.6	25,776.4	9.9	4,780.8	20,500.7	90,122.9
								Average Pump Hours this Annual Period per Sump:		10,013.7
								Average Pump Hours this Annual Period per Pump:		5,006.8

TABLE 6

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL

PERIMETER GAS MONITORING WELL
SUMMARY OF METHANE RESULTS DURING THE SECOND FIVE-YEAR REVIEW PERIOD

APRIL 2020 THROUGH MARCH 2025

Post-Closure Year	Quarterly Monitoring Round	LFG-E-1	LFG-E-2	LFG-E-3	LFG-E-4	LFG-E-5	LFG-E-6	LFG-E-7	LFG-E-8	LFG-E-9	LFG-E-10	LFG-E-11	LFG-E-12	LFG-E-13	LFG-E-14	LFG-E-15	LFG-E-16*	LFG-E-17*	LFG-E-18*	LFG-E-19*
Methane (% by volume)																				
	2Q20	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0
	3Q20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	4Q20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	**9.9**	0.0
6	1Q21	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
	2Q21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**42.9**	0.0
	3Q21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**15.2**	**29.4**
	4Q21	0.0	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	0.2	0.1	**16.1**	**33.3**
7	1Q22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	**28.5**
	2Q22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	**19**	**33.4**
	3Q22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**5**	**39.4**	0.0
	4Q22	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	**51**	**57.2**
8	1Q23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2Q23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**24**	**46.8**
	3Q23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	4Q23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	1Q24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2Q24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	**1.7**	**48.8**
	3Q24	0.0	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	1.1	0.3	**42.1**	**17.5**
	4Q24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1
10	1Q25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0

Post-Closure Year	Quarterly Monitoring Round	LFG-W-1	LFG-W-2	LFG-W-3	LFG-W-4	LFG-W-5	LFG-W-6	LFG-W-7	LFG-W-8	LFG-W-9	LFG-W-10	LFG-W-11*	LFG-W-12*	LFG-W-13
Methane (% by volume)														
	2Q20	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2
	3Q20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**70**	**71.6**	0.1
	4Q20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**30.5**	**49.6**	0.0
6	1Q21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.7	0.4
	2Q21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**77**	**77.7**	0.0
	3Q21	10.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**70.5**	**69.4**	0.0
	4Q21	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**22.1**	**3.9**	-
7	1Q22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**69.2**	**61.9**	0.0
	2Q22	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**74.3**	**72.9**	0.0
	3Q22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**69.5**	**69.1**	0.0
	4Q22	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**70.2**	**67.9**	0.0
8	1Q23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2Q23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**75.1**	**75.1**	0.0
	3Q23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	4Q23	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	1Q24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	2Q24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**68.5**	**70.2**	0.0
	3Q24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**60.9**	**70.8**	0.0
	4Q24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**67.9**	**56.4**	0.0
10	1Q25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**23.6**	**46.2**	0.0

Notes

* The well is located in the interior area of the Site between the two cells and is not near the Site property boundary.

All wells were vented prior to monitoring

Exceedance of the NYSDEC Action level for Methane is shown in bold and highlighted. THE NYSDEC Action Level is 25% of the LEL (i.e., 1.25% by Volume) after 11/4/17 based on the new NYCRR Part 363 Regulations.

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-1								LTMW-2							
Sample ID		LTMW-1-20200501		LTMW-1-20210916		LTMW-1-20221115 U		LTMW-1-20240227 U		LTMW-2-0200430		LTMW-2-20210916		LTMW-2-20221115		LTMW-2-20240227 U	
Laboratory Sample ID		AD16822-062		AD26083-040		AD34569-004		AD42985-001		AD16822-045		AD26083-036		AD34569-005		AD42985-003	
Date Cample Collected		5/1/2020		9/16/2021		11/15/2022		2/27/2024		4/30/2020		9/16/2021		11/15/2022		2/27/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1,1-Trichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloro-1,2,2-trifluoroethan	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,3-Trichlorobenzene	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,4-Trichlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromo-3-chloropropane	0.04	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromoethane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.6	0.50	U	0.64	U	0.66	U	0.66	U	0.50	U	0.64	U	0.66	U	0.66	U
1,2-Dichloropropane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane	NC	100		100		81		93		50	U	50	U	50	U	50	U
2-Butanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Hexanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
4-Methyl-2-pentanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Acetone	50	5.0	U	25		10		5.7		5.0	U	5.0	U	5.0	U	5.0	U
Benzene	1	**1.2**		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Bromochloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	5	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	UJ	1.0	U	1.0	U
Carbon disulfide	NC	1.0	U	1.0	U	1.0	U	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U
Carbon tetrachloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	5	1.0	U	1.0	U	1.0	U	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	7	1.0	U	2.0	U	2.0	U	1.0	U	1.0	U	2.0	U	1.0	U	1.0	U
Chloromethane	5	1.0	U	1.0	U	1.0	U	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-1								LTMW-2							
Sample ID		LTMW-1-20200501		LTMW-1-20210916		LTMW-1-20221115 U		LTMW-1-20240227 U		LTMW-2-0200430		LTMW-2-20210916		LTMW-2-20221115		LTMW-2-20240227 U	
Laboratory Sample ID		AD16822-062		AD26083-040		AD34569-004		AD42985-001		AD16822-045		AD26083-036		AD34569-005		AD42985-003	
Date Cample Collected		5/1/2020		9/16/2021		11/15/2022		2/27/2024		4/30/2020		9/16/2021		11/15/2022		2/27/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Cyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	UJ	1.0	U	1.0	UJ	1.0	U	1.0	U
Ethylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Isopropylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m&p-Xylenes	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl Acetate	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylcyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene chloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl-t-butyl ether	NC	0.55		1.0		0.87	U	0.87	U	0.50	U	0.50	U	0.87	U	0.87	U
o-Xylene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Styrene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	UJ	1.0	U	1.0	U
Trichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	UJ	1.0	U	1.0	U
Trichlorofluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl chloride	2	1.0	U	1.0	U	1.0	U	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U
Xylenes (Total)	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Notes
µg/L - micrograms per liter.
Class GA Value - New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS 1.1.1) Groundwater Effluent Limitations (Class GA) standard/value.
NC - No criterion.
NS - Not sampled.
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect.
UJ - Analyte was analyzed for but not detected.

Xylenes (Total): There is no GA value for total xylenes. The standards for o-xylene, m-xylene, and p-xylene is 5 µg/L.

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-3								LTMW-4							
Sample ID		LTMW-3-20200430		LTMW-3-20210915		LTMW-3-20221115 U		LTMW-3-20240228 U		LMTW-4-20200501		LTMW-4-20210915		LTMW-4-20221116 U		LTMW-4-20240228 U	
Laboratory Sample ID		AD16822-045		AD26083-032		AD34569-006		AD42985-024		AD16822-058		AD26083-028		AD34583-002		AD42985-026	
Date Cample Collected		4/30/2020		9/15/2021		11/15/2022		2/28/2024		5/1/2020		9/15/2021		11/16/2022		2/28/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1,1-Trichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloro-1,2,2-trifluoroethan	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,3-Trichlorobenzene	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,4-Trichlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromo-3-chloropropane	0.04	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromoethane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.6	0.50	U	0.64	U	0.66	U	0.66	U	0.50	U	0.64	U	0.66	U	0.66	U
1,2-Dichloropropane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane	NC	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
2-Butanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Hexanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
4-Methyl-2-pentanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Acetone	50	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	1	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Bromochloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon disulfide	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon tetrachloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	7	1.0	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U	1.0	U
Chloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-3								LTMW-4							
Sample ID		LTMW-3-20200430		LTMW-3-20210915		LTMW-3-20221115 U		LTMW-3-20240228 U		LMTW-4-20200501		LTMW-4-20210915		LTMW-4-20221116 U		LTMW-4-20240228 U	
Laboratory Sample ID		AD16822-045		AD26083-032		AD34569-006		AD42985-024		AD16822-058		AD26083-028		AD34583-002		AD42985-026	
Date Cample Collected		4/30/2020		9/15/2021		11/15/2022		2/28/2024		5/1/2020		9/15/2021		11/16/2022		2/28/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Cyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Isopropylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m&p-Xylenes	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl Acetate	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylcyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene chloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl-t-butyl ether	NC	0.50	U	0.50	U	0.87	U	0.87	U	0.50	U	0.50	U	0.87	U	0.87	U
o-Xylene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Styrene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl chloride	2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Xylenes (Total)	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Notes
µg/L - micrograms per liter.
Class GA Value - New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS 1.1.1) Groundwater Effluent Limitations (Class GA) standard/value.
NC - No criterion.
NS - Not sampled.
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect.
UJ - Analyte was analyzed for but not detected.

Xylenes (Total): There is no GA value for total xylenes. The standards for o-xylene, m-xylene, and p-xylene is 5 µg/L.

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-5A								LTMW-5B							
Sample ID		LMTW-5A-02022427		LTMW-5A-20210915		LTMW-5A-20221116 U		LTMW-5A-20240301 U		LMTW-5B-20200427		LTMW-5B-20210914		LTMW-5B-20221116		LTMW-5B-20240301 U	
Laboratory Sample ID		AD16822-005		AD26083-026		AD34583-009		AD42985-062		AD16822-010		AD26083-021		AD34583-011		AD42985-064	
Date Cample Collected		4/27/2020		9/15/2021		11/16/2022		3/1/2024		4/28/2020		9/14/2021		11/16/2022		3/1/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1,1-Trichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloro-1,2,2-trifluoroethan	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,3-Trichlorobenzene	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,4-Trichlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromo-3-chloropropane	0.04	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromoethane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.6	0.50	U	0.64	U	0.66	U	0.66	U	0.50	U	0.64	U	0.66	U	0.66	U
1,2-Dichloropropane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane	NC	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
2-Butanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Hexanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
4-Methyl-2-pentanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Acetone	50	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	1	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Bromochloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon disulfide	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon tetrachloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	7	1.0	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U	1.0	U
Chloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-5A								LTMW-5B							
Sample ID		LMTW-5A-02022427		LTMW-5A-20210915		LTMW-5A-20221116 U		LTMW-5A-20240301 U		LMTW-5B-20200427		LTMW-5B-20210914		LTMW-5B-20221116		LTMW-5B-20240301 U	
Laboratory Sample ID		AD16822-005		AD26083-026		AD34583-009		AD42985-062		AD16822-010		AD26083-021		AD34583-011		AD42985-064	
Date Cample Collected		4/27/2020		9/15/2021		11/16/2022		3/1/2024		4/28/2020		9/14/2021		11/16/2022		3/1/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Cyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Isopropylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m&p-Xylenes	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl Acetate	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylcyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene chloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl-t-butyl ether	NC	0.50	U	0.50	U	0.87	U	0.87	U	0.50	U	0.50	U	0.87	U	0.87	U
o-Xylene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Styrene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl chloride	2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Xylenes (Total)	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Notes
µg/L - micrograms per liter.
Class GA Value - New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS 1.1.1) Groundwater Effluent Limitations (Class GA) standard/value.
NC - No criterion.
NS - Not sampled.
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect.
UJ - Analyte was analyzed for but not detected.

Xylenes (Total): There is no GA value for total xylenes. The standards for o-xylene, m-xylene, and p-xylene is 5 µg/L.

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-6								LTMW-7							
Sample ID		LMTW-6-20200427		LTMW-6-20210914		LTMW-6-20221117 U		LTMW-6-20240228 U		LMTW-7-20200428		LTMW-7-20210913		LTMW-7-20221117		LTMW-7-20240229 U	
Laboratory Sample ID		AD16822-007		AD26083-016		AD34621-002		AD42985-028		AD16822-012		AD26083-011		AD34621-006		AD42985-033	
Date Cample Collected		4/27/2020		9/14/2021		11/17/2022		2/28/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1,1-Trichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloro-1,2,2-trifluoroethan	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,3-Trichlorobenzene	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,4-Trichlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromo-3-chloropropane	0.04	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromoethane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.6	0.50	U	0.64	U	0.66	U	0.66	U	0.50	U	0.64	U	0.66	U	0.66	U
1,2-Dichloropropane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane	NC	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
2-Butanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Hexanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
4-Methyl-2-pentanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Acetone	50	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	1	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Bromochloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon disulfide	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon tetrachloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	7	1.0	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U	1.0	U
Chloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-6								LTMW-7							
Sample ID		LMTW-6-20200427		LTMW-6-20210914		LTMW-6-20221117 U		LTMW-6-20240228 U		LMTW-7-20200428		LTMW-7-20210913		LTMW-7-20221117		LTMW-7-20240229 U	
Laboratory Sample ID		AD16822-007		AD26083-016		AD34621-002		AD42985-028		AD16822-012		AD26083-011		AD34621-006		AD42985-033	
Date Camp le Collected		4/27/2020		9/14/2021		11/17/2022		2/28/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Cyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Isopropylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m&p-Xylenes	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl Acetate	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylcyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene chloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl-t-butyl ether	NC	0.50	U	0.50	U	0.87	U	0.87	U	0.50	U	0.50	U	0.87	U	0.87	U
o-Xylene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Styrene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl chloride	2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Xylenes (Total)	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Notes
µg/L - micrograms per liter.
Class GA Value - New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS 1.1.1) Groundwater Effluent Limitations (Class GA) standard/value.
NC - No criterion.
NS - Not sampled.
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect.
UJ - Analyte was analyzed for but not detected.

Xylenes (Total): There is no GA value for total xylenes. The standards for o-xylene, m-xylene, and p-xylene is 5 µg/L.

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-8								LTMW-9							
Sample ID		LMTW-8-20200427		LTMW-8-20210913		LTMW-8-20221117		LTMW-8-20240229 U		LMTW-9-20200428		LTMW-9-20210913		LTMW-9-20221118 U		LTMW-9-20240229 U	
Laboratory Sample ID		AD16822-001		AD26083-002		AD34621-011		AD42985-041		AD16822-017		AD26083-006		AD34621-018		AD42985-052	
Date Cample Collected		4/27/2020		9/13/2021		11/17/2022		2/29/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1,1-Trichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloro-1,2,2-trifluoroethan	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,3-Trichlorobenzene	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,4-Trichlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromo-3-chloropropane	0.04	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromoethane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.6	0.50	U	0.64	U	0.66	U	0.66	U	0.50	U	0.64	U	0.66	U	0.66	U
1,2-Dichloropropane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	3	1.0	U	1.0	U	**98**		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane	NC	100		130		100		50	U	50	U	50	U	50	U	50	U
2-Butanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Hexanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
4-Methyl-2-pentanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Acetone	50	5.0	U	24.0		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	1	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Bromochloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon disulfide	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon tetrachloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	7	1.0	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U	1.0	U
Chloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

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NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-8								LTMW-9							
Sample ID		LMTW-8-20200427		LTMW-8-20210913		LTMW-8-20221117		LTMW-8-20240229 U		LMTW-9-20200428		LTMW-9-20210913		LTMW-9-20221118 U		LTMW-9-20240229 U	
Laboratory Sample ID		AD16822-001		AD26083-002		AD34621-011		AD42985-041		AD16822-017		AD26083-006		AD34621-018		AD42985-052	
Date Cample Collected		4/27/2020		9/13/2021		11/17/2022		2/29/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Cyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Isopropylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m&p-Xylenes	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl Acetate	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylcyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene chloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl-t-butyl ether	NC	0.50	U	0.69		0.87	U	0.87	U	0.50	U	0.50	U	0.87	U	0.87	U
o-Xylene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Styrene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl chloride	2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Xylenes (Total)	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Notes
µg/L - micrograms per liter.
Class GA Value - New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS 1.1.1) Groundwater Effluent Limitations (Class GA) standard/value.
NC - No criterion.
NS - Not sampled.
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect.
UJ - Analyte was analyzed for but not detected.

Xylenes (Total): There is no GA value for total xylenes. The standards for o-xylene, m-xylene, and p-xylene is 5 µg/L.

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-10								LTMW-11							
Sample ID		LMTW-10-20200429		LTMW-20210913		LTMW-10-20221118		LTMW-10-20240229 U		LMTW-11-20200428		LTMW-11-20210913		LTMW-11-20221117		LTMW-11-20240229 U	
Laboratory Sample ID		AD16822-025		AD26083-003		AD34621-019		AD42985-047		AD16822-019		AD26083-004		AD34621-004		AD42985-045	
Date Cample Collected		4/29/2020		9/13/2021		11/17/2022		2/29/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1,1-Trichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloro-1,2,2-trifluoroethan	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,3-Trichlorobenzene	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,4-Trichlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromo-3-chloropropane	0.04	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromoethane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.6	0.50	U	0.64	U	0.66	U	0.66	U	0.50	U	0.64	U	0.66	U	0.66	U
1,2-Dichloropropane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane	NC	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
2-Butanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Hexanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
4-Methyl-2-pentanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Acetone	50	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	1	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Bromochloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon disulfide	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon tetrachloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	7	1.0	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U	1.0	U
Chloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-10								LTMW-11							
Sample ID		LMTW-10-20200429		LTMW-20210913		LTMW-10-20221118		LTMW-10-20240229 U		LMTW-11-20200428		LTMW-11-20210913		LTMW-11-20221117		LTMW-11-20240229 U	
Laboratory Sample ID		AD16822-025		AD26083-003		AD34621-019		AD42985-047		AD16822-019		AD26083-004		AD34621-004		AD42985-045	
Date Cample Collected		4/29/2020		9/13/2021		11/17/2022		2/29/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Cyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Isopropylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m&p-Xylenes	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl Acetate	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylcyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene chloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl-t-butyl ether	NC	0.50	U	0.76		0.87	U	0.87	U	0.50	U	0.50	U	0.87	U	0.87	U
o-Xylene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Styrene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl chloride	2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Xylenes (Total)	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Notes
µg/L - micrograms per liter.
Class GA Value - New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS 1.1.1) Groundwater Effluent Limitations (Class GA) standard/value.
NC - No criterion.
NS - Not sampled.
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect.
UJ - Analyte was analyzed for but not detected.

Xylenes (Total): There is no GA value for total xylenes. The standards for o-xylene, m-xylene, and p-xylene is 5 µg/L.

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-12								LTMW-13							
Sample ID		LMTW-12-2020042		LTMW-12-20210914		LTMW-12-20221115 U		LTMW-12-20240229 U		LMTW-13-20200430		LTMW-13-20210914		LTMW-13-20221117		LTMW-13-20240228 U	
Laboratory Sample ID		AD16822-027		AD26083-014		AD34569-001		AD42985-043		AD16822-055		AD26083-018		AD34621-001		AD42985-014	
Date Cample Collected		4/29/2020		9/14/2021		11/15/2022		2/29/2024		4/30/2020		9/14/2021		11/17/2022		2/28/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1,1-Trichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloro-1,2,2-trifluoroethan	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,3-Trichlorobenzene	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,4-Trichlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromo-3-chloropropane	0.04	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromoethane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.6	0.50	U	0.64	U	0.66	U	0.66	U	0.50	U	0.64	U	0.66	U	0.66	U
1,2-Dichloropropane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane	NC	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
2-Butanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Hexanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
4-Methyl-2-pentanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Acetone	50	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	1	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Bromochloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon disulfide	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon tetrachloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	7	1.0	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U	1.0	U
Chloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

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NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-12								LTMW-13							
Sample ID		LMTW-12-2020042		LTMW-12-20210914		LTMW-12-20221115 U		LTMW-12-20240229 U		LMTW-13-20200430		LTMW-13-20210914		LTMW-13-20221117		LTMW-13-20240228 U	
Laboratory Sample ID		AD16822-027		AD26083-014		AD34569-001		AD42985-043		AD16822-055		AD26083-018		AD34621-001		AD42985-014	
Date Cample Collected		4/29/2020		9/14/2021		11/15/2022		2/29/2024		4/30/2020		9/14/2021		11/17/2022		2/28/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Cyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Isopropylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m&p-Xylenes	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl Acetate	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylcyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene chloride	5	1.0	U	1.0	U	1.1		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl-t-butyl ether	NC	0.50	U	0.50	U	0.87	U	0.87	U	0.50	U	0.50	U	0.87	U	0.87	U
o-Xylene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Styrene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl chloride	2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Xylenes (Total)	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Notes
µg/L - micrograms per liter.
Class GA Value - New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS 1.1.1) Groundwater Effluent Limitations (Class GA) standard/value.
NC - No criterion.
NS - Not sampled.
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect.
UJ - Analyte was analyzed for but not detected.

Xylenes (Total): There is no GA value for total xylenes. The standards for o-xylene, m-xylene, and p-xylene is 5 µg/L.

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-15								LTMW-16							
Sample ID		LMTW-15-20200430		LTMW-15-20210914		LTMW-15-20221116		LTMW-15-20240228 U		LMTW-16-20200430		LTMW-16-20210915		LTMW-16-20221116		LTMW-16-20240228 U	
Laboratory Sample ID		AD16822-053		AD26083-019		AD34583-008		AD42985-030		AD16822-051		AD26083-030		AD34583-007		AD42985-016	
Date Cample Collected		4/30/2020		9/14/2021		11/16/2022		2/28/2024		4/30/2020		9/15/2021		11/16/2022		2/28/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1,1-Trichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloro-1,2,2-trifluoroethan	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,3-Trichlorobenzene	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,4-Trichlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromo-3-chloropropane	0.04	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromoethane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.6	0.50	U	0.64	U	0.66	U	0.66	U	0.50	U	0.64	U	0.66	U	0.66	U
1,2-Dichloropropane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane	NC	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
2-Butanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Hexanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
4-Methyl-2-pentanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Acetone	50	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	1	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Bromochloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon disulfide	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon tetrachloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	7	1.0	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U	1.0	U
Chloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-15								LTMW-16							
Sample ID		LMTW-15-20200430		LTMW-15-20210914		LTMW-15-20221116		LTMW-15-20240228 U		LMTW-16-20200430		LTMW-16-20210915		LTMW-16-20221116		LTMW-16-20240228 U	
Laboratory Sample ID		AD16822-053		AD26083-019		AD34583-008		AD42985-030		AD16822-051		AD26083-030		AD34583-007		AD42985-016	
Date Cample Collected		4/30/2020		9/14/2021		11/16/2022		2/28/2024		4/30/2020		9/15/2021		11/16/2022		2/28/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Cyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Isopropylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m&p-Xylenes	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl Acetate	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylcyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene chloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl-t-butyl ether	NC	0.50	U	0.50	U	0.87	U	0.87	U	0.50	U	0.50	U	0.87	U	0.87	U
o-Xylene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Styrene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl chloride	2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Xylenes (Total)	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Notes
µg/L - micrograms per liter.
Class GA Value - New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS 1.1.1) Groundwater Effluent Limitations (Class GA) standard/value.
NC - No criterion.
NS - Not sampled.
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect.
UJ - Analyte was analyzed for but not detected.

Xylenes (Total): There is no GA value for total xylenes. The standards for o-xylene, m-xylene, and p-xylene is 5 µg/L.

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-17								LTMW-18C							
Sample ID		LMTW-17-20200501		LTMW-17-20210915		LTMW-17-20221116		LTMW-17-20240228 U		LMTW-18C-20200429		LTMW-18C-20210916		LTMW-18C-20221116		LTMW-18C-20240227 U	
Laboratory Sample ID		AD16822-060		AD26083-027		AD34583-004		AD42985-022		AD16822-031		AD26083-035		AD34583-001		AD42985-009	
Date Cample Collected		5/1/2020		9/15/2021		11/16/2022		2/28/2024		4/29/2020		9/16/2021		11/16/2022		2/27/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1,1-Trichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloro-1,2,2-trifluoroethan	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,3-Trichlorobenzene	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,4-Trichlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromo-3-chloropropane	0.04	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromoethane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.6	0.50	U	0.64	U	0.66	U	0.66	U	0.50	U	0.64	U	0.66	U	0.66	U
1,2-Dichloropropane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane	NC	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
2-Butanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Hexanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
4-Methyl-2-pentanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Acetone	50	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	1	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Bromochloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon disulfide	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon tetrachloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	7	1.0	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U	1.0	U
Chloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

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NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-17								LTMW-18C							
Sample ID		LMTW-17-20200501		LTMW-17-20210915		LTMW-17-20221116		LTMW-17-20240228 U		LMTW-18C-20200429		LTMW-18C-20210916		LTMW-18C-20221116		LTMW-18C-20240227 U	
Laboratory Sample ID		AD16822-060		AD26083-027		AD34583-004		AD42985-022		AD16822-031		AD26083-035		AD34583-001		AD42985-009	
Date Cample Collected		5/1/2020		9/15/2021		11/16/2022		2/28/2024		4/29/2020		9/16/2021		11/16/2022		2/27/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Cyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Isopropylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m&p-Xylenes	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl Acetate	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylcyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene chloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl-t-butyl ether	NC	0.50	U	0.50	U	0.87	U	0.87	U	0.50	U	0.50	U	0.87	U	0.87	U
o-Xylene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Styrene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl chloride	2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Xylenes (Total)	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Notes
µg/L - micrograms per liter.
Class GA Value - New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS 1.1.1) Groundwater Effluent Limitations (Class GA) standard/value.
NC - No criterion.
NS - Not sampled.
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect.
UJ - Analyte was analyzed for but not detected.

Xylenes (Total): There is no GA value for total xylenes. The standards for o-xylene, m-xylene, and p-xylene is 5 µg/L.

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-18UG								LTMW-19							
Sample ID		LMTW-18UG-20200429		LTMW-18UG-20210916		LTMW-18-UG-20221115 U		LTMW-18UG-20240227 U		LMTW-19-20200429		LTMW-19-20210916		LTMW-19-20221115		LTMW-19-20240227 U	
Laboratory Sample ID		AD16822-033		AD26083-038		AD34569-003		AD42985-011		AD16822-029		AD26083-048		AD34569-002		AD42985-007	
Date Cample Collected		4/29/2020		9/16/2021		11/15/2022		2/27/2024		4/29/2020		9/16/2021		11/15/2022		2/27/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1,1-Trichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloro-1,2,2-trifluoroethan	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,3-Trichlorobenzene	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,4-Trichlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromo-3-chloropropane	0.04	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromoethane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.6	0.50	U	0.64	U	0.66	U	0.66	U	0.50	U	0.64	U	0.66	U	0.66	U
1,2-Dichloropropane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane	NC	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
2-Butanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Hexanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
4-Methyl-2-pentanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Acetone	50	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	1	0.50	U	0.50	U	0.50	U	0.50	U	0.50	UJ	0.50	U	0.50	U	0.50	U
Bromochloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon disulfide	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon tetrachloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	7	1.0	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U	1.0	U
Chloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-18UG								LTMW-19							
Sample ID		LMTW-18UG-20200429		LTMW-18UG-20210916		LTMW-18-UG-20221115 U		LTMW-18UG-20240227 U		LMTW-19-20200429		LTMW-19-20210916		LTMW-19-20221115		LTMW-19-20240227 U	
Laboratory Sample ID		AD16822-033		AD26083-038		AD34569-003		AD42985-011		AD16822-029		AD26083-048		AD34569-002		AD42985-007	
Date Cample Collected		4/29/2020		9/16/2021		11/15/2022		2/27/2024		4/29/2020		9/16/2021		11/15/2022		2/27/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Cyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	UJ	1.0	U	1.0	U	1.0	U
Ethylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Isopropylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m&p-Xylenes	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl Acetate	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylcyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene chloride	5	1.0	U	1.0	U	1.8		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl-t-butyl ether	NC	0.50	U	0.50	U	0.87	U	0.87	U	0.50	U	0.50	U	0.87	U	0.87	U
o-Xylene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Styrene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl chloride	2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Xylenes (Total)	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Notes
µg/L - micrograms per liter.
Class GA Value - New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS 1.1.1) Groundwater Effluent Limitations (Class GA) standard/value.
NC - No criterion.
NS - Not sampled.
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect.
UJ - Analyte was analyzed for but not detected.

Xylenes (Total): There is no GA value for total xylenes. The standards for o-xylene, m-xylene, and p-xylene is 5 µg/L.

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-20								LTMW-21							
Sample ID		LMTW-20-20200429		NS		LTMW-20-20221118 U		LTMW-20-20240227 U		LMTW-21-20200427		LMTW-21-20210914		LTMW-21-20221117 U		LTMW-21-20240229 U	
Laboratory Sample ID		AD16822-038				AD34621-016		AD42985-005		AD16822-003		AD26083-013		AD34621-009		AD42985-056	
Date Cample Collected		4/29/2020				11/17/2022		2/27/2024		4/27/2020		9/14/2021		11/17/2022		2/29/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)				Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1,1-Trichloroethane	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloro-1,2,2-trifluoroethan	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	1	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,3-Trichlorobenzene	NC	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,4-Trichlorobenzene	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromo-3-chloropropane	0.04	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromoethane	NC	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	3	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.6	0.50	U	NS		0.66	U	0.66	U	0.50	U	0.64	U	0.66	U	0.66	U
1,2-Dichloropropane	1	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	3	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	3	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane	NC	50	U	NS		50	U	50	U	50	U	50	U	50	U	50	U
2-Butanone	NC	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Hexanone	NC	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
4-Methyl-2-pentanone	NC	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Acetone	50	5.0	U	NS		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	1	0.50	U	NS		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Bromochloromethane	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	50	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	50	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon disulfide	NC	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon tetrachloride	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	7	1.0	U	NS		1.0	U	1.0	U	1.0	U	2.0	U	1.0	U	1.0	U
Chloromethane	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,2-Dichloroethene	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	0.4	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

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NEW YORK CITY PARKS AND RECREATION
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STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-20								LTMW-21							
Sample ID		LMTW-20-20200429		NS		LTMW-20-20221118 U		LTMW-20-20240227 U		LMTW-21-20200427		LMTW-21-20210914		LTMW-21-20221117 U		LTMW-21-20240229 U	
Laboratory Sample ID		AD16822-038				AD34621-016		AD42985-005		AD16822-003		AD26083-013		AD34621-009		AD42985-056	
Date Cample Collected		4/29/2020				11/17/2022		2/27/2024		4/27/2020		9/14/2021		11/17/2022		2/29/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)				Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Cyclohexane	NC	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	50	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Isopropylbenzene	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m&p-Xylenes	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl Acetate	NC	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylcyclohexane	NC	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene chloride	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl-t-butyl ether	NC	0.50	U	NS		0.87	U	0.87	U	0.50	U	0.50	U	0.87	U	0.87	U
o-Xylene	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Styrene	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethene	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-Dichloroethene	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-Dichloropropene	0.4	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl chloride	2	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Xylenes (Total)	5	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Notes
µg/L - micrograms per liter.
Class GA Value - New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS 1.1.1) Groundwater Effluent Limitations (Class GA) standard/value.
NC - No criterion.
NS - Not sampled.
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect.
UJ - Analyte was analyzed for but not detected.

Xylenes (Total): There is no GA value for total xylenes. The standards for o-xylene, m-xylene, and p-xylene is 5 µg/L.

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-22								LTMW-23							
Sample ID		LMTW-22-20200428		LMTW-22-20210913		LTMW-22-20221118		LTMW-22-20240229 U		LMTW-23-20200430		LTMW-23-20210916		LTMW-23-20221117 U		LTMW-23-20240301 U	
Laboratory Sample ID		AD16822-014		AD26083-001		AD34621-017		AD42985-054		AD16822-049		AD26083-046		AD34621-012		AD42985-058	
Date Cample Collected		4/28/2020		9/13/2021		11/17/2022		2/29/2024		4/30/2020		9/16/2021		11/17/2022		3/1/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1,1-Trichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloro-1,2,2-trifluoroethan	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,3-Trichlorobenzene	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2,4-Trichlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromo-3-chloropropane	0.04	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dibromoethane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	0.6	0.50	U	0.64	U	0.66	U	0.66	U	0.50	U	0.64	U	0.66	U	0.66	U
1,2-Dichloropropane	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane	NC	50	U	50	U	50	U	50	U	50	U	50	U	50	U	50	U
2-Butanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Hexanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
4-Methyl-2-pentanone	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Acetone	50	5.0	U	5.0	U	5.0	U	5.6		5.0	U	5.0	U	5.0	U	5.0	U
Benzene	1	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Bromochloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon disulfide	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon tetrachloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	7	1.0	U	2.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U	1.0	U
Chloromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

TABLE 7

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET VOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-22								LTMW-23							
Sample ID		LMTW-22-20200428		LMTW-22-20210913		LTMW-22-20221118		LTMW-22-20240229 U		LMTW-23-20200430		LMTW-23-20210916		LTMW-23-20221117 U		LTMW-23-20240301 U	
Laboratory Sample ID		AD16822-014		AD26083-001		AD34621-017		AD42985-054		AD16822-049		AD26083-046		AD34621-012		AD42985-058	
Date Cample Collected		4/28/2020		9/13/2021		11/17/2022		2/29/2024		4/30/2020		9/16/2021		11/17/2022		3/1/2024	
Volatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Cyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	50	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Isopropylbenzene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
m&p-Xylenes	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl Acetate	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylcyclohexane	NC	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene chloride	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methyl-t-butyl ether	NC	0.50	U	0.50	U	0.87	U	0.87	U	0.50	U	0.50	U	0.87	U	0.87	U
o-Xylene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Styrene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-Dichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-Dichloropropene	0.4	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl chloride	2	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Xylenes (Total)	5	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Notes
µg/L - micrograms per liter.
Class GA Value - New York State Department of Environmental Conservation (NYSDEC) Technical and Operational Guidance Series (TOGS 1.1.1) Groundwater Effluent Limitations (Class GA) standard/value.
NC - No criterion.
NS - Not sampled.
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect.
UJ - Analyte was analyzed for but not detected.

Xylenes (Total): There is no GA value for total xylenes. The standards for o-xylene, m-xylene, and p-xylene is 5 µg/L.

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-1								LTMW-2							
Sample ID		LTMW-1-20200501		LTMW-1-20210916		LTMW-1-20221115 U		LTMW-1-20240227 U		LTMW-2-0200430		LTMW-2-20210916		LTMW-2-20221115		LTMW-2-20240227 U	
Laboratory Sample ID		AD16822-062		AD26083-040		AD34569-004		AD42985-001		AD16822-045		AD26083-036		AD34569-005		AD42985-003	
Date Sample Collected		5/1/2020		9/16/2021		11/15/2022		2/27/2024		4/30/2020		9/16/2021		11/15/2022		2/27/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1'-Biphenyl	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
1,2,4,5-Tetrachlorobenzene	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
1,4-Dioxane	0.35	**41**		0.031		**49**		**35**		**2.1**		0.00060		0.50	U	0.50	U
2,3,4,6-Tetrachlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
2,4,5-Trichlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
2,4,6-Trichlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
2,4-Dichlorophenol	5	0.50	U	0.00050	U	0.62	U	0.62	U	0.50	U	0.00053	U	0.62	U	0.62	U
2,4-Dimethylphenol	50	0.50	U	0.00055	U	1.1	U	1.1	U	0.50	U	0.00058	U	1.1	U	1.1	U
2,4-Dinitrophenol	10	10	U	0.010	U	10	U	10	U	10	U	0.011	U	10	U	10	U
2,4-Dinitrotoluene	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
2,6-Dinitrotoluene	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
2-Chloronaphthalene	10	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
2-Chlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
2-Methylnaphthalene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
2-Methylphenol	NC	0.50	U	0.00050	U	0.59	U	0.59	U	0.50	U	0.00053	U	0.59	U	0.59	U
2-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
2-Nitrophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
3&4-Methylphenol	NC	0.50	U	0.00050	U	0.64	U	0.64	U	0.50	U	0.00053	U	0.64	U	0.64	U
3,3'-Dichlorobenzidine	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
3-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	UJ	2.0	U	2.0	U
4,6-Dinitro-2-methylphenol	NC	10	U	0.010	U	5.3	U	10	U	10	U	0.011	U	5.3	U	10	U
4-Bromophenyl-phenylether	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
4-Chloro-3-methylphenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
4-Chloroaniline	5	0.50	U	0.00050	U	0.59	U	0.59	U	0.50	U	0.00053	UJ	0.59	U	0.59	U
4-Chlorophenyl-phenylether	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
4-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
4-Nitrophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Acenaphthene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Acenaphthylene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Acetophenone	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Anthracene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Atrazine	7.5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	UJ	2.0	U	2.0	U
Benzaldehyde	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Benzo[a]anthracene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Benzo[a]pyrene	ND*	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Benzo[b]fluoranthene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Benzo[g,h,i]perylene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-1								LTMW-2							
Sample ID		LTMW-1-20200501		LTMW-1-20210916		LTMW-1-20221115 U		LTMW-1-20240227 U		LTMW-2-0200430		LTMW-2-20210916		LTMW-2-20221115		LTMW-2-20240227 U	
Laboratory Sample ID		AD16822-062		AD26083-040		AD34569-004		AD42985-001		AD16822-045		AD26083-036		AD34569-005		AD42985-003	
Date Sample Collected		5/1/2020		9/16/2021		11/15/2022		2/27/2024		4/30/2020		9/16/2021		11/15/2022		2/27/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Benzo[k]fluoranthene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
bis(2-Chloroethoxy)methane	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
bis(2-Chloroethyl)ether	1	0.50	U	0.00050	U	0.51	U	0.51	U	0.50	U	0.00053	U	0.51	U	0.51	U
bis(2-Chloroisopropyl)ether	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
bis(2-Ethylhexyl)phthalate	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Butylbenzylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Caprolactam	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Carbazole	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Chrysene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Dibenzo[a,h]anthracene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Dibenzofuran	NC	0.50	U	0.00068	U	0.59	U	0.59	U	0.50	U	0.00072	U	0.59	U	0.59	U
Diethylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Dimethylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Di-n-butylphthalate	50	0.50	U	0.0011	U	0.72	U	0.72	U	0.50	U	0.0011	U	0.72	U	0.72	U
Di-n-octylphthalate	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Fluoranthene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Fluorene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Hexachlorobenzene	0.04	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Hexachlorobutadiene	0.5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Hexachlorocyclopentadiene	5	2.0	U	0.0020	U	6.8	U	6.8	U	2.0	U	0.0021	U	6.8	U	6.8	U
Hexachloroethane	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Indeno[1,2,3-cd]pyrene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Isophorone	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Naphthalene	10	0.50	U	0.00050	U	0.50	U	0.50	U	0.50	U	0.00053	U	0.50	U	0.50	U
Nitrobenzene	0.4	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
N-Nitroso-di-n-propylamine	NC	0.50	U	0.00064	U	0.61	U	0.61	U	0.50	U	0.00068	U	0.61	U	0.61	U
N-Nitrosodiphenylamine	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Pentachlorophenol	1	10	U	0.010	U	3.4	U	10	U	10	U	0.011	U	3.4	U	10	U
Phenanthrene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Phenol	1	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Pyrene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U

Notes
µg/L - micrograms per liter
J - Estimated Value
LTMW-20 was not sampled in 2021 due to dense vegetation and posison ivy causing inaccessibility.
NC - No criterion
ND* - Any detection is considered above the Class GA Standard
NS - Not Sampled
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect
UJ - The analyte was analyzed for but was not detected

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-3								LTMW-4							
Sample ID		LTMW-3-20200430		LTMW-3-20210915		LTMW-3-20221115 U		LTMW-3-20240228 U		LMTW-4-20200501		LTMW-4-20210915		LTMW-4-20221116 U		LTMW-4-20240228 U	
Laboratory Sample ID		AD16822-047		AD26083-032		AD34569-006		AD42985-024		AD16822-058		AD26083-028		AD34583-002		AD42985-026	
Date Sample Collected		4/30/2020		9/15/2021		11/15/2022		2/28/2024		5/1/2020		9/15/2021		11/16/2022		2/28/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1'-Biphenyl	5	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
1,2,4,5-Tetrachlorobenzene	5	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
1,4-Dioxane	0.35	0.50	U	0.00053	U	0.50	U	0.50	U	0.00050	U	0.00050	U	0.50	U	0.50	U
2,3,4,6-Tetrachlorophenol	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
2,4,5-Trichlorophenol	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
2,4,6-Trichlorophenol	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
2,4-Dichlorophenol	5	0.50	U	0.00053	U	0.62	U	0.62	U	0.00050	U	0.00050	U	0.62	U	0.62	U
2,4-Dimethylphenol	50	0.50	U	0.00058	U	1.1	U	1.1	U	0.00050	U	0.00055	U	1.1	U	1.1	U
2,4-Dinitrophenol	10	10	U	0.011	U	10	U	10	U	0.010	U	0.010	U	10	U	10	U
2,4-Dinitrotoluene	5	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
2,6-Dinitrotoluene	5	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
2-Chloronaphthalene	10	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
2-Chlorophenol	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
2-Methylnaphthalene	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
2-Methylphenol	NC	0.50	U	0.00053	U	0.59	U	0.59	U	0.00050	U	0.00050	U	0.59	U	0.59	U
2-Nitroaniline	5	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
2-Nitrophenol	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
3&4-Methylphenol	NC	0.50	U	0.00053	U	0.64	U	0.64	U	0.00050	U	0.00050	U	0.64	U	0.64	U
3,3'-Dichlorobenzidine	5	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
3-Nitroaniline	5	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
4,6-Dinitro-2-methylphenol	NC	10	U	0.011	U	5.3	U	10	U	0.010	U	0.010	U	5.3	U	10	U
4-Bromophenyl-phenylether	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
4-Chloro-3-methylphenol	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
4-Chloroaniline	5	0.50	U	0.00053	U	0.59	U	0.59	U	0.00050	U	0.00050	U	0.59	U	0.59	U
4-Chlorophenyl-phenylether	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
4-Nitroaniline	5	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
4-Nitrophenol	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Acenaphthene	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Acenaphthylene	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Acetophenone	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Anthracene	50	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Atrazine	7.5	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Benzaldehyde	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Benzo[a]anthracene	0.002	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Benzo[a]pyrene	ND*	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Benzo[b]fluoranthene	0.002	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Benzo[g,h,i]perylene	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-3								LTMW-4							
Sample ID		LTMW-3-20200430		LTMW-3-20210915		LTMW-3-20221115 U		LTMW-3-20240228 U		LMTW-4-20200501		LTMW-4-20210915		LTMW-4-20221116 U		LTMW-4-20240228 U	
Laboratory Sample ID		AD16822-047		AD26083-032		AD34569-006		AD42985-024		AD16822-058		AD26083-028		AD34583-002		AD42985-026	
Date Sample Collected		4/30/2020		9/15/2021		11/15/2022		2/28/2024		5/1/2020		9/15/2021		11/16/2022		2/28/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Benzo[k]fluoranthene	0.002	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
bis(2-Chloroethoxy)methane	5	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
bis(2-Chloroethyl)ether	1	0.50	U	0.00053	U	0.51	U	0.51	U	0.00050	U	0.00050	U	0.51	U	0.51	U
bis(2-Chloroisopropyl)ether	5	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
bis(2-Ethylhexyl)phthalate	5	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Butylbenzylphthalate	50	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Caprolactam	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.067		0.0220		2.0	U	2.0	U
Carbazole	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Chrysene	0.002	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Dibenzo[a,h]anthracene	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Dibenzofuran	NC	0.50	U	0.00072	U	0.59	U	0.59	U	0.00050	U	0.00068	U	0.59	U	0.59	U
Diethylphthalate	50	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Dimethylphthalate	50	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Di-n-butylphthalate	50	0.50	U	0.0011	U	0.72	U	0.72	U	0.00050	U	0.0011	U	0.72	U	0.72	U
Di-n-octylphthalate	NC	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Fluoranthene	50	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Fluorene	50	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Hexachlorobenzene	0.04	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Hexachlorobutadiene	0.5	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Hexachlorocyclopentadiene	5	2.0	U	0.0021	U	6.8	U	6.8	U	0.0020	U	0.0020	U	6.8	U	6.8	U
Hexachloroethane	5	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Indeno[1,2,3-cd]pyrene	0.002	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Isophorone	50	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Naphthalene	10	0.50	U	0.00053	U	0.50	U	0.50	U	0.00050	U	0.00050	U	0.50	U	0.50	U
Nitrobenzene	0.4	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
N-Nitroso-di-n-propylamine	NC	0.50	U	0.00068	U	0.61	U	0.61	U	0.00050	U	0.00064	U	0.61	U	0.61	U
N-Nitrosodiphenylamine	50	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Pentachlorophenol	1	10	U	0.011	U	3.4	U	10	U	0.010	U	0.010	U	3.4	U	10	U
Phenanthrene	50	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Phenol	1	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Pyrene	50	2.0	U	0.0021	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U

Notes
µg/L - micrograms per liter
J - Estimated Value
LTMW-20 was not sampled in 2021 due to dense vegetation and posison ivy causing inaccessibility.
NC - No criterion
ND* - Any detection is considered above the Class GA Standard
NS - Not Sampled
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect
UJ - The analyte was analyzed for but was not detected

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-5A								LTMW-5B							
Sample ID		LMTW-5A-02022427		LTMW-5A-20210915		LTMW-5A-20221116 U		LTMW-5A-20240301 U		LMTW-5B-20200428		LTMW-5B-20210914		LTMW-5B-20221116		LTMW-5B-20240301 U	
Laboratory Sample ID		AD16822-005		AD26083-026		AD34583-009		AD42985-062		AD16822-010		AD26083-021		AD34583-011		AD42985-064	
Date Sample Collected		4/27/2020		9/15/2021		11/16/2022		3/1/2024		4/28/2020		9/14/2021		11/16/2022		3/1/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1'-Biphenyl	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
1,2,4,5-Tetrachlorobenzene	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
1,4-Dioxane	0.35	0.50	U	0.00050	U	0.50	U	0.50	U	0.50	U	0.00050	U	0.50	U	0.50	U
2,3,4,6-Tetrachlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,4,5-Trichlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,4,6-Trichlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,4-Dichlorophenol	5	0.50	U	0.00050	U	0.62	U	0.62	U	0.50	U	0.00050	U	0.62	U	0.62	U
2,4-Dimethylphenol	50	0.50	U	0.00055	U	1.1	U	1.1	U	0.50	U	0.00055	U	1.1	U	1.1	U
2,4-Dinitrophenol	10	10	U	0.010	U	10	U	10	U	10	U	0.010	U	10	U	10	U
2,4-Dinitrotoluene	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,6-Dinitrotoluene	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Chloronaphthalene	10	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Chlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Methylnaphthalene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Methylphenol	NC	0.50	U	0.00050	U	0.59	U	0.59	U	0.50	U	0.00050	U	0.59	U	0.59	U
2-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Nitrophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
3&4-Methylphenol	NC	0.50	U	0.00050	U	0.64	U	0.64	U	0.50	U	0.00050	U	0.64	U	0.64	U
3,3'-Dichlorobenzidine	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
3-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4,6-Dinitro-2-methylphenol	NC	10	U	0.010	U	5.3	U	10	U	10	U	0.010	U	5.3	U	10	U
4-Bromophenyl-phenylether	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Chloro-3-methylphenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Chloroaniline	5	0.50	U	0.00050	U	0.59	U	0.59	U	0.50	U	0.00050	U	0.59	U	0.59	U
4-Chlorophenyl-phenylether	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Nitrophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Acenaphthene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Acenaphthylene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Acetophenone	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Anthracene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Atrazine	7.5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzaldehyde	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[a]anthracene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[a]pyrene	ND*	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[b]fluoranthene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[g,h,i]perylene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-5A								LTMW-5B							
Sample ID		LMTW-5A-02022427		LTMW-5A-20210915		LTMW-5A-20221116 U		LTMW-5A-20240301 U		LMTW-5B-20200428		LTMW-5B-20210914		LTMW-5B-20221116		LTMW-5B-20240301 U	
Laboratory Sample ID		AD16822-005		AD26083-026		AD34583-009		AD42985-062		AD16822-010		AD26083-021		AD34583-011		AD42985-064	
Date Sample Collected		4/27/2020		9/15/2021		11/16/2022		3/1/2024		4/28/2020		9/14/2021		11/16/2022		3/1/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Benzo[k]fluoranthene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
bis(2-Chloroethoxy)methane	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
bis(2-Chloroethyl)ether	1	0.50	U	0.00050	U	0.51	U	0.51	U	0.50	U	0.00050	U	0.51	U	0.51	U
bis(2-Chloroisopropyl)ether	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
bis(2-Ethylhexyl)phthalate	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Butylbenzylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Caprolactam	NC	46		0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	8.6		2.0	U
Carbazole	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Chrysene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Dibenzo[a,h]anthracene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Dibenzofuran	NC	0.50	U	0.00068	U	0.59	U	0.59	U	0.50	U	0.00068	U	0.59	U	0.59	U
Diethylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Dimethylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Di-n-butylphthalate	50	0.50	U	0.0011	U	0.72	U	0.72	U	0.50	U	0.0011	U	0.72	U	0.72	U
Di-n-octylphthalate	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Fluoranthene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Fluorene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Hexachlorobenzene	0.04	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Hexachlorobutadiene	0.5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Hexachlorocyclopentadiene	5	2.0	U	0.0020	U	6.8	U	6.8	U	2.0	U	0.0020	U	6.8	U	6.8	U
Hexachloroethane	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Indeno[1,2,3-cd]pyrene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Isophorone	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Naphthalene	10	0.50	U	0.00050	U	0.50	U	0.50	U	0.50	U	0.00050	U	0.50	U	0.50	U
Nitrobenzene	0.4	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
N-Nitroso-di-n-propylamine	NC	0.50	U	0.00064	U	0.61	U	0.61	U	0.50	U	0.00064	U	0.61	U	0.61	U
N-Nitrosodiphenylamine	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Pentachlorophenol	1	10	U	0.010	U	3.4	U	10	U	10	U	0.010	U	3.4	U	10	U
Phenanthrene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Phenol	1	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Pyrene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U

Notes
µg/L - micrograms per liter
J - Estimated Value
LTMW-20 was not sampled in 2021 due to dense vegetation and posison ivy causing inaccessibility.
NC - No criterion
ND* - Any detection is considered above the Class GA Standard
NS - Not Sampled
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect
UJ - The analyte was analyzed for but was not detected

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-6								LTMW-7							
Sample ID		LMTW-6-20200427		LTMW-6-20210914		LTMW-6-20221117 U		LTMW-6-20240228 U		LMTW-7-20200428		LTMW-7-20210913		LTMW-7-20221117		LTMW-7-20240229 U	
Laboratory Sample ID		AD16822-007		AD26083-016		AD34621-002		AD42985-028		AD16822-012		AD26083-011		AD34621-006		AD42985-033	
Date Sample Collected		4/27/2020		9/14/2021		11/17/2022		2/28/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1'-Biphenyl	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
1,2,4,5-Tetrachlorobenzene	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
1,4-Dioxane	0.35	0.50	U	0.00050	U	0.50	U	0.50	U	0.50	U	0.00050	U	0.50	U	0.50	U
2,3,4,6-Tetrachlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,4,5-Trichlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,4,6-Trichlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,4-Dichlorophenol	5	0.50	U	0.00050	U	0.62	U	0.62	U	0.50	U	0.00050	U	0.62	U	0.62	U
2,4-Dimethylphenol	50	0.50	U	0.00055	U	1.1	U	1.1	U	0.50	U	0.00055	U	1.1	U	1.1	U
2,4-Dinitrophenol	10	10	U	0.010	U	10	U	10	U	10	U	0.010	U	10	U	10	U
2,4-Dinitrotoluene	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,6-Dinitrotoluene	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Chloronaphthalene	10	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Chlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Methylnaphthalene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Methylphenol	NC	0.50	U	0.00050	U	0.59	U	0.59	U	0.50	U	0.00050	U	0.59	U	0.59	U
2-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Nitrophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
3&4-Methylphenol	NC	0.50	U	0.00050	U	0.64	U	0.64	U	0.50	U	0.00050	U	0.64	U	0.64	U
3,3'-Dichlorobenzidine	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
3-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4,6-Dinitro-2-methylphenol	NC	10	U	0.010	U	5.3	U	10	U	10	U	0.010	U	5.3	U	10	U
4-Bromophenyl-phenylether	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Chloro-3-methylphenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Chloroaniline	5	0.50	U	0.00050	U	0.59	U	0.59	U	0.50	U	0.00050	U	0.59	U	0.59	U
4-Chlorophenyl-phenylether	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Nitrophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Acenaphthene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Acenaphthylene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Acetophenone	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Anthracene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Atrazine	7.5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzaldehyde	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[a]anthracene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[a]pyrene	ND*	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[b]fluoranthene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[g,h,i]perylene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U

TABLE 8

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BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-6								LTMW-7							
Sample ID		LMTW-6-20200427		LTMW-6-20210914		LTMW-6-20221117 U		LTMW-6-20240228 U		LMTW-7-20200428		LTMW-7-20210913		LTMW-7-20221117		LTMW-7-20240229 U	
Laboratory Sample ID		AD16822-007		AD26083-016		AD34621-002		AD42985-028		AD16822-012		AD26083-011		AD34621-006		AD42985-033	
Date Sample Collected		4/27/2020		9/14/2021		11/17/2022		2/28/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Benzo[k]fluoranthene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
bis(2-Chloroethoxy)methane	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
bis(2-Chloroethyl)ether	1	0.50	U	0.00050	U	0.51	U	0.51	U	0.50	U	0.00050	U	0.51	U	0.51	U
bis(2-Chloroisopropyl)ether	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
bis(2-Ethylhexyl)phthalate	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Butylbenzylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Caprolactam	NC	5.1		0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Carbazole	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Chrysene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Dibenzo[a,h]anthracene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Dibenzofuran	NC	0.50	U	0.00068	U	0.59	U	0.59	U	0.50	U	0.00068	U	0.59	U	0.59	U
Diethylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Dimethylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Di-n-butylphthalate	50	0.50	U	0.0011	U	0.72	U	0.72	U	0.50	U	0.0011	U	0.72	U	0.72	U
Di-n-octylphthalate	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Fluoranthene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Fluorene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Hexachlorobenzene	0.04	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Hexachlorobutadiene	0.5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Hexachlorocyclopentadiene	5	2.0	U	0.0020	U	6.8	U	6.8	U	2.0	U	0.0020	U	6.8	U	6.8	U
Hexachloroethane	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Indeno[1,2,3-cd]pyrene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Isophorone	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Naphthalene	10	0.50	U	0.00050	U	0.50	U	0.50	U	0.50	U	0.00050	U	0.50	U	0.50	U
Nitrobenzene	0.4	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
N-Nitroso-di-n-propylamine	NC	0.50	U	0.00064	U	0.61	U	0.61	U	0.50	U	0.00064	U	0.61	U	0.61	U
N-Nitrosodiphenylamine	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Pentachlorophenol	1	10	U	0.010	U	3.4	U	10	U	10	U	0.010	U	3.4	U	10	U
Phenanthrene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Phenol	1	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Pyrene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U

Notes
µg/L - micrograms per liter
J - Estimated Value
LTMW-20 was not sampled in 2021 due to dense vegetation and posison ivy causing inaccessibility.
NC - No criterion
ND* - Any detection is considered above the Class GA Standard
NS - Not Sampled
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect
UJ - The analyte was analyzed for but was not detected

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-8								LTMW-9							
Sample ID		LMTW-8-20200427		LTMW-8-20210913		LTMW-8-20221117		LTMW-8-20240229 U		LMTW-9-20200428		LTMW-9-20210913		LTMW-9-20221118 U		LTMW-9-20240229 U	
Laboratory Sample ID		AD16822-001		AD26083-002		AD34621-011		AD42985-041		AD16822-017		AD26083-006		AD34621-018		AD42985-052	
Date Sample Collected		4/27/2020		9/13/2021		11/17/2022		2/29/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1'-Biphenyl	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
1,2,4,5-Tetrachlorobenzene	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
1,4-Dioxane	0.35	**36**		0.054		**49**		**37**		0.50	U	0.00050	U	0.50	U	0.50	U
2,3,4,6-Tetrachlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,4,5-Trichlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,4,6-Trichlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,4-Dichlorophenol	5	0.50	U	0.00050	U	0.62	U	0.62	U	0.50	U	0.00050	U	0.62	U	0.62	U
2,4-Dimethylphenol	50	0.50	U	0.00055	U	1.1	U	1.1	U	0.50	U	0.00055	U	1.1	U	1.1	U
2,4-Dinitrophenol	10	10	U	0.010	U	10	U	10	U	3.2	U	0.010	U	10	U	10	U
2,4-Dinitrotoluene	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,6-Dinitrotoluene	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Chloronaphthalene	10	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Chlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Methylnaphthalene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Methylphenol	NC	0.50	U	0.00050	U	0.59	U	0.59	U	0.50	U	0.00050	U	0.59	U	0.59	U
2-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Nitrophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
3&4-Methylphenol	NC	0.50	U	0.00050	U	0.64	U	0.64	U	0.50	U	0.00050	U	0.64	U	0.64	U
3,3'-Dichlorobenzidine	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
3-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4,6-Dinitro-2-methylphenol	NC	10	U	0.010	U	5.3	U	10	U	2.9	U	0.010	U	5.3	U	10	U
4-Bromophenyl-phenylether	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Chloro-3-methylphenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Chloroaniline	5	0.50	U	0.00050	U	0.59	U	0.59	U	0.50	U	0.00050	U	0.59	U	0.59	U
4-Chlorophenyl-phenylether	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Nitrophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Acenaphthene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Acenaphthylene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Acetophenone	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Anthracene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Atrazine	7.5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzaldehyde	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[a]anthracene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[a]pyrene	ND*	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[b]fluoranthene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[g,h,i]perylene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U

TABLE 8

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BROOKFIELD AVENUE LANDFILL
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SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-8								LTMW-9							
Sample ID		LMTW-8-20200427		LTMW-8-20210913		LTMW-8-20221117		LTMW-8-20240229 U		LMTW-9-20200428		LTMW-9-20210913		LTMW-9-20221118 U		LTMW-9-20240229 U	
Laboratory Sample ID		AD16822-001		AD26083-002		AD34621-011		AD42985-041		AD16822-017		AD26083-006		AD34621-018		AD42985-052	
Date Sample Collected		4/27/2020		9/13/2021		11/17/2022		2/29/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Benzo[k]fluoranthene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
bis(2-Chloroethoxy)methane	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
bis(2-Chloroethyl)ether	1	0.50	U	0.00050	U	0.51	U	0.51	U	0.50	U	0.00050	U	0.51	U	0.51	U
bis(2-Chloroisopropyl)ether	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
bis(2-Ethylhexyl)phthalate	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Butylbenzylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Caprolactam	NC	2.0	U	0.0020	U	2.0	U	2.0	U	5.4		0.0020	U	2.0	U	2.0	U
Carbazole	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Chrysene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Dibenzo[a,h]anthracene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Dibenzofuran	NC	0.50	U	0.00068	U	0.59	U	0.59	U	0.50	U	0.00068	U	0.59	U	0.59	U
Diethylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Dimethylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Di-n-butylphthalate	50	0.5	U	0.0011	U	0.72	U	0.72	U	0.50	U	0.0011	U	0.72	U	0.72	U
Di-n-octylphthalate	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Fluoranthene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Fluorene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Hexachlorobenzene	0.04	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Hexachlorobutadiene	0.5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Hexachlorocyclopentadiene	5	2.0	U	0.0020	U	6.8	U	6.8	U	2.0	U	0.0020	U	6.8	U	6.8	U
Hexachloroethane	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Indeno[1,2,3-cd]pyrene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Isophorone	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Naphthalene	10	0.50	U	0.00050	U	0.50	U	0.50	U	0.50	U	0.00050	U	0.50	U	0.50	U
Nitrobenzene	0.4	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
N-Nitroso-di-n-propylamine	NC	0.50	U	0.00064	U	0.61	U	0.61	U	0.50	U	0.00064	U	0.61	U	0.61	U
N-Nitrosodiphenylamine	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Pentachlorophenol	1	10	U	0.010	U	3.4	U	10	U	2.7	U	0.010	U	3.4	U	10	U
Phenanthrene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Phenol	1	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Pyrene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U

Notes
µg/L - micrograms per liter
J - Estimated Value
LTMW-20 was not sampled in 2021 due to dense vegetation and posison ivy causing inaccessibility.
NC - No criterion
ND* - Any detection is considered above the Class GA Standard
NS - Not Sampled
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect
UJ - The analyte was analyzed for but was not detected

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-10								LTMW-11							
Sample ID		LMTW-10-20200429		LTMW-20210913		LTMW-10-20221118		LTMW-10-20240229 U		LMTW-11-20200428		LTMW-11-20210913		LTMW-11-20221117		LTMW-11-20240229 U	
Laboratory Sample ID		AD16822-025		AD26083-003		AD34621-019		AD42985-047		AD16822-019		AD26083-004		AD34621-004		AD42985-045	
Date Sample Collected		4/29/2020		9/13/2021		11/17/2022		2/29/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1'-Biphenyl	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
1,2,4,5-Tetrachlorobenzene	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
1,4-Dioxane	0.35	0.51	U	0.00050	U	0.50	U	0.50	U	0.51	U	0.00050	U	0.50	U	0.50	U
2,3,4,6-Tetrachlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,4,5-Trichlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,4,6-Trichlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,4-Dichlorophenol	5	0.51	U	0.00050	U	0.62	U	0.62	U	0.51	U	0.00050	U	0.62	U	0.62	U
2,4-Dimethylphenol	50	0.51	U	0.00055	U	1.1	U	1.1	U	0.51	U	0.00055	U	1.1	U	1.1	U
2,4-Dinitrophenol	10	10	U	0.010	U	10	U	10	U	10	U	0.010	U	10	U	10	U
2,4-Dinitrotoluene	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,6-Dinitrotoluene	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Chloronaphthalene	10	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Chlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Methylnaphthalene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Methylphenol	NC	0.51	U	0.00050	U	0.59	U	0.59	U	0.51	U	0.00050	U	0.59	U	0.59	U
2-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Nitrophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
3&4-Methylphenol	NC	0.51	U	0.00050	U	0.64	U	0.64	U	0.51	U	0.00050	U	0.64	U	0.64	U
3,3'-Dichlorobenzidine	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
3-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4,6-Dinitro-2-methylphenol	NC	10	U	0.010	U	5.3	U	10	U	10	U	0.010	U	5.3	U	10	U
4-Bromophenyl-phenylether	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Chloro-3-methylphenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Chloroaniline	5	0.51	U	0.00050	U	0.59	U	0.59	U	0.51	U	0.00050	U	0.59	U	0.59	U
4-Chlorophenyl-phenylether	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Nitrophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Acenaphthene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Acenaphthylene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Acetophenone	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Anthracene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Atrazine	7.5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzaldehyde	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[a]anthracene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[a]pyrene	ND*	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[b]fluoranthene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[g,h,i]perylene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-10								LTMW-11							
Sample ID		LMTW-10-20200429		LTMW-20210913		LTMW-10-20221118		LTMW-10-20240229 U		LMTW-11-20200428		LTMW-11-20210913		LTMW-11-20221117		LTMW-11-20240229 U	
Laboratory Sample ID		AD16822-025		AD26083-003		AD34621-019		AD42985-047		AD16822-019		AD26083-004		AD34621-004		AD42985-045	
Date Sample Collected		4/29/2020		9/13/2021		11/17/2022		2/29/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Benzo[k]fluoranthene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
bis(2-Chloroethoxy)methane	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
bis(2-Chloroethyl)ether	1	0.51	U	0.00050	U	0.51	U	0.51	U	0.51	U	0.00050	U	0.51	U	0.51	U
bis(2-Chloroisopropyl)ether	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
bis(2-Ethylhexyl)phthalate	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Butylbenzylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Caprolactam	NC	53		0.0020	U	2.0	U	2.0	U	9.6		0.0020	U	2.0	U	2.0	U
Carbazole	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Chrysene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Dibenzo[a,h]anthracene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Dibenzofuran	NC	0.51	U	0.00068	U	0.59	U	0.59	U	0.51	U	0.00068	U	0.59	U	0.59	U
Diethylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Dimethylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Di-n-butylphthalate	50	0.51	U	0.0011	U	0.72	U	0.72	U	0.51	U	0.0011	U	0.72	U	0.72	U
Di-n-octylphthalate	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Fluoranthene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Fluorene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Hexachlorobenzene	0.04	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Hexachlorobutadiene	0.5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Hexachlorocyclopentadiene	5	2.0	U	0.0020	U	6.8	U	6.8	U	2.0	U	0.0020	U	6.8	U	6.8	U
Hexachloroethane	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Indeno[1,2,3-cd]pyrene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Isophorone	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Naphthalene	10	0.51	U	0.00050	U	0.50	U	0.50	U	0.51	U	0.00050	U	0.50	U	0.50	U
Nitrobenzene	0.4	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
N-Nitroso-di-n-propylamine	NC	0.51	U	0.00064	U	0.61	U	0.61	U	0.51	U	0.00064	U	0.61	U	0.61	U
N-Nitrosodiphenylamine	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Pentachlorophenol	1	10	U	0.010	U	3.4	U	10	U	10	U	0.010	U	3.4	U	10	U
Phenanthrene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Phenol	1	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Pyrene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U

Notes
µg/L - micrograms per liter
J - Estimated Value
LTMW-20 was not sampled in 2021 due to dense vegetation and posison ivy causing inaccessibility.
NC - No criterion
ND* - Any detection is considered above the Class GA Standard
NS - Not Sampled
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect
UJ - The analyte was analyzed for but was not detected

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-12								LTMW-13							
Sample ID		LMTW-12-2020042		LTMW-12-20210914		LTMW-12-20221115 U		LTMW-12-20240229 U		LMTW-13-20200430		LTMW-13-20210914		LTMW-13-20221117		LTMW-13-20240228 U	
Laboratory Sample ID		AD16822-027		AD26083-014		AD34569-001		AD42985-043		AD16822-055		AD26083-018		AD34621-001		AD42985-014	
Date Sample Collected		4/29/2020		9/14/2021		11/15/2022		2/29/2024		4/30/2020		9/14/2021		11/17/2022		2/28/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1'-Biphenyl	5	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
1,2,4,5-Tetrachlorobenzene	5	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
1,4-Dioxane	0.35	0.50	U	0.00050	U	0.50	U	0.50	U	0.00050	U	0.00050	U	0.50	U	0.50	U
2,3,4,6-Tetrachlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
2,4,5-Trichlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
2,4,6-Trichlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
2,4-Dichlorophenol	5	0.50	U	0.00050	U	0.62	U	0.62	U	0.00050	U	0.00050	U	0.62	U	0.62	U
2,4-Dimethylphenol	50	0.50	U	0.00055	U	1.1	U	1.1	U	0.00050	U	0.00055	U	1.1	U	1.1	U
2,4-Dinitrophenol	10	10	U	0.010	U	10	U	10	U	0.010	U	0.010	U	10	U	10	U
2,4-Dinitrotoluene	5	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
2,6-Dinitrotoluene	5	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
2-Chloronaphthalene	10	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
2-Chlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
2-Methylnaphthalene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
2-Methylphenol	NC	0.50	U	0.00050	U	0.59	U	0.59	U	0.00050	U	0.00050	U	0.59	U	0.59	U
2-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
2-Nitrophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
3&4-Methylphenol	NC	0.50	U	0.00050	U	0.64	U	0.64	U	0.00050	U	0.00050	U	0.64	U	0.64	U
3,3'-Dichlorobenzidine	5	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
3-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
4,6-Dinitro-2-methylphenol	NC	10	U	0.010	U	5.3	U	10	U	0.010	U	0.010	U	5.3	U	10	U
4-Bromophenyl-phenylether	NC	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
4-Chloro-3-methylphenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
4-Chloroaniline	5	0.50	U	0.00050	U	0.59	U	0.59	U	0.00050	U	0.00050	U	0.59	U	0.59	U
4-Chlorophenyl-phenylether	NC	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
4-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
4-Nitrophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Acenaphthene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Acenaphthylene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Acetophenone	NC	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Anthracene	50	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Atrazine	7.5	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Benzaldehyde	NC	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Benzo[a]anthracene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Benzo[a]pyrene	ND*	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Benzo[b]fluoranthene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Benzo[g,h,i]perylene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U

TABLE 8

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BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-12								LTMW-13							
Sample ID		LMTW-12-2020042		LTMW-12-20210914		LTMW-12-20221115 U		LTMW-12-20240229 U		LMTW-13-20200430		LTMW-13-20210914		LTMW-13-20221117		LTMW-13-20240228 U	
Laboratory Sample ID		AD16822-027		AD26083-014		AD34569-001		AD42985-043		AD16822-055		AD26083-018		AD34621-001		AD42985-014	
Date Sample Collected		4/29/2020		9/14/2021		11/15/2022		2/29/2024		4/30/2020		9/14/2021		11/17/2022		2/28/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Benzo[k]fluoranthene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
bis(2-Chloroethoxy)methane	5	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
bis(2-Chloroethyl)ether	1	0.50	U	0.00050	U	0.51	U	0.51	U	0.00050	U	0.00050	U	0.51	U	0.51	U
bis(2-Chloroisopropyl)ether	5	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
bis(2-Ethylhexyl)phthalate	5	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Butylbenzylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Caprolactam	NC	10		0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Carbazole	NC	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Chrysene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Dibenzo[a,h]anthracene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Dibenzofuran	NC	0.50	U	0.00068	U	0.59	U	0.59	U	0.00050	U	0.00068	U	0.59	U	0.59	U
Diethylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Dimethylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Di-n-butylphthalate	50	0.50	U	0.0011	U	0.72	U	0.72	U	0.00050	U	0.0011	U	0.72	U	0.72	U
Di-n-octylphthalate	NC	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Fluoranthene	50	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Fluorene	50	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Hexachlorobenzene	0.04	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Hexachlorobutadiene	0.5	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Hexachlorocyclopentadiene	5	2.0	U	0.0020	U	6.8	U	6.8	U	0.0020	U	0.0020	U	6.8	U	6.8	U
Hexachloroethane	5	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Indeno[1,2,3-cd]pyrene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Isophorone	50	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Naphthalene	10	0.50	U	0.00050	U	0.50	U	0.50	U	0.00050	U	0.00050	U	0.50	U	0.50	U
Nitrobenzene	0.4	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
N-Nitroso-di-n-propylamine	NC	0.50	U	0.00064	U	0.61	U	0.61	U	0.00050	U	0.00064	U	0.61	U	0.61	U
N-Nitrosodiphenylamine	50	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Pentachlorophenol	1	10	U	0.010	U	3.4	U	10	U	0.010	U	0.010	U	3.4	U	10	U
Phenanthrene	50	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Phenol	1	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U
Pyrene	50	2.0	U	0.0020	U	2.0	U	2.0	U	0.0020	U	0.0020	U	2.0	U	2.0	U

Notes
µg/L - micrograms per liter
J - Estimated Value
LTMW-20 was not sampled in 2021 due to dense vegetation and posison ivy causing inaccessibility.
NC - No criterion
ND* - Any detection is considered above the Class GA Standard
NS - Not Sampled
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect
UJ - The analyte was analyzed for but was not detected

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-15								LTMW-16							
Sample ID		LMTW-15-20200430		LTMW-15-20210914		LTMW-15-20221116		LTMW-15-20240228 U		LMTW-16-20200430		LTMW-16-20210915		LTMW-16-20221116		LTMW-16-20240228 U	
Laboratory Sample ID		AD16822-053		AD26083-019		AD34583-008		AD42985-030		AD16822-051		AD26083-030		AD34583-007		AD42985-016	
Date Sample Collected		4/30/2020		9/14/2021		11/16/2022		2/28/2024		4/30/2020		9/15/2021		11/16/2022		2/28/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1'-Biphenyl	5	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
1,2,4,5-Tetrachlorobenzene	5	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
1,4-Dioxane	0.35	0.00050	U	0.00053	U	0.50	U	0.50	U	0.51	U	0.00050	U	0.50	U	0.50	U
2,3,4,6-Tetrachlorophenol	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,4,5-Trichlorophenol	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,4,6-Trichlorophenol	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,4-Dichlorophenol	5	0.00050	U	0.00053	U	0.62	U	0.62	U	0.51	U	0.00050	U	0.62	U	0.62	U
2,4-Dimethylphenol	50	0.00050	U	0.00058	U	1.1	U	1.1	U	0.51	U	0.00055	U	1.1	U	1.1	U
2,4-Dinitrophenol	10	0.010	U	0.011	U	10	U	10	U	10	U	0.010	U	10	U	10	U
2,4-Dinitrotoluene	5	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2,6-Dinitrotoluene	5	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Chloronaphthalene	10	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Chlorophenol	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Methylnaphthalene	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Methylphenol	NC	0.00050	U	0.00053	U	0.59	U	0.59	U	0.51	U	0.00050	U	0.59	U	0.59	U
2-Nitroaniline	5	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
2-Nitrophenol	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
3&4-Methylphenol	NC	0.00050	U	0.00053	U	0.64	U	0.64	U	0.51	U	0.00050	U	0.64	U	0.64	U
3,3'-Dichlorobenzidine	5	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
3-Nitroaniline	5	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4,6-Dinitro-2-methylphenol	NC	0.010	U	0.0085	U	5.3	U	10	U	10	U	0.010	U	5.3	U	10	U
4-Bromophenyl-phenylether	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Chloro-3-methylphenol	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Chloroaniline	5	0.00050	U	0.00053	U	0.59	U	0.59	U	0.51	U	0.00050	U	0.59	U	0.59	U
4-Chlorophenyl-phenylether	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Nitroaniline	5	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
4-Nitrophenol	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Acenaphthene	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Acenaphthylene	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Acetophenone	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Anthracene	50	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Atrazine	7.5	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzaldehyde	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[a]anthracene	0.002	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[a]pyrene	ND*	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[b]fluoranthene	0.002	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Benzo[g,h,i]perylene	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-15								LTMW-16							
Sample ID		LMTW-15-20200430		LTMW-15-20210914		LTMW-15-20221116		LTMW-15-20240228 U		LMTW-16-20200430		LTMW-16-20210915		LTMW-16-20221116		LTMW-16-20240228 U	
Laboratory Sample ID		AD16822-053		AD26083-019		AD34583-008		AD42985-030		AD16822-051		AD26083-030		AD34583-007		AD42985-016	
Date Sample Collected		4/30/2020		9/14/2021		11/16/2022		2/28/2024		4/30/2020		9/15/2021		11/16/2022		2/28/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Benzo[k]fluoranthene	0.002	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
bis(2-Chloroethoxy)methane	5	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
bis(2-Chloroethyl)ether	1	0.00050	U	0.00053	U	0.51	U	0.51	U	0.51	U	0.00050	U	0.51	U	0.51	U
bis(2-Chloroisopropyl)ether	5	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
bis(2-Ethylhexyl)phthalate	5	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Butylbenzylphthalate	50	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Caprolactam	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	3.5		0.0020	U	2.0	U	2.0	U
Carbazole	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Chrysene	0.002	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Dibenzo[a,h]anthracene	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Dibenzofuran	NC	0.00050	U	0.00072	U	0.59	U	0.59	U	0.51	U	0.00068	U	0.59	U	0.59	U
Diethylphthalate	50	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Dimethylphthalate	50	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Di-n-butylphthalate	50	0.00050	U	0.0011	U	0.72	U	0.72	U	0.5	U	0.0011	U	0.72	U	0.72	U
Di-n-octylphthalate	NC	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Fluoranthene	50	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Fluorene	50	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Hexachlorobenzene	0.04	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Hexachlorobutadiene	0.5	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Hexachlorocyclopentadiene	5	0.0020	U	0.0021	U	6.8	U	6.8	U	2.0	U	0.0020	U	6.8	U	6.8	U
Hexachloroethane	5	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Indeno[1,2,3-cd]pyrene	0.002	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Isophorone	50	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Naphthalene	10	0.00050	U	0.00053	U	0.50	U	0.50	U	0.51	U	0.00050	U	0.50	U	0.50	U
Nitrobenzene	0.4	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
N-Nitroso-di-n-propylamine	NC	0.00050	U	0.00068	U	0.61	U	0.61	U	0.51	U	0.00064	U	0.61	U	0.61	U
N-Nitrosodiphenylamine	50	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Pentachlorophenol	1	0.010	U	0.0080	U	3.4	U	10	U	10	U	0.010	U	3.4	U	10	U
Phenanthrene	50	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Phenol	1	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U
Pyrene	50	0.0020	U	0.0021	U	2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	2.0	U

Notes
µg/L - micrograms per liter
J - Estimated Value
LTMW-20 was not sampled in 2021 due to dense vegetation and posison ivy causing inaccessibility.
NC - No criterion
ND* - Any detection is considered above the Class GA Standard
NS - Not Sampled
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect
UJ - The analyte was analyzed for but was not detected

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-17								LTMW-18C							
Sample ID		LMTW-17-20200501		LTMW-17-20210915		LTMW-17-20221116		LTMW-17-20240228 U		LMTW-18C-20200429		LTMW-18C-20210916		LTMW-18C-20221116		LTMW-18C-20240227 U	
Laboratory Sample ID		AD16822-060		AD26083-027		AD34583-004		AD42985-022		AD16822-031		AD26083-035		AD34583-001		AD42985-009	
Date Sample Collected		5/1/2020		9/15/2021		11/16/2022		2/28/2024		4/29/2020		9/16/2021		11/16/2022		2/27/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1'-Biphenyl	5	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
1,2,4,5-Tetrachlorobenzene	5	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
1,4-Dioxane	0.35	0.00050	U	0.00050	U	0.50	U	0.50	U	0.52	U	0.00053	U	0.50	U	0.50	U
2,3,4,6-Tetrachlorophenol	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
2,4,5-Trichlorophenol	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
2,4,6-Trichlorophenol	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
2,4-Dichlorophenol	5	0.00050	U	0.00050	U	0.62	U	0.62	U	0.52	U	0.00053	U	0.62	U	0.62	U
2,4-Dimethylphenol	50	0.00050	U	0.00055	U	1.1	U	1.1	U	0.52	U	0.00058	U	1.1	U	1.1	U
2,4-Dinitrophenol	10	0.010	U	0.010	U	10	U	10	U	10	U	0.011	U	10	U	10	U
2,4-Dinitrotoluene	5	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
2,6-Dinitrotoluene	5	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
2-Chloronaphthalene	10	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
2-Chlorophenol	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
2-Methylnaphthalene	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
2-Methylphenol	NC	0.00050	U	0.00050	U	0.59	U	0.59	U	0.52	U	0.00053	U	0.59	U	0.59	U
2-Nitroaniline	5	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
2-Nitrophenol	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
3&4-Methylphenol	NC	0.00050	U	0.00050	U	0.64	U	0.64	U	0.52	U	0.00053	U	0.64	U	0.64	U
3,3'-Dichlorobenzidine	5	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
3-Nitroaniline	5	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
4,6-Dinitro-2-methylphenol	NC	0.010	U	0.010	U	5.3	U	10	U	10	U	0.011	U	5.3	U	10	U
4-Bromophenyl-phenylether	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
4-Chloro-3-methylphenol	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
4-Chloroaniline	5	0.00050	U	0.00050	U	0.59	U	0.59	U	0.52	U	0.00053	U	0.59	U	0.59	U
4-Chlorophenyl-phenylether	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
4-Nitroaniline	5	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
4-Nitrophenol	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Acenaphthene	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Acenaphthylene	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Acetophenone	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Anthracene	50	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Atrazine	7.5	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Benzaldehyde	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Benzo[a]anthracene	0.002	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Benzo[a]pyrene	ND*	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Benzo[b]fluoranthene	0.002	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Benzo[g,h,i]perylene	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-17								LTMW-18C							
Sample ID		LMTW-17-20200501		LTMW-17-20210915		LTMW-17-20221116		LTMW-17-20240228 U		LMTW-18C-20200429		LTMW-18C-20210916		LTMW-18C-20221116		LTMW-18C-20240227 U	
Laboratory Sample ID		AD16822-060		AD26083-027		AD34583-004		AD42985-022		AD16822-031		AD26083-035		AD34583-001		AD42985-009	
Date Sample Collected		5/1/2020		9/15/2021		11/16/2022		2/28/2024		4/29/2020		9/16/2021		11/16/2022		2/27/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Benzo[k]fluoranthene	0.002	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
bis(2-Chloroethoxy)methane	5	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
bis(2-Chloroethyl)ether	1	0.00050	U	0.00050	U	0.51	U	0.51	U	0.52	U	0.00053	U	0.51	U	0.51	U
bis(2-Chloroisopropyl)ether	5	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
bis(2-Ethylhexyl)phthalate	5	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Butylbenzylphthalate	50	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Caprolactam	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	5.5		0.039		26		26	
Carbazole	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Chrysene	0.002	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Dibenzo[a,h]anthracene	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Dibenzofuran	NC	0.00050	U	0.00068	U	0.59	U	0.59	U	0.52	U	0.00072	U	0.59	U	0.59	U
Diethylphthalate	50	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Dimethylphthalate	50	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Di-n-butylphthalate	50	0.00050	U	0.0011	U	0.72	U	0.72	U	0.52	U	0.0011	U	0.72	U	0.72	U
Di-n-octylphthalate	NC	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Fluoranthene	50	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Fluorene	50	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Hexachlorobenzene	0.04	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Hexachlorobutadiene	0.5	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Hexachlorocyclopentadiene	5	0.0020	U	0.0020	U	6.8	U	6.8	U	2.1	U	0.0021	U	6.8	U	6.8	U
Hexachloroethane	5	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Indeno[1,2,3-cd]pyrene	0.002	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Isophorone	50	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Naphthalene	10	0.00050	U	0.00050	U	0.50	U	0.50	U	0.52	U	0.00053	U	0.50	U	0.50	U
Nitrobenzene	0.4	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
N-Nitroso-di-n-propylamine	NC	0.00050	U	0.00064	U	0.61	U	0.61	U	0.52	U	0.00068	U	0.61	U	0.61	U
N-Nitrosodiphenylamine	50	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Pentachlorophenol	1	0.010	U	0.010	U	3.4	U	10	U	10	U	0.011	U	3.4	U	10	U
Phenanthrene	50	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Phenol	1	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Pyrene	50	0.0020	U	0.0020	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U

Notes
µg/L - micrograms per liter
J - Estimated Value
LTMW-20 was not sampled in 2021 due to dense vegetation and posison ivy causing inaccessibility.
NC - No criterion
ND* - Any detection is considered above the Class GA Standard
NS - Not Sampled
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect
UJ - The analyte was analyzed for but was not detected

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-18UG								LTMW-19							
Sample ID		LMTW-18UG-20200429		LTMW-18UG-20210916		LTMW-18-UG-20221115 U		LTMW-18UG-20240227 U		LMTW-19-20200429		LTMW-19-20210916		LTMW-19-20221115		LTMW-19-20240227 U	
Laboratory Sample ID		AD16822-033		AD26083-038		AD34569-003		AD42985-011		AD16822-029		AD26083-048		AD34569-002		AD42985-007	
Date Sample Collected		4/29/2020		9/16/2021		11/15/2022		2/27/2024		4/29/2020		9/16/2021		11/15/2022		2/27/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1'-Biphenyl	5	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
1,2,4,5-Tetrachlorobenzene	5	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
1,4-Dioxane	0.35	5.7		0.00053	U	0.50	U	0.50	U	**3.6**		0.00052	U	**5.4**		0.50	U
2,3,4,6-Tetrachlorophenol	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
2,4,5-Trichlorophenol	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
2,4,6-Trichlorophenol	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
2,4-Dichlorophenol	5	0.50	U	0.00053	U	0.62	U	0.62	U	0.53	U	0.00052	U	0.62	U	0.62	U
2,4-Dimethylphenol	50	0.50	U	0.00058	U	1.1	U	1.1	U	0.53	U	0.00057	U	1.1	U	1.1	U
2,4-Dinitrophenol	10	10	U	0.011	U	10	U	10	U	11	U	0.010	U	10	U	10	U
2,4-Dinitrotoluene	5	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
2,6-Dinitrotoluene	5	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
2-Chloronaphthalene	10	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
2-Chlorophenol	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	UJ	0.0021	U	2.0	U	2.0	U
2-Methylnaphthalene	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
2-Methylphenol	NC	0.50	U	0.00053	U	0.59	U	0.59	U	0.53	U	0.00052	U	0.59	U	0.59	U
2-Nitroaniline	5	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
2-Nitrophenol	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
3&4-Methylphenol	NC	0.50	U	0.00053	U	0.64	U	0.64	U	0.53	U	0.00052	U	0.64	U	0.64	U
3,3'-Dichlorobenzidine	5	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
3-Nitroaniline	5	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
4,6-Dinitro-2-methylphenol	NC	10	U	0.011	U	5.3	U	10	U	11	U	0.010	U	5.3	U	10	U
4-Bromophenyl-phenylether	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
4-Chloro-3-methylphenol	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
4-Chloroaniline	5	0.50	U	0.00053	U	0.59	U	0.59	U	0.53	U	0.00052	U	0.59	U	0.59	U
4-Chlorophenyl-phenylether	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
4-Nitroaniline	5	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
4-Nitrophenol	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Acenaphthene	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Acenaphthylene	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Acetophenone	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Anthracene	50	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Atrazine	7.5	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Benzaldehyde	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Benzo[a]anthracene	0.002	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Benzo[a]pyrene	ND*	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Benzo[b]fluoranthene	0.002	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Benzo[g,h,i]perylene	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U

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BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-18UG								LTMW-19							
Sample ID		LMTW-18UG-20200429		LTMW-18UG-20210916		LTMW-18-UG-20221115 U		LTMW-18UG-20240227 U		LMTW-19-20200429		LTMW-19-20210916		LTMW-19-20221115		LTMW-19-20240227 U	
Laboratory Sample ID		AD16822-033		AD26083-038		AD34569-003		AD42985-011		AD16822-029		AD26083-048		AD34569-002		AD42985-007	
Date Sample Collected		4/29/2020		9/16/2021		11/15/2022		2/27/2024		4/29/2020		9/16/2021		11/15/2022		2/27/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Benzo[k]fluoranthene	0.002	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
bis(2-Chloroethoxy)methane	5	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
bis(2-Chloroethyl)ether	1	0.50	U	0.00053	U	0.51	U	0.51	U	0.53	U	0.00052	U	0.51	U	0.51	U
bis(2-Chloroisopropyl)ether	5	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
bis(2-Ethylhexyl)phthalate	5	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Butylbenzylphthalate	50	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Caprolactam	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Carbazole	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Chrysene	0.002	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Dibenzo[a,h]anthracene	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Dibenzofuran	NC	0.50	U	0.00072	U	0.59	U	0.59	U	0.53	U	0.00070	U	0.59	U	0.59	U
Diethylphthalate	50	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Dimethylphthalate	50	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Di-n-butylphthalate	50	0.50	U	0.0011	U	0.72	U	0.72	U	0.53	U	0.0011	U	0.72	U	0.72	U
Di-n-octylphthalate	NC	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Fluoranthene	50	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Fluorene	50	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Hexachlorobenzene	0.04	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Hexachlorobutadiene	0.5	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	UJ	0.0021	U	2.0	U	2.0	U
Hexachlorocyclopentadiene	5	2.0	U	0.0021	U	6.8	U	6.8	U	2.1	U	0.0021	U	6.8	U	6.8	U
Hexachloroethane	5	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Indeno[1,2,3-cd]pyrene	0.002	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Isophorone	50	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Naphthalene	10	0.50	U	0.00053	U	0.50	U	0.50	U	0.53	UJ	0.00052	U	0.50	U	0.50	U
Nitrobenzene	0.4	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
N-Nitroso-di-n-propylamine	NC	0.50	U	0.00068	U	0.61	U	0.61	U	0.53	U	0.00066	U	0.61	U	0.61	U
N-Nitrosodiphenylamine	50	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Pentachlorophenol	1	10	U	0.011	U	3.4	U	10	U	11	U	0.010	U	3.4	U	10	U
Phenanthrene	50	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Phenol	1	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U
Pyrene	50	2.0	U	0.0021	U	2.0	U	2.0	U	2.1	U	0.0021	U	2.0	U	2.0	U

Notes
µg/L - micrograms per liter
J - Estimated Value
LTMW-20 was not sampled in 2021 due to dense vegetation and posison ivy causing inaccessibility.
NC - No criterion
ND* - Any detection is considered above the Class GA Standard
NS - Not Sampled
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect
UJ - The analyte was analyzed for but was not detected

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-20								LTMW-21							
Sample ID		LMTW-20-20200429		NS		LTMW-20-20221118 U		LTMW-20-20240227 U		LMTW-21-20200427		LMTW-21-20210914		LTMW-21-20221117 U		LTMW-21-20240229 U	
Laboratory Sample ID		AD16822-038				AD34621-016		AD42985-005		AD16822-003		AD26083-013		AD34621-009		AD42985-056	
Date Sample Collected		4/29/2020				11/17/2022		2/27/2024		4/27/2020		9/14/2021		11/17/2022		2/29/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)				Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1'-Biphenyl	5	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
1,2,4,5-Tetrachlorobenzene	5	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
1,4-Dioxane	0.35	0.50	U	NS		0.50	U	0.50	U	0.50	U	0.00050	U	0.50	U	1.5	U
2,3,4,6-Tetrachlorophenol	NC	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
2,4,5-Trichlorophenol	NC	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
2,4,6-Trichlorophenol	NC	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
2,4-Dichlorophenol	5	0.50	U	NS		0.62	U	0.62	U	0.50	U	0.00050	U	0.62	U	1.9	U
2,4-Dimethylphenol	50	0.50	U	NS		1.1	U	1.1	U	0.50	U	0.00055	U	1.1	U	3.4	U
2,4-Dinitrophenol	10	10	U	NS		10	U	10	U	10	U	0.010	U	10	U	30	U
2,4-Dinitrotoluene	5	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
2,6-Dinitrotoluene	5	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
2-Chloronaphthalene	10	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
2-Chlorophenol	NC	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
2-Methylnaphthalene	NC	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
2-Methylphenol	NC	0.50	U	NS		0.59	U	0.59	U	0.50	U	0.00050	U	0.59	U	1.8	U
2-Nitroaniline	5	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
2-Nitrophenol	NC	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
3&4-Methylphenol	NC	0.50	U	NS		0.64	U	0.64	U	0.50	U	0.00050	U	0.64	U	1.9	U
3,3'-Dichlorobenzidine	5	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
3-Nitroaniline	5	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
4,6-Dinitro-2-methylphenol	NC	10	U	NS		5.3	U	10	U	10	U	0.010	U	5.3	U	30	U
4-Bromophenyl-phenylether	NC	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
4-Chloro-3-methylphenol	NC	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
4-Chloroaniline	5	0.50	U	NS		0.59	U	0.59	U	0.50	U	0.00050	U	0.59	U	1.8	U
4-Chlorophenyl-phenylether	NC	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
4-Nitroaniline	5	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
4-Nitrophenol	NC	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Acenaphthene	NC	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Acenaphthylene	NC	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Acetophenone	NC	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Anthracene	50	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Atrazine	7.5	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Benzaldehyde	NC	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Benzo[a]anthracene	0.002	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Benzo[a]pyrene	ND*	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Benzo[b]fluoranthene	0.002	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Benzo[g,h,i]perylene	NC	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-20								LTMW-21							
Sample ID		LMTW-20-20200429		NS		LTMW-20-20221118 U		LTMW-20-20240227 U		LMTW-21-20200427		LMTW-21-20210914		LTMW-21-20221117 U		LTMW-21-20240229 U	
Laboratory Sample ID		AD16822-038				AD34621-016		AD42985-005		AD16822-003		AD26083-013		AD34621-009		AD42985-056	
Date Sample Collected		4/29/2020				11/17/2022		2/27/2024		4/27/2020		9/14/2021		11/17/2022		2/29/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)				Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Benzo[k]fluoranthene	0.002	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
bis(2-Chloroethoxy)methane	5	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
bis(2-Chloroethyl)ether	1	0.50	U	NS		0.51	U	0.51	U	0.50	U	0.00050	U	0.51	U	1.5	U
bis(2-Chloroisopropyl)ether	5	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
bis(2-Ethylhexyl)phthalate	5	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Butylbenzylphthalate	50	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Caprolactam	NC	2.0	U	NS		2.0	U	2.0	U	110		0.096		160		6.0	U
Carbazole	NC	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Chrysene	0.002	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Dibenzo[a,h]anthracene	NC	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Dibenzofuran	NC	0.50	U	NS		0.59	U	0.59	U	0.50	U	0.00068	U	0.59	U	1.8	U
Diethylphthalate	50	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Dimethylphthalate	50	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Di-n-butylphthalate	50	0.50	U	NS		0.72	U	0.72	U	0.50	U	0.0011	U	0.72	U	2.1	U
Di-n-octylphthalate	NC	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Fluoranthene	50	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Fluorene	50	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Hexachlorobenzene	0.04	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Hexachlorobutadiene	0.5	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Hexachlorocyclopentadiene	5	2.0	U	NS		6.8	U	6.8	U	2.0	U	0.0020	U	6.8	U	21	U
Hexachloroethane	5	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Indeno[1,2,3-cd]pyrene	0.002	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Isophorone	50	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Naphthalene	10	0.50	U	NS		0.50	U	0.50	U	0.50	U	0.00050	U	0.50	U	1.5	U
Nitrobenzene	0.4	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
N-Nitroso-di-n-propylamine	NC	0.50	U	NS		0.61	U	0.61	U	0.50	U	0.00064	U	0.61	U	1.8	U
N-Nitrosodiphenylamine	50	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Pentachlorophenol	1	10	U	NS		3.4	U	10	U	10	U	0.010	U	3.4	U	30	U
Phenanthrene	50	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Phenol	1	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U
Pyrene	50	2.0	U	NS		2.0	U	2.0	U	2.0	U	0.0020	U	2.0	U	6.0	U

Notes
µg/L - micrograms per liter
J - Estimated Value
LTMW-20 was not sampled in 2021 due to dense vegetation and posison ivy causing inaccessibility.
NC - No criterion
ND* - Any detection is considered above the Class GA Standard
NS - Not Sampled
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect
UJ - The analyte was analyzed for but was not detected

TABLE 8

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-22								LTMW-23							
Sample ID		LMTW-22-20200428		LMTW-22-20210913		LTMW-22-20221118		LTMW-22-20240229 U		LMTW-23-20200430		LMTW-23-20210916		LTMW-23-20221117 U		LTMW-23-20240301 U	
Laboratory Sample ID		AD16822-014		AD26083-001		AD34621-017		AD42985-054		AD16822-049		AD26083-046		AD34621-012		AD42985-058	
Date Sample Collected		4/28/2020		9/13/2021		11/17/2022		2/29/2024		4/30/2020		9/16/2021		11/17/2022		3/1/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
1,1'-Biphenyl	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
1,2,4,5-Tetrachlorobenzene	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
1,4-Dioxane	0.35	0.50	U	0.00050	U	0.50	U	0.50	U	0.50	U	0.00053	U	0.50	U	0.50	U
2,3,4,6-Tetrachlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
2,4,5-Trichlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
2,4,6-Trichlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
2,4-Dichlorophenol	5	0.50	U	0.00050	U	0.62	U	0.62	U	0.50	U	0.00053	U	0.62	U	0.62	U
2,4-Dimethylphenol	50	0.50	U	0.00055	U	1.1	U	1.1	U	0.50	U	0.00058	U	1.1	U	1.1	U
2,4-Dinitrophenol	10	3.2	U	0.010	U	10	U	10	U	10	U	0.011	U	10	U	10	U
2,4-Dinitrotoluene	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
2,6-Dinitrotoluene	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
2-Chloronaphthalene	10	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
2-Chlorophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
2-Methylnaphthalene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
2-Methylphenol	NC	0.50	U	0.00050	U	0.59	U	0.59	U	0.50	U	0.00053	U	0.59	U	0.59	U
2-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
2-Nitrophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
3&4-Methylphenol	NC	0.50	U	0.00050	U	0.64	U	0.64	U	0.50	U	0.00053	U	0.64	U	0.64	U
3,3'-Dichlorobenzidine	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
3-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
4,6-Dinitro-2-methylphenol	NC	2.9	U	0.010	U	5.3	U	10	U	10	U	0.011	U	5.3	U	10	U
4-Bromophenyl-phenylether	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
4-Chloro-3-methylphenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
4-Chloroaniline	5	0.50	U	0.00050	U	0.59	U	0.59	U	0.50	U	0.00053	U	0.59	U	0.59	U
4-Chlorophenyl-phenylether	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
4-Nitroaniline	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
4-Nitrophenol	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Acenaphthene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Acenaphthylene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Acetophenone	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Anthracene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Atrazine	7.5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Benzaldehyde	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Benzo[a]anthracene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Benzo[a]pyrene	ND*	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Benzo[b]fluoranthene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Benzo[g,h,i]perylene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U

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BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET SEMIVOLATILE ORGANIC COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-22								LTMW-23							
Sample ID		LMTW-22-20200428		LMTW-22-20210913		LTMW-22-20221118		LTMW-22-20240229 U		LMTW-23-20200430		LMTW-23-20210916		LTMW-23-20221117 U		LTMW-23-20240301 U	
Laboratory Sample ID		AD16822-014		AD26083-001		AD34621-017		AD42985-054		AD16822-049		AD26083-046		AD34621-012		AD42985-058	
Date Sample Collected		4/28/2020		9/13/2021		11/17/2022		2/29/2024		4/30/2020		9/16/2021		11/17/2022		3/1/2024	
Semivolatile Organic Compounds	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Benzo[k]fluoranthene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
bis(2-Chloroethoxy)methane	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
bis(2-Chloroethyl)ether	1	0.50	U	0.00050	U	0.51	U	0.51	U	0.50	U	0.00053	U	0.51	U	0.51	U
bis(2-Chloroisopropyl)ether	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
bis(2-Ethylhexyl)phthalate	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Butylbenzylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Caprolactam	NC	34		0.0020	U	2.0	U	2.0	U	69		0.0021	U	2.0	U	2.0	U
Carbazole	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Chrysene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Dibenzo[a,h]anthracene	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Dibenzofuran	NC	0.50	U	0.00068	U	0.59	U	0.59	U	0.50	U	0.00072	U	0.59	U	0.59	U
Diethylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Dimethylphthalate	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Di-n-butylphthalate	50	0.50	U	0.0011	U	0.72	U	0.72	U	0.50	U	0.0011	U	0.72	U	0.72	U
Di-n-octylphthalate	NC	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Fluoranthene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Fluorene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Hexachlorobenzene	0.04	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Hexachlorobutadiene	0.5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Hexachlorocyclopentadiene	5	2.0	U	0.0020	U	6.8	U	6.8	U	2.0	U	0.0021	U	6.8	U	6.8	U
Hexachloroethane	5	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Indeno[1,2,3-cd]pyrene	0.002	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Isophorone	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Naphthalene	10	0.50	U	0.00050	U	0.50	U	0.50	U	0.50	U	0.00053	U	0.50	U	0.50	U
Nitrobenzene	0.4	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
N-Nitroso-di-n-propylamine	NC	0.50	U	0.00064	U	0.61	U	0.61	U	0.50	U	0.00068	U	0.61	U	0.61	U
N-Nitrosodiphenylamine	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Pentachlorophenol	1	2.7	U	0.010	U	3.4	U	10	U	10	U	0.011	U	3.4	U	10	U
Phenanthrene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Phenol	1	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U
Pyrene	50	2.0	U	0.0020	U	2.0	U	2.0	U	2.0	U	0.0021	U	2.0	U	2.0	U

Notes
µg/L - micrograms per liter
J - Estimated Value
LTMW-20 was not sampled in 2021 due to dense vegetation and posison ivy causing inaccessibility.
NC - No criterion
ND* - Any detection is considered above the Class GA Standard
NS - Not Sampled
Shaded and **bold** results exceed the corresponding Class GA Value.
U - Non-detect
UJ - The analyte was analyzed for but was not detected

TABLE 9

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET PESTICIDES

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-1								LTMW-2								LTMW-3							
Sample ID:		LTMW-1-20200501 U		LTMW-1-20210916 U		LTMW-1-20221115 U		LTMW-1-20240227 U		LTMW-2-20200430 U		LTMW-2-20210916-U		LTMW-2-20221115		LTMW-2-20240227 U		LTMW-3-20200430 U		LTMW-3-20210915		LTMW-3-20221115 U		LTMW-3-20240228 U	
Laboratory Sample ID:		AD16822-062		AD26083-040		AD34569-004		AD42985-001		AD16822-045		AD26083-036		AD34569-005		AD42985-003		AD16822-047		AD26083-032		AD34569-006		AD42985-024	
Date Sample Collected		5/1/2020		9/16/2021		11/15/2022		2/27/2024		4/30/2020		9/16/2021		11/15/2022		2/27/2024		4/30/2020		9/15/2021		11/15/2022		2/28/2024	
Pesticides	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
a-Chlordane	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Aldrin	ND*	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Alpha-BHC	0.01	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
beta-BHC	0.04	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Chlordane (Total)	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
delta-BHC	0.04	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Dieldrin	0.004	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endosulfan I	NC	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endosulfan II	NC	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endosulfan Sulfate	NC	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endrin	ND*	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endrin Aldehyde	5	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endrin Ketone	5	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
gamma-BHC	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Heptachlor	0.04	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Heptachlor Epoxide	0.03	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Methoxychlor	35	0.010	U	0.014	U	0.014	U	0.014	U	0.010	U	0.014	U	0.014	U	0.014	U	0.010	U	0.014	U	0.014	U	0.014	U
p,p'-DDD	0.3	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
p,p'-DDE	0.2	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
p,p'-DDT	0.2	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Toxaphene	0.06	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
y-Chlordane	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U

Notes

µg/L - micrograms per liter

LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.

NC - No criterion
ND* - Any detection is considered above the Class GA Stanard
NS - Not Sampled
Shaded and **bold** results exceed corresponding Class GA Value.
U - Non-detect

TABLE 9

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET PESTICIDE COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-4								LTMW-5A								LTMW-5B							
Sample ID:		LTMW-4-20200501 U		LTMW-4-20210915 U		LTMW-4-20221116 U		LTMW-4-20240228 U		LTMW-5A-20200427 U		LTMW-5A-20210915		LTMW-5A-20221116 U		LTMW-5A-20240301 U		LTMW-5B-20200428 U		LTMW-5B-20210914 U		LTMW-5B-20221116		LTMW-5B-20240301 U	
Laboratory Sample ID:		AD16822-058		AD26083-028		AD34583-002		AD42985-026		AD16822-005		AD26083-026		AD34583-009		AD42985-062		AD16822-010		AD26083-021		AD34583-011		AD42985-064	
Date Sample Collected		5/1/2020		9/15/2021		11/16/2022		2/28/2024		4/27/2020		9/15/2021		11/16/2022		3/1/2024		4/28/2020		9/14/2021		11/16/2022		3/1/2024	
Pesticides	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
a-Chlordane	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Aldrin	ND*	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Alpha-BHC	0.01	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
beta-BHC	0.04	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Chlordane (Total)	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
delta-BHC	0.04	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Dieldrin	0.004	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endosulfan I	NC	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endosulfan II	NC	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endosulfan Sulfate	NC	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endrin	ND*	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endrin Aldehyde	5	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endrin Ketone	5	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
gamma-BHC	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Heptachlor	0.04	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Heptachlor Epoxide	0.03	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Methoxychlor	35	0.010	U	0.014	U	0.014	U	0.014	U	0.010	U	0.014	U	0.016	U	0.014	U	0.010	U	0.014	U	0.014	U	0.014	U
p,p'-DDD	0.3	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
p,p'-DDE	0.2	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
p,p'-DDT	0.2	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Toxaphene	0.06	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
y-Chlordane	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U

Notes

µg/L - micrograms per liter

LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.

NC - No criterion
ND* - Any detection is considered above the Class GA Stanard
NS - Not Sampled
Shaded and **bold** results exceed corresponding Class GA Value.
U - Non-detect

TABLE 9

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET PESTICIDE COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-6								LTMW-7								LTMW-8							
Sample ID:		LTMW-6-20200427 U		LTMW-6-20210914 U		LTMW-6-20221117 U		LTMW-6-20240228 U		LTMW-7-20200428 U		LTMW-7-20210913		LTMW-7-20221117		LTMW-7-20240229 U		LTMW-8-20200427 U		LTMW-8-20210913		LTMW-8-20221117		LTMW-8-20240229 U	
Laboratory Sample ID:		AD16822-007		AD26083-016		AD34621-002		AD42985-028		AD16822-012		AD26083-011		AD34621-006		AD42985-033		AD16822-001		AD26083-002		AD34621-011		AD42985-041	
Date Sample Collected		4/27/2020		9/14/2021		11/17/2022		2/28/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024		4/27/2020		9/13/2021		11/17/2022		2/29/2024	
Pesticides	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
a-Chlordane	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Aldrin	ND*	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Alpha-BHC	0.01	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
beta-BHC	0.04	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Chlordane (Total)	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
delta-BHC	0.04	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Dieldrin	0.004	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endosulfan I	NC	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endosulfan II	NC	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endosulfan Sulfate	NC	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endrin	ND*	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endrin Aldehyde	5	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endrin Ketone	5	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
gamma-BHC	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Heptachlor	0.04	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Heptachlor Epoxide	0.03	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Methoxychlor	35	0.010	U	0.014	U	0.014	U	0.014	U	0.010	U	0.014	U	0.014	U	0.014	U	0.010	U	0.014	U	0.014	U	0.014	U
p,p'-DDD	0.3	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
p,p'-DDE	0.2	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
p,p'-DDT	0.2	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Toxaphene	0.06	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
y-Chlordane	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U

Notes

µg/L - micrograms per liter

LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.

NC - No criterion
ND* - Any detection is considered above the Class GA Stanard
NS - Not Sampled
Shaded and **bold** results exceed corresponding Class GA Value.
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NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET PESTICIDE COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-9				LTMW-10				LTMW-11			
Sample ID:		LTMW-9-20200428 U	LTMW-9-20210913 U	LTMW-9-20221118 U	LTMW-9-20240229 U	LTMW-10-20200429 U	LTMW-10-20210913 U	LTMW-10-20221118	LTMW-10-20240229 U	LTMW-11-20200428 U	LTMW-11-20210913	LTMW-11-20221117	LTMW-11-20240229 U
Laboratory Sample ID:		AD16822-017	AD26083-006	AD34621-018	AD42985-052	AD16822-025	AD26083-003	AD34621-020	AD42985-047	AD16822-019	AD26083-008	AD34621-004	AD42985-045
Date Sample Collected		4/28/2020	9/13/2021	11/17/2022	2/29/2024	4/29/2020	9/13/2021	11/17/2022	2/29/2024	4/28/2020	9/13/2021	11/17/2022	2/29/2024
Pesticides	Class GA Value (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)
a-Chlordane	0.05	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Aldrin	ND*	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Alpha-BHC	0.01	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
beta-BHC	0.04	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Chlordane (Total)	0.05	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
delta-BHC	0.04	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Dieldrin	0.004	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endosulfan I	NC	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endosulfan II	NC	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endosulfan Sulfate	NC	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endrin	ND*	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endrin Aldehyde	5	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endrin Ketone	5	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
gamma-BHC	0.05	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Heptachlor	0.04	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Heptachlor Epoxide	0.03	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Methoxychlor	35	0.010 U	0.014 U	0.014 U	0.014 U	0.010 U	0.014 U	0.014 U	0.014 U	0.010 U	0.014 U	0.014 U	0.014 U
p,p'-DDD	0.3	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
p,p'-DDE	0.2	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
p,p'-DDT	0.2	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Toxaphene	0.06	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
y-Chlordane	0.05	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U

Notes

µg/L - micrograms per liter

LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.

NC - No criterion
ND* - Any detection is considered above the Class GA Stanard
NS - Not Sampled
Shaded and **bold** results exceed corresponding Class GA Value.
U - Non-detect

TABLE 9

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET PESTICIDE COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-12								LTMW-13								LTMW-15							
Sample ID:		LTMW-12-20200429 U		LTMW-12-20210914 U		LTMW-12-20221115 U		LTMW-12-20240229 U		LTMW-13-20200430 U		LTMW-13-20210914		LTMW-13-20221117		LTMW-13-20240228 U		LTMW-15-20200430 U		LTMW-15-20210914 U		LTMW-15-20221116		LTMW-15-20240228 U	
Laboratory Sample ID:		AD16822-027		AD26083-014		AD34569-001		AD42985-043		AD16822-055		AD26083-018		AD34621-001		AD42985-014		AD16822-053		AD26083-019		AD34583-008		AD42985-030	
Date Sample Collected		4/29/2020		9/14/2021		11/15/2022		2/29/2024		4/30/2020		9/14/2021		11/17/2022		2/28/2024		4/30/2020		9/14/2021		11/16/2022		2/28/2024	
Pesticides	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
a-Chlordane	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
Aldrin	ND*	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
Alpha-BHC	0.01	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
beta-BHC	0.04	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
Chlordane (Total)	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
delta-BHC	0.04	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
Dieldrin	0.004	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
Endosulfan I	NC	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
Endosulfan II	NC	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
Endosulfan Sulfate	NC	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
Endrin	ND*	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
Endrin Aldehyde	5	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
Endrin Ketone	5	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
gamma-BHC	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
Heptachlor	0.04	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
Heptachlor Epoxide	0.03	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
Methoxychlor	35	0.010	U	0.014	U	0.014	U	0.014	U	0.010	U	0.014	U	0.014	U	0.014	U	0.010	U	0.015	U	0.014	U	0.014	U
p,p'-DDD	0.3	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
p,p'-DDE	0.2	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
p,p'-DDT	0.2	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U
Toxaphene	0.06	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
y-Chlordane	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	0.010	U	0.010	U

Notes

µg/L - micrograms per liter

LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.

NC - No criterion
ND* - Any detection is considered above the Class GA Stanard
NS - Not Sampled
Shaded and **bold** results exceed corresponding Class GA Value.
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TABLE 9

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET PESTICIDE COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-16								LTMW-17								LTMW-18C							
Sample ID:		LTMW-16-20200430 U		LTMW-16-20210915 U		LTMW-16-20221116		LTMW-16-20240228 U		LTMW-17-20200501 U		LTMW-17-20210915		LTMW-17-20221116		LTMW-17-20240228 U		LTMW-18C-20200429 U		LTMW-18C-20210916		LTMW-18C-20221116		LTMW-18C-20240227 U	
Laboratory Sample ID:		AD16822-051		AD26083-030		AD34583-007		AD42985-016		AD16822-060		AD26083-027		AD34583-004		AD42985-022		AD16822-031		AD26083-035		AD34583-001		AD42985-009	
Date Sample Collected		4/30/2020		9/15/2021		11/16/2022		2/28/2024		5/1/2020		9/15/2021		11/16/2022		2/28/2024		4/29/2020		9/16/2021		11/16/2022		2/27/2024	
Pesticides	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
a-Chlordane	0.05	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Aldrin	ND*	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Alpha-BHC	0.01	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
beta-BHC	0.04	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Chlordane (Total)	0.05	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
delta-BHC	0.04	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Dieldrin	0.004	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endosulfan I	NC	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endosulfan II	NC	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endosulfan Sulfate	NC	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endrin	ND*	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endrin Aldehyde	5	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Endrin Ketone	5	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
gamma-BHC	0.05	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Heptachlor	0.04	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Heptachlor Epoxide	0.03	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Methoxychlor	35	0.011	U	0.015	U	0.016	U	0.014	U	0.010	U	0.014	U	0.014	U	0.014	U	0.010	U	0.014	U	0.014	U	0.014	U
p,p'-DDD	0.3	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
p,p'-DDE	0.2	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
p,p'-DDT	0.2	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Toxaphene	0.06	0.28	U	0.25	U	0.028	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
y-Chlordane	0.05	0.011	U	0.010	U	0.011	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U

Notes

µg/L - micrograms per liter

LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.

NC - No criterion
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Shaded and **bold** results exceed corresponding Class GA Value.
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BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET PESTICIDE COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-18UG								LTMW-19								LTMW-20							
Sample ID:		LTMW-18UG-20200429 U		LTMW-18UG-20210916 U		LTMW-18-UG-20221115 U		LTMW-18UG-20240227 U		LTMW-19-20200429 U		LTMW-19-20210916		LTMW-19-20221115		LTMW-19-20240227 U		LTMW-20-20200429 U		NS		LTMW-20-20221118		LTMW-20-20240227 U	
Laboratory Sample ID:		AD16822-033		AD26083-038		AD34569-003		AD42985-011		AD16822-029		AD26083-048		AD34569-002		AD42985-007		AD16822-038				AD34621-016		AD42985-005	
Date Sample Collected		4/29/2020		9/16/2021		11/15/2022		2/27/2024		4/29/2020		9/16/2021		11/15/2022		2/27/2024		4/29/2020				11/17/2022		2/27/2024	
Pesticides	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
a-Chlordane	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
Aldrin	ND*	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
Alpha-BHC	0.01	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
beta-BHC	0.04	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
Chlordane (Total)	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
delta-BHC	0.04	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
Dieldrin	0.004	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
Endosulfan I	NC	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
Endosulfan II	NC	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
Endosulfan Sulfate	NC	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
Endrin	ND*	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
Endrin Aldehyde	5	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
Endrin Ketone	5	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
gamma-BHC	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
Heptachlor	0.04	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
Heptachlor Epoxide	0.03	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
Methoxychlor	35	0.010	U	0.015	U	0.014	U	0.014	U	0.010	U	0.015	U	0.014	U	0.014	U	0.011	U	NS		0.014	U	0.014	U
p,p'-DDD	0.3	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
p,p'-DDE	0.2	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
p,p'-DDT	0.2	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U
Toxaphene	0.06	0.25	U	0.26	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U	0.27	U	NS		0.25	U	0.25	U
y-Chlordane	0.05	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.011	U	NS		0.010	U	0.010	U

Notes

µg/L - micrograms per liter

LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.

NC - No criterion
ND* - Any detection is considered above the Class GA Stanard
NS - Not Sampled
Shaded and **bold** results exceed corresponding Class GA Value.
U - Non-detect

TABLE 9

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET PESTICIDE COMPOUNDS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-21				LTMW-22				LTMW-23			
Sample ID:		LTMW-21-20200427 U	LTMW-21-20210914 U	LTMW-21-20221117 U	LTMW-21-20240229 U	LTMW-22-20200428	LTMW-22-20210913	LTMW-22-20221118	LTMW-22-20240229 U	LTMW-23-20200430 U	LTMW-23-20210916 U	LTMW-23-20221117 U	LTMW-23-20240301 U
Laboratory Sample ID:		AD16822-003	AD26083-012	AD34621-009	AD42985-056	AD16822-014	AD26083-001	AD34621-017	AD42985-054	AD16822-049	AD26083-046	AD34621-012	AD42985-058
Date Sample Collected		4/27/2020	9/14/2021	11/17/2022	2/29/2024	4/28/2020	9/13/2021	11/17/2022	2/29/2024	4/30/2020	9/16/2021	11/17/2022	3/1/2024
Pesticides	Class GA Value (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)	Results (µg/L)
a-Chlordane	0.05	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Aldrin	ND*	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Alpha-BHC	0.01	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
beta-BHC	0.04	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Chlordane (Total)	0.05	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
delta-BHC	0.04	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Dieldrin	0.004	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endosulfan I	NC	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endosulfan II	NC	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endosulfan Sulfate	NC	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endrin	ND*	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endrin Aldehyde	5	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Endrin Ketone	5	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
gamma-BHC	0.05	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Heptachlor	0.04	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Heptachlor Epoxide	0.03	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Methoxychlor	35	0.010 U	0.014 U	0.014 U	0.014 U	0.010 U	0.014 U	0.014 U	0.014 U	0.010 U	0.015 U	0.014 U	0.014 U
p,p'-DDD	0.3	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
p,p'-DDE	0.2	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
p,p'-DDT	0.2	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U
Toxaphene	0.06	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.26 U	0.25 U	0.25 U
y-Chlordane	0.05	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U	0.010 U

Notes

µg/L - micrograms per liter

LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.

NC - No criterion
ND* - Any detection is considered above the Class GA Stanard
NS - Not Sampled
Shaded and **bold** results exceed corresponding Class GA Value.
U - Non-detect

TABLE 10

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET WET CHEMISTRY PARAMETERS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-1								LTMW-2								LTMW-3							
Sample ID:		LTMW-1-20200501 U		LTMW-1-20210916 U		LTMW-1-20221115 U		LTMW-1-20240227 U		LTMW-2-20200430 U		LTMW-2-20210916-U		LTMW-2-20221115		LTMW-2-20240227 U		LTMW-3-20200430 U		LTMW-3-20210915		LTMW-3-20221115 U		LTMW-3-20240228 U	
Laboratory Sample ID:		AD16822-062		AD26083-040		AD34569-004		AD42985-001		AD16822-045		AD26083-036		AD34569-005		AD42985-003		AD16822-047		AD26083-032		AD34569-006		AD42985-024	
Date Sample Collected:		5/1/2020		9/16/2021		11/15/2022		2/27/2024		4/30/2020		9/16/2021		11/15/2022		2/27/2024		4/30/2020		9/15/2021		11/15/2022		2/28/2024	
Wet Chemistry	Class GA Value	Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results	
Alkalinity (µg/L as CaCO3)	NC	2,100,000		1,900,000		2,000,000		1,900,000		290,000		200,000		200,000		350,000		540,000		510,000		570,000		600,000	
Ammonia (µg/L)	2,000	**90,000**		**97,000**		**94,000**		**93,000**		1,000	U	1,000	U	1,000	U	1,000	U	1,700		1,900		1,500		1,400	
Bromide (µg/L)	2,000	**12,000**		**10,000**		**9,200**		**13,000**		**24,000**		**22,000**		**22,000**		**22,000**		**32,000**		**32,000**		**32,000**		**27,000**	
Chloride (µg/L)	250,000	**2,100,000**		**1,900,000**		**1,800,000**		**3,100,000**		**6,500,000**		**6,800,00**		**6,500,000**		**8,500,000**		**9,100,000**		**10,000,000**		**9,100,000**		**9,700,000**	
Cyanide (µg/L)	200	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
Hardness (µg/L as CaCO3)	NC	1,000,000		670,000		980,000		1,200,000		3,900,000		4,100,000		4,300,000		4,500,000		3,800,000		3,800,000		3,900,000		4,200,000	
Nitrate (µg/L)	10,000	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U
pH Endpoint (pH)	NC	4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5	
Sulfate (µg/L)	250,000	4,300		2,000	U	2,000	U	15,000		**720,000**		**580,000**		**580,000**		**840,000**		**940,000**		**980,000**		**940,000**		**900,000**	
Total Dissolved Solids (µg/L)	NC	5,600,000		4,700,000		4,300,000		5,700,000		16,000,000		19,000,000		14,000,000		12,000,000		22,000,000		18,000,000		19,000,000		13,000,000	
Total Organic Carbon (µg/L)	NC	79,000		88,000		100,000		49,000		5,800		5,000	U	5,000	U	5,000	U	9,500		8,800		8,900		8,100	

Notes
µg/L - micrograms per liter
CaCO3 - Calcium Carbonate
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.
N/A - Not Analyzed
NC - No Criterion
NS - Not Sampled
Shaded and **bold** results exceed corresponding Class GA Value.
U - Non-detect

TABLE 10

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET WET CHEMISTRY PARAMETERS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-4								LTMW-5A								LTMW-5B							
Sample ID:		LTMW-4-20200501 U		LTMW-4-20210915 U		LTMW-4-20221116 U		LTMW-4-20240228 U		LTMW-5A-20200427 U		LTMW-5A-20210915		LTMW-5A-20221116 U		LTMW-5A-20240301 U		LTMW-5B-20200428 U		LTMW-5B-20210914 U		LTMW-5B-20221116		LTMW-5B-20240301 U	
Laboratory Sample ID:		AD16822-058		AD26083-028		AD34583-002		AD42985-026		AD16822-005		AD26083-026		AD34583-009		AD42985-062		AD16822-010		AD26083-021		AD34583-011		AD42985-064	
Date Sample Collected:		5/1/2020		9/15/2021		11/16/2022		2/28/2024		4/27/2020		9/15/2021		11/16/2022		3/1/2024		4/28/2020		9/14/2021		11/16/2022		3/1/2024	
Wet Chemistry	Class GA Value	Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results	
Alkalinity (µg/L as CaCO3)	NC	90,000		100,000		91,000		98,000		140,000		140,000		140,000		120,000		180,000		180,000		160,000		170,000	
Ammonia (µg/L)	2,000	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U
Bromide (µg/L)	2,000	**3,100**		**3,200**		**3,900**		**3,200**		1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U
Chloride (µg/L)	250,000	**850,000**		**980,000**		**940,000**		**1,100,000**		110,000		120,000		96,000		110,000		9,900		10,000		8,900		2,000	U
Cyanide (µg/L)	200	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
Hardness (µg/L as CaCO3)	NC	910,000		880,000		910,000		1,000,000		210,000		200,000		200,000		210,000		130,000		140,000		130,000		140,000	
Nitrate (µg/L)	10,000	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U
pH Endpoint (pH)	NC	4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5	
Sulfate (µg/L)	250,000	9,800		11,000		9,800		15,000		13,000		13,000		12,000		11,000		8,800		9,500		8,100		2,000	U
Total Dissolved Solids (µg/L)	NC	2,000,000		2,800,000		1,900,000		3,000,000		430,000		400,000		300,000		400,000		220,000		250,000		220,000		220,000	
Total Organic Carbon (µg/L)	NC	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U

Notes
µg/L - micrograms per liter
CaCO3 - Calcium Carbonate
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.
N/A - Not Analyzed
NC - No Criterion
NS - Not Sampled
Shaded and **bold** results exceed corresponding Class GA Value.
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TABLE 10

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET WET CHEMISTRY PARAMETERS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-6								LTMW-7								LTMW-8							
Sample ID:		LTMW-6-20200427 U		LTMW-6-20210914 U		LTMW-6-20221117 U		LTMW-6-20240228 U		LTMW-7-20200428 U		LTMW-7-20210913		LTMW-7-20221117		LTMW-7-20240229 U		LTMW-8-20200427 U		LTMW-8-20210913		LTMW-8-20221117		LTMW-8-20240229 U	
Laboratory Sample ID:		AD16822-007		AD26083-016		AD34621-002		AD42985-028		AD16822-012		AD26083-011		AD34621-006		AD42985-033		AD16822-001		AD26083-002		AD34621-011		AD42985-041	
Date Sample Collected:		4/27/2020		9/14/2021		11/17/2022		2/28/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024		4/27/2020		9/13/2021		11/17/2022		2/29/2024	
Wet Chemistry	Class GA Value	Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results	
Alkalinity (µg/L as CaCO3)	NC	180,000		200,000		180,000		140,000		180,000		200,000		180,000		160,000		1,400,000		1,400,000		1,200,000		1,300,000	
Ammonia (µg/L)	2,000	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U
Bromide (µg/L)	2,000	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	**6,200**		**5,600**		**3,900**		**3,500**	
Chloride (µg/L)	250,000	7,200		6,600		6,900		7,800		62,000		73,000		80,000		98,000		**910,000**		**940,000**		**540,000**		**640,000**	
Cyanide (µg/L)	200	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
Hardness (µg/L as CaCO3)	NC	140,000		150,000		140,000		154,000		250,000		260,000		250,000		230,000		780,000		790,000		660,000		550,000	
Nitrate (µg/L)	10,000	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U
pH Endpoint (pH)	NC	4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5	
Sulfate (µg/L)	250,000	6,200		6,100		6,200		5,700		23,000		25,000		22,000		23,000		33,000		32,000		23,000		49,000	
Total Dissolved Solids (µg/L)	NC	240,000		220,000		180,000		360,000		360,000		410,000		350,000		420,000		3,100,000		3,000,000		2,200,000		2,200,000	
Total Organic Carbon (µg/L)	NC	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	25,000		29,000		27,000		30,000	

Notes
µg/L - micrograms per liter
CaCO3 - Calcium Carbonate
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.
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BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET WET CHEMISTRY PARAMETERS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-9								LTMW-10								LTMW-11							
Sample ID:		LTMW-9-20200428 U		LTMW-9-20210913 U		LTMW-9-20221118 U		LTMW-9-20240229 U		LTMW-10-20200429 U		LTMW-10-20210913 U		LTMW-10-20221118		LTMW-10-20240229 U		LTMW-11-20200428 U		LTMW-11-20210913		LTMW-11-20221117		LTMW-11-20240229 U	
Laboratory Sample ID:		AD16822-017		AD26083-006		AD34621-018		AD42985-052		AD16822-025		AD26083-003		AD34621-020		AD42985-047		AD16822-019		AD26083-008		AD34621-004		AD42985-045	
Date Sample Collected:		4/28/2020		9/13/2021		11/18/2022		2/29/2024		4/29/2020		9/13/2021		11/18/2022		2/29/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024	
Wet Chemistry	Class GA Value	Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results	
Alkalinity (µg/L as CaCO3)	NC	200,000		210,000		240,000		200,000		190,000		220,000		200,000		210,000		390,000		360,000		200,000		300,000	
Ammonia (µg/L)	2,000	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U
Bromide (µg/L)	2,000	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U
Chloride (µg/L)	250,000	24,000		26,000		27,000		25,000		47,000		51,000		49,000		53,000		130,000		170,000		60,000		100,000	
Cyanide (µg/L)	200	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
Hardness (µg/L as CaCO3)	NC	230,000		250,000		230,000		240,000		270,000		290,000		270,000		290,000		540,000		590,000		590,000		420,000	
Nitrate (µg/L)	10,000	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U
pH Endpoint (pH)	NC	4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5	
Sulfate (µg/L)	250,000	34,000		34,000		26,000		29,000		35,000		41,000		32,000		34,000		83,000		110,000		14,000		81,000	
Total Dissolved Solids (µg/L)	NC	330,000		360,000		300,000		580,000		400,000		380,000		370,000		410,000		820,000		840,000		180,000		670,000	
Total Organic Carbon (µg/L)	NC	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U

Notes
µg/L - micrograms per liter
CaCO3 - Calcium Carbonate
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.
N/A - Not Analyzed
NC - No Criterion
NS - Not Sampled
Shaded and **bold** results exceed corresponding Class GA Value.
U - Non-detect

TABLE 10

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET WET CHEMISTRY PARAMETERS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-12								LTMW-13								LTMW-15							
Sample ID:		LTMW-12-20200429 U		LTMW-12-20210914 U		LTMW-12-20221115 U		LTMW-12-20240229 U		LTMW-13-20200430 U		LTMW-13-20210914		LTMW-13-20221117		LTMW-13-20240228 U		LTMW-15-20200430 U		LTMW-15-20210914 U		LTMW-15-20221116		LTMW-15-20240228 U	
Laboratory Sample ID:		AD16822-027		AD26083-014		AD34569-001		AD42985-043		AD16822-055		AD26083-018		AD34621-001		AD42985-014		AD16822-053		AD26083-019		AD34583-008		AD42985-030	
Date Sample Collected:		4/29/2020		9/14/2021		11/15/2022		2/29/2024		4/30/2020		9/14/2021		11/17/2022		2/28/2024		4/30/2020		9/14/2021		11/16/2022		2/28/2024	
Wet Chemistry	Class GA Value	Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results	
Alkalinity (µg/L as CaCO3)	NC	170,000		150,000		140,000		170,000		190,000		200,000		200,000		240,000		250,000		300,000		300,000		260,000	
Ammonia (µg/L)	2,000	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U
Bromide (µg/L)	2,000	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	**2,500**		**2,900**		**3,800**		**2,800**	
Chloride (µg/L)	250,000	86,000		100,000		90,000		110,000		66,000		72,000		55,000		75,000		**730,000**		**910,000**		**840,000**		**950,000**	
Cyanide (µg/L)	200	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
Hardness (µg/L as CaCO3)	NC	87,000		89,000		83,000		93,000		84,000		99,000		87,000		93,000		240,000		260,000		270,000		299,000	
Nitrate (µg/L)	10,000	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U
pH Endpoint (pH)	NC	4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5	
Sulfate (µg/L)	250,000	44,000		48,000		39,000		76,000		16,000		15,000		16,000		13,000		73,000		93,000		80,000		85,000	
Total Dissolved Solids (µg/L)	NC	500,000		430,000		360,000		520,000		360,000		380,000		330,000		810,000		1,700,000		1,800,000		N/A		1,900,000	
Total Organic Carbon (µg/L)	NC	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U

Notes
µg/L - micrograms per liter
CaCO3 - Calcium Carbonate
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.
N/A - Not Analyzed
NC - No Criterion
NS - Not Sampled
Shaded and **bold** results exceed corresponding Class GA Value.
U - Non-detect

TABLE 10

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET WET CHEMISTRY PARAMETERS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-16								LTMW-17								LTMW-18C							
Sample ID:		LTMW-16-20200430 U		LTMW-16-20210915 U		LTMW-16-20221116		LTMW-16-20240228 U		LTMW-17-20200501 U		LTMW-17-20210915		LTMW-17-20221116		LTMW-17-20240228 U		LTMW-18C-20200429 U		LTMW-18C-20210916		LTMW-18C-20221116		LTMW-18C-20240227 U	
Laboratory Sample ID:		AD16822-051		AD26083-030		AD34583-007		AD42985-016		AD16822-060		AD26083-027		AD34583-004		AD42985-022		AD16822-031		AD26083-035		AD34583-001		AD42985-009	
Date Sample Collected:		4/30/2020		9/15/2021		11/16/2022		2/28/2024		5/1/2020		9/15/2021		11/16/2022		2/28/2024		4/29/2020		9/16/2021		11/16/2022		2/27/2024	
Wet Chemistry	Class GA Value	Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results	
Alkalinity (µg/L as CaCO3)	NC	160,000		170,000		170,000		150,000		390,000		380,000		350,000		320,000		150,000		75,000		150,000		83,000	
Ammonia (µg/L)	2,000	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U
Bromide (µg/L)	2,000	1,000	U	1,000	U	1,000	U	1,000	U	1,300		1,000	U	1,000		1,000	U	1,000	U	1,400		1,000	U	1,000	U
Chloride (µg/L)	250,000	36,000		49,000		55,000		54,000		**370,000**		**320,000**		**260,000**		**310,000**		63,000		**480,000**		66,000		80,000	
Cyanide (µg/L)	200	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
Hardness (µg/L as CaCO3)	NC	47,000		43,000		40,000		41,000		99,000		44,000		310,000		40,000		180,000		140,000		180,000		120,000	
Nitrate (µg/L)	10,000	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U
pH Endpoint (pH)	NC	4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5	
Sulfate (µg/L)	250,000	18,000		19,000		19,000		18,000		76,000		73,000		58,000		65,000		2,000	U	96,000		2,000	U	3,100	
Total Dissolved Solids (µg/L)	NC	280,000		330,000		N/A		280,000		1,300,000		1,100,000		900,000		990,000		340,000		1,100,000		360,000		710,000	
Total Organic Carbon (µg/L)	NC	5,000	U	5,000	U	5,000	U	5,000	U	14,000		9,600		9,100		10,000		5,000	U	5,000	U	5,000	U	5,000	U

Notes
µg/L - micrograms per liter
CaCO3 - Calcium Carbonate
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.
N/A - Not Analyzed
NC - No Criterion
NS - Not Sampled
Shaded and **bold** results exceed corresponding Class GA Value.
U - Non-detect

TABLE 10

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET WET CHEMISTRY PARAMETERS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-18UG								LTMW-19								LTMW-20							
Sample ID:		LTMW-18UG-20200429 U		LTMW-18UG-20210916 U		LTMW-18-UG-20221115 U		LTMW-18UG-20240227 U		LTMW-19-20200429 U		LTMW-19-20210916		LTMW-19-20221115		LTMW-19-20240227 U		LTMW-20-20200429 U		NS		LTMW-20-20221118		LTMW-20-20240227 U	
Laboratory Sample ID:		AD16822-033		AD26083-038		AD34569-003		AD42985-011		AD16822-029		AD26083-048		AD34569-002		AD42985-007		AD16822-038				AD34621-016		AD42985-005	
Date Sample Collected:		4/29/2020		9/16/2021		11/15/2022		2/27/2024		4/29/2020		9/16/2021		11/15/2022		2/27/2024		4/29/2020				11/18/2022		2/27/2024	
Wet Chemistry	Class GA Value	Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results	
Alkalinity (µg/L as CaCO3)	NC	80,000		48,000		130,000		84,000		860,000		800,000		820,000		1,000,000		720,000		NS		740,000		720,000	
Ammonia (µg/L)	2,000	1,000	U	1,000	U	1,000	U	1,000	U	**5,100**		**5,600**		**4,200**		**4,800**		**3,900**		NS		**2,900**		**3,000**	
Bromide (µg/L)	2,000	1,000	U	1,000	U	1,000	U	1,000	U	**18,000**		**19,000**		**15,000**		**16,000**		**22,000**		NS		**20,000**		**20,000**	
Chloride (µg/L)	250,000	140,000		33,000		41,000		190,000		**4,600,000**		**4,900,000**		**4,100,000**		**4,500,000**		**5,700,000**		NS		**6,700,000**		**7,200,000**	
Cyanide (µg/L)	200	20	U	29		20	U	20	U	20	U	22		20	U	20	U	20	U	NS		20	U	20	U
Hardness (µg/L as CaCO3)	NC	280,000		76,000		150,000		330,000		1,400,000		1,500,000		1,600,000		1,900,000		2,000,000		NS		2,300,000		2,700,000	
Nitrate (µg/L)	10,000	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	NS		1,000	U	1,000	U
pH Endpoint (pH)	NC	4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		NS		4.5		4.5	
Sulfate (µg/L)	250,000	22,000		5,500		10,000		29,000		220,000		240,000		110,000		220,000		**420,000**		NS		**380,000**		**460,000**	
Total Dissolved Solids (µg/L)	NC	570,000		160,000		250,000		550,000		10,000,000		9,900,000		7,900,000		12,000,000		13,000,000		NS		13,000,000		15,000,000	
Total Organic Carbon (µg/L)	NC	5,000	U	5,000	U	5,000	U	5,000	U	16,000		19,000		26,000		21,000		8,300		NS		9,700		9,100	

Notes
µg/L - micrograms per liter
CaCO3 - Calcium Carbonate
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.
N/A - Not Analyzed
NC - No Criterion
NS - Not Sampled
Shaded and **bold** results exceed corresponding Class GA Value.
U - Non-detect

TABLE 10

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET WET CHEMISTRY PARAMETERS

APRIL 2020 THROUGH MARCH 2025

Monitoring Well		LTMW-21								LTMW-22								LTMW-23							
Sample ID:		LTMW-21-20200427 U		LTMW-21-20210914 U		LTMW-21-20221117 U		LTMW-21-20240229 U		LTMW-22-20200428		LTMW-22-20210913		LTMW-22-20221118		LTMW-22-20240229 U		LTMW-23-20200430 U		LTMW-23-20210916 U		LTMW-23-20221117 U		LTMW-23-20240301 U	
Laboratory Sample ID:		AD16822-003		AD26083-012		AD34621-009		AD42985-056		AD16822-014		AD26083-001		AD34621-017		AD42985-054		AD16822-049		AD26083-046		AD34621-012		AD42985-058	
Date Sample Collected:		4/27/2020		9/14/2021		11/17/2022		2/29/2024		4/28/2020		9/13/2021		11/18/2022		2/29/2024		4/30/2020		9/16/2021		11/17/2022		3/1/2024	
Wet Chemistry	Class GA Value	Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results		Results	
Alkalinity (µg/L as CaCO3)	NC	75,000		59,000		61,000		52,000		35,000		36,000		51,000		39,000		99,000		130,000		48,000		150,000	
Ammonia (µg/L)	2,000	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,400	
Bromide (µg/L)	2,000	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U
Chloride (µg/L)	250,000	6,100		6,600		7,600		6,500		16,000		17,000		14,000		18,000		10,000		3,400		18,000		110,000	
Cyanide (µg/L)	200	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U	20	U
Hardness (µg/L as CaCO3)	NC	33,000	U	46,000		51,000		43,000		33,000	U	6,600	U	36,000		33,000		98,000		38,000		54,000		250,000	
Nitrate (µg/L)	10,000	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,000	U	1,200		1,000	U
pH Endpoint (pH)	NC	4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5		4.5	
Sulfate (µg/L)	250,000	2,000	U	2,000	U	2,000	U	2,000	U	3,000		55,000		2,000	U	2,000	U	15,000		15,000		17,000		27,000	
Total Dissolved Solids (µg/L)	NC	140,000		92,000		84,000		190,000		64,000		100,000		80,000		120,000		260,000		96,000		96,000		420,000	
Total Organic Carbon (µg/L)	NC	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U	5,000	U

Notes
µg/L - micrograms per liter
CaCO3 - Calcium Carbonate
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.
N/A - Not Analyzed
NC - No Criterion
NS - Not Sampled
Shaded and **bold** results exceed corresponding Class GA Value.
U - Non-detect

TABLE 11A

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET METALS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-1								LTMW-2								LTMW-3							
SAMPLE ID:		LTMW-1-20200501 U		LTMW-1-20210916 U		LTMW-1-20221115 U		LTMW-1-20240227 U		LTMW-2-20200430 U		LTMW-2-20210916 U		LTMW-2-20221115		LTMW-2-20240227 U		LTMW-3-20200430 U		LTMW-3-20210915		LTMW-3-20221115 U		LTMW-3-20240228 U	
LABORATORY SAMPLE ID:		AD16822-062		AD26083-040		AD34569-004		AD42985-001		AD16822-045		AD26083-036		AD34569-005		AD42985-003		AD16822-047		AD26083-032		AD34569-006		AD42985-024	
DATE SAMPLE COLLECTED:		5/1/2020		9/16/2021		11/15/2022		2/27/2024		4/30/2020		9/16/2021		11/15/2022		2/27/2024		4/30/2020		9/15/2021		11/15/2022		2/28/2024	
METALS (UNFILTERED) (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aluminum	2,000	500		200	U	200	U	200	U	200	U	520		200	U	200	U	1,700		200	U	540		200	U
Antimony	3	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	9.0	U	3.0	U
Arsenic	25	3.2		2.2		2.0		2.4		6.9		7.0		4.8		6.4		6.2		4.2		4.3		4.3	
Barium	1,000	**3,000**		**2,400**		**2,200**		**2,800**		50	U	53		47		58		83		76		71		76	
Beryllium	3	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	3.0	U	1.0	U
Cadmium	5	2.0	UJ	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	6.0	U	2.0	U
Calcium	NC	110,000		100,000		130,000		150,000		950,000		1,000,000		1,100,000		1,000,000		590,000		580,000		590,000		670,000	
Chromium	50	50	U	50	U	6.6	U	6.7		50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.0	U	2.0	U
Cobalt	NC	9.6		7.7		8.0		9.6		10		7.3		5.4		12		2.0	U	2.0	U	2.0	U	2.0	U
Copper	200	50	U	50	U	10	U	10	U	250	U	50	U	10	U	10	U	250	U	50	U	10	U	10	U
Iron	300	**14,000**	**J**	**12,000**		**13,000**		**14,000**		**4,600**		**5,000**		**3,100**		**4,400**		**28,000**		**25,000**		**30,000**		**20,000**	
Lead	25	3.0	UJ	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.5		3.0	U	9.0	U	3.0	U
Magnesium	35,000	**180,000**		**150,000**		**160,000**		**210,000**		**380,000**		**350,000**		**390,000**		**460,000**		**580,000**		**580,000**		**590,000**		**620,000**	
Manganese	300	**660**		**570**		**630**		**710**		**9,000**		**6,700**		**5,600**		**11,000**		**2,900**		**2,900**		**3,400**		**2,700**	
Mercury	0.7	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	UJ	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Nickel	100	50	U	50	U	18	U	25		50	U	50	U	5.7	U	15		50	U	50	U	3.0	U	10	U
Potassium	NC	160,000		110,000		110,000		130,000		56,000		36,000		34,000		58,000		91,000		76,000		77,000		72,000	
Selenium	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Silver	50	20	U	20	U	1.0	U	2.0	U	20	U	20	U	1.0	U	2.0	U	20	U	20	U	3.0	U	2.0	U
Sodium	20,000	**1,700,000**		**1,300,000**		**1,300,000**		**1,900,000**		**2,900,000**		**2,500,000**		**2,500,000**		**3,700,000**		**4,700,000**		**4,700,000**		**4,900,000**		**5,300,000**	
Thallium	0.5	2.0	UJ	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	6.0	U	2.0	U
Vanadium	NC	50	U	50	U	14		13		50	U	50	U	2.0	U	2.0	U	50	U	50	U	3.0		2.6	
Zinc	2,000	50	U	50	U	20	U	40	U	50	U	50	U	20	U	40	U	50	U	50	U	20	U	1,700	

Notes
µg/L - micrograms per liter
J - Estimated value
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility
NC - No criterion
NS - Not sampled due to field filtered samples only being taken if turbidity was above 10 NTU.
Shaded and **bold** results exceed corresponding Class GA Value
U - Non-detect

TABLE 11A

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET METALS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-4								LTMW-5A								LTMW-5B							
SAMPLE ID:		LTMW-4-20200501 U		LTMW-4-20210915		LTMW-4-20221116 U		LTMW-4-20240228 U		LTMW-5A-20200427 U		LTMW-5A-20210915		LTMW-5A-20221116 U		LTMW-5A-20240301 U		LTMW-5B-20200428 U		LTMW-5B-20210914 U		LTMW-5B-20221116		LTMW-5B-20240301 U	
LABORATORY SAMPLE ID:		AD16822-058		AD26083-028		AD34583-002		AD42985-026		AD16822-005		AD26083-026		AD34583-009		AD42985-062		AD16822-010		AD26083-021		AD34583-011		AD42985-064	
DATE SAMPLE COLLECTED:		5/1/2020		9/15/2021		11/16/2022		2/28/2024		4/27/2020		9/15/2021		11/16/2022		3/1/2024		4/28/2020		9/14/2021		11/16/2022		3/1/2024	
METALS (UNFILTERED) (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aluminum	2,000	730		**7,600**		200	U	200	U	**6,100**		200	U	340		200	U	370		930		200	U	200	U
Antimony	3	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Arsenic	25	3.4		5.0		2.2		2.4		5.0		2.1		2.6		2.3		2.1		2.0	U	2.0	U	2.0	U
Barium	1,000	**1,600**		**1,600**		**1,500**		**1,700**		460		430		420		480		190		200		170		220	
Beryllium	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Calcium	NC	250,000		230,000		250,000		270,000		60,000		60,000		60,000		62,000		35,000		36,000		33,000		37,000	
Chromium	50	50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.0	U	2.0	U
Cobalt	NC	2.0	U	7.5		2.0	U	2.0	U	4.9		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Copper	200	50	U	50	U	10	U	10	U	50	U	50	U	10	U	10	U	50	U	50	U	10	U	10	U
Iron	300	**1,400**		**15,000**		**330**		**420**		**10,000**		300	U	**560**		300	U	**1,100**		**1,900**		300	U	300	U
Lead	25	3.2		7.8		3.0	U	3.0	U	5.2		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Magnesium	35,000	**71,000**		**73,000**		**70,000**		**77,000**		15,000		13,000		13,000		13,000		11,000		12,000		11,000		11,000	
Manganese	300	**850**		**1,100**		**800**		**880**		260		78		120		64		280		240		87		280	
Mercury	0.7	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Nickel	100	50	U	50	U	3.0	U	10	U	50	U	50	U	3.0	U	10	U	50	U	50	U	3.0	U	10	U
Potassium	NC	8,800		8,500		7,200		8,200		5,000	U	5,000	U	2,500		2,500		5,000	U	5,000	U	2,600		2,600	
Selenium	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Silver	50	20	U	20	U	1.0	U	2.0	U	20	U	20	U	1.0	U	2.0	U	20	U	20	U	1.0	U	2.0	U
Sodium	20,000	**240,000**		**190,000**		**210,000**		**240,000**		**40,000**		**39,000**		**40,000**		**42,000**		20,000		20,000		19,000		**21,000**	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Vanadium	NC	50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.2		2.0	U	50	U	50	U	2.0	U	2.0	U
Zinc	2,000	50	U	87		20	U	40	U	50	U	72		20	U	40	U	50	U	50	U	20	U	40	U

Notes
µg/L - micrograms per liter
J - Estimated value
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility
NC - No criterion
NS - Not sampled due to field filtered samples only being taken if turbidity was above 10 NTU.
Shaded and **bold** results exceed corresponding Class GA Value
U - Non-detect

TABLE 11A

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET METALS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-6								LTMW-7								LTMW-8							
SAMPLE ID:		LTMW-6-20200427 U		LTMW-6-20210914 U		LTMW-6-20221117 U		LTMW-6-20240228 U		LTMW-7-20200428 U		LTMW-7-20210913		LTMW-7-20221117		LTMW-7-20240229 U		LTMW-8-20200427 U		LTMW-8-20210913		LTMW-8-20221117		LTMW-8-20240229 U	
LABORATORY SAMPLE ID:		AD16822-007		AD26083-016		AD34621-002		AD42985-028		AD16822-012		AD26083-011		AD34621-006		AD42985-033		AD16822-001		AD26083-002		AD34621-011		AD42985-041	
DATE SAMPLE COLLECTED:		4/27/2020		9/14/2021		11/17/2022		2/28/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024		4/27/2020		9/13/2021		11/17/2022		2/29/2024	
METALS (UNFILTERED) (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aluminum	2,000	**2,400**		200	U	200	U	200	U	240		200	U	200	U	200	U	560		260		200	U	200	U
Antimony	3	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Arsenic	25	3.1		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	3.5		2.0	U	2.0	U	2.0	U	2.0	U
Barium	1,000	190		180		170		180		290		300		300		280		300		290		230		260	
Beryllium	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Calcium	NC	39,000		42,000		40,000		43,000		76,000		78,000		77,000		69,000		190,000		190,000		150,000		130,000	
Chromium	50	50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.0	U	2.0	U
Cobalt	NC	2.0		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	15		13		12		12	
Copper	200	50	U	50	U	10	U	10	U	50	U	50	U	10	U	10	U	50	U	50	U	10	U	10	U
Iron	300	**4,400**		300	U	300	U	300	U	**1,100**		300	U	300	U	**1,200**		**2,000**		**920**		**720**		**660**	
Lead	25	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Magnesium	35,000	11,000		11,000		11,000		11,000		15,000		16,000		15,000		14,000		**73,000**		**75,000**		**66,000**		**55,000**	
Manganese	300	280		260		200		170		**670**		620		640		**350**		**5,500**		**5,400**		**5,400**		**5,300**	
Mercury	0.7	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Nickel	100	50	U	50	U	3.0	U	10	U	50	U	50	U	3.0	U	10	U	63		83		68		62	
Potassium	NC	5,000	U	5,000	U	2,400		2,400		5,000	U	5,000	U	1,600		1,600		5,000	U	5,200		4,300		3,900	
Selenium	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Silver	50	20	U	20	U	1.0	U	2.0	U	20	U	20	U	1.0	U	2.0	U	20	U	20	U	1.0	U	2.0	U
Sodium	20,000	13,000		13,000		14,000		15,000		20,000		20,000		**21,000**		17,000		**830,000**		**800,000**		**650,000**		**670,000**	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Vanadium	NC	50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.0	U	2.0	U
Zinc	2,000	50	U	50	U	20	U	40	U	50	U	50	U	20	U	40	U	50	U	50	U	20	U	40	U

Notes
µg/L - micrograms per liter
J - Estimated value
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility
NC - No criterion
NS - Not sampled due to field filtered samples only being taken if turbidity was above 10 NTU.
Shaded and **bold** results exceed corresponding Class GA Value
U - Non-detect

TABLE 11A

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET METALS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-9								LTMW-10								LTMW-11							
SAMPLE ID:		LTMW-9-20200428 U		LTMW-9-20210913 U		LTMW-9-20221118 U		LTMW-9-20240229 U		LTMW-10-20200429 U		LTMW-10-20210913 U		LTMW-10-20221118		LTMW-10-20240229 U		LTMW-11-20200428 U		LTMW-11-20210913		LTMW-11-20221117		LTMW-11-2024029 U	
LABORATORY SAMPLE ID:		AD16822-017		AD26083-006		AD34621-018		AD42985-052		AD16822-025		AD26083-003		AD34621-020		AD42985-047		AD16822-019		AD26083-008		AD34621-004		AD42985-045	
DATE SAMPLE COLLECTED:		4/28/2020		9/13/2021		11/18/2022		2/29/2024		4/29/2020		9/13/2021		11/18/2022		2/29/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024	
METALS (UNFILTERED) (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aluminum	2,000	880		680		200	U	200	U	**10,000**		420		200	U	200	U	**2,700**		200	U	200	U	200	U
Antimony	3	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Arsenic	25	2.0	U	2.0	U	2.0	U	2.0	U	7.3		2.0	U	2.0	U	2.0	U	2.6		2.0	U	2.0	U	2.0	U
Barium	1,000	310		340		300		330		390		310		270		310		170		120		110		82	
Beryllium	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	UJ	1.0	U	1.0	U
Cadmium	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Calcium	NC	57,000		61,000		56,000		58,000		63,000		70,000		64,000		68,000		120,000		140,000	J	140,000		100,000	
Chromium	50	50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.0	U	2.0	U
Cobalt	NC	2.0	U	2.0	U	2.0	U	2.0	U	12		2.0	U	2.0	U	2.0	U	2.9		2.0	U	2.0	U	2.0	U
Copper	200	50	U	50	U	10	U	10	U	50	U	50	U	10	U	10	U	50	U	50	U	10	U	10	U
Iron	300	**1,700**		**1,100**		300	U	300	U	**23,000**		**1,100**		300	U	300	U	**6,500**		**1,700**		**950**		**430**	
Lead	25	3.0	U	3.0	U	3.0	U	3.0	U	12		3.0	U	3.0	U	3.0	U	3.9		3.0	U	3.0	U	3.0	U
Magnesium	35,000	22,000		24,000		21,000		22,000		28,000		28,000		26,000		28,000		**59,000**		**60,000**		**59,000**		**40,000**	
Manganese	300	**460**		**480**		**430**		**440**		**420**		130		110		110		**580**		**430**		200		150	
Mercury	0.7	0.50	U	0.50	U	0.50	U	0.50	U	**0.83**		0.50	U	0.50	U	0.50	U	0.50	U	0.50	UJ	0.50	U	0.50	U
Nickel	100	50	U	50	U	3.0	U	10	U	100		50	U	3.2		10	U	50	U	50	U	3.0	U	10	U
Potassium	NC	5,000	U	5,000	U	1,400		1,500		5,000	U	5,000	U	1,400		1,500		7,700		7,100		9,000		7,900	
Selenium	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Silver	50	20	U	20	U	1.0	U	2.0	U	20	U	20	U	1.0	U	2.0	U	20	U	20	U	1.0	U	2.0	U
Sodium	20,000	12,000		11,000		12,000		12,000		15,000		15,000		16,000		17,000		**22,000**		**39,000**		**36,000**		**49,000**	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Vanadium	NC	50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.0		2.2		50	U	50	U	2.0	U	2.0	U
Zinc	2,000	50	U	50	U	20	U	40	U	100		50	U	20	U	40	U	50	U	50	U	20	U	40	U

Notes
µg/L - micrograms per liter
J - Estimated value
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility
NC - No criterion
NS - Not sampled due to field filtered samples only being taken if turbidity was above 10 NTU.
Shaded and **bold** results exceed corresponding Class GA Value
U - Non-detect

TABLE 11A

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET METALS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-12								LTMW-13								LTMW-15							
SAMPLE ID:		LTMW-12-20200429 U		LTMW-12-20210914 U		LTMW-12-20221115 U		LTMW-12-20240229 U		LTMW-13-20200430 U		LTMW-13-20210914		LTMW-13-20221117		LTMW-13-20240228 U		LTMW-15-20200430 U		LTMW-15-20210914 U		LTMW-15-20221116		LTMW-15-20240228 U	
LABORATORY SAMPLE ID:		AD16822-027		AD26083-014		AD34569-001		AD42985-043		AD16822-055		AD26083-018		AD34621-001		AD42985-014		AD16822-053		AD26083-019		AD34583-008		AD42985-030	
DATE SAMPLE COLLECTED:		4/29/2020		9/14/2021		11/15/2022		2/29/2024		4/30/2020		9/14/2021		11/17/2022		2/28/2024		4/30/2020		9/14/2021		11/16/2022		2/28/2024	
METALS (UNFILTERED) (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aluminum	2,000	**2,300**		280		310		200	U	270		1,400		200	U	200	U	670		250		200	U	200	U
Antimony	3	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Arsenic	25	16		14		13		14		2.0	U	2.7		2.0	U	2.0	U	8.5		8.1		7.8		8.9	
Barium	1,000	120		120		100		120		100		120		99		110		81		79		73		87	
Beryllium	3	1.0	U	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Calcium	NC	19,000		20,000		18,000		21,000		12,000		14,000		13,000		13,000		32,000		32,000		34,000		39,000	
Chromium	50	50	U	50	U	2.0	U	2.5		50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.0	U	2.0	U
Cobalt	NC	2.3		2.0	U	2.0		2.0	U	2.0	U	2.8		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Copper	200	50	U	50	U	10	U	10	U	50	U	69		10	U	10	U	50	U	50	U	10	U	10	U
Iron	300	**4,200**		**860**		**690**		300	U	**640**		**4,200**		300		**500**		**1,600**		**1,400**		**740**		**960**	
Lead	25	4.0		3.0	U	3.0	U	3.0	U	3.0	U	11		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Magnesium	35,000	9,700		9,800		9,100		10,000		13,000		16,000		13,000		14,000		**40,000**		**43,000**		**44,000**		**49,000**	
Manganese	300	150		110		98		84		130		180		120		130		120		120		110		130	
Mercury	0.7	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Nickel	100	50	U	50	U	3.0	U	10	U	50	U	50	U	3.0	U	10	U	50	U	50	U	3.0	U	10	U
Potassium	NC	5,000	U	5,000	U	1,400		1,400		5,000	U	5,000	U	4,200		4,400		32,000		31,000		29,000		34,000	
Selenium	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Silver	50	20	U	20	U	1.0	U	2.0	U	20	U	20	U	1.0	U	2.0	U	20	U	20	U	1.0	U	2.0	U
Sodium	20,000	**110,000**		**100,000**		**97,000**		**110,000**		**100,000**		**86,000**		**96,000**		**99,000**		**560,000**		**560,000**		**580,000**		**760,000**	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Vanadium	NC	50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.0	U	2.2		50	U	50	U	2.0	U	2.0	
Zinc	2,000	50	U	50	U	20	U	40	U	50	U	72		20	U	40	U	50	U	50	U	20	U	40	U

Notes
µg/L - micrograms per liter
J - Estimated value
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility
NC - No criterion
NS - Not sampled due to field filtered samples only being taken if turbidity was above 10 NTU.
Shaded and **bold** results exceed corresponding Class GA Value
U - Non-detect

TABLE 11A

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET METALS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-16								LTMW-17								LTMW-18C							
SAMPLE ID:		LTMW-16-20200430 U		LTMW-16-20210915 U		LTMW-16-20221116		LTMW-16-20240228 U		LTMW-17-20200501 U		LTMW-17-20210915		LTMW-17-20221116		LTMW-17-20240228 U		LTMW-18C-20200429 U		LTMW-18C-20210916 U		LTMW-18C-20221116		LTMW-18C-20240227 U	
LABORATORY SAMPLE ID:		AD16822-051		AD26083-030		AD34583-007		AD42985-016		AD16822-060		AD26083-027		AD34583-004		AD42985-022		AD16822-031		AD26083-035		AD34583-001		AD42985-009	
DATE SAMPLE COLLECTED:		4/30/2020		9/15/2021		11/16/2022		2/28/2024		5/1/2020		9/15/2021		11/16/2022		2/28/2024		4/29/2020		9/16/2021		11/16/2022		2/27/2024	
METALS (UNFILTERED) (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aluminum	2,000	**2,500**		200	U	200	U	200	U	**9,600**		200	U	200	U	200	U	500		200	U	200	U	200	U
Antimony	3	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Arsenic	25	3.5		2.0	U	2.0	U	2.3		20		9.1		8.8		9.7		2.0	U	2.0	U	2.0	U	2.0	U
Barium	1,000	110		110		100		120		260		96		56		70		260		240		230		130	
Beryllium	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Calcium	NC	9,500		6,800		6,100		6,400		18,000		6,400		4,300		5,700		45,000		20,000		46,000		30,000	
Chromium	50	50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.8		3.7		50	U	50	U	2.0	U	2.0	U
Cobalt	NC	2.1		2.0	U	2.0	U	2.0	U	8.0		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Copper	200	50	U	50	U	10	U	10	U	50	U	50	U	10	U	10	U	50	U	50	U	10	U	10	U
Iron	300	**4,600**		300	U	300	U	300	U	**18,000**		**400**		300	U	300	U	**4,500**		300	U	**3,200**		**1,500**	
Lead	25	4.7		3.0	U	3.0	U	3.0	U	17		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Magnesium	35,000	5,600		6,300		6,100		6,200		13,000		6,900		4,900		6,300		17,000		22,000		16,000		11,000	
Manganese	300	220		51		44		44		**510**		48		34		40		170		40	U	150		100	
Mercury	0.7	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Nickel	100	50	U	50	U	3.0	U	10	U	50	U	50	U	3.0	U	10	U	50	U	50	U	3.0	U	10	U
Potassium	NC	7,900		7,600		7,400		8,000		22,000		15,000		12,000		16,000		5,000	U	33,000		3,800		2,700	
Selenium	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Silver	50	20	U	20	U	20	U	2.0	U	20	U	20	U	1.0	U	2.0	U	20	U	20	U	1.0	U	2.0	U
Sodium	20,000	**83,000**		**80,000**		**98,000**		**75,000**		**400,000**		**340,000**		**290,000**		**390,000**		**23,000**		**270,000**		18,000		20,000	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Vanadium	NC	50	U	50	U	2.0	U	2.0	U	50	U	50	U	3.1		5.6		50	U	50	U	2.0	U	2.0	U
Zinc	2,000	130		50	U	20	U	40	U	160		50	U	20	U	40	U	50	U	50	U	20	U	40	U

Notes
µg/L - micrograms per liter
J - Estimated value
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility
NC - No criterion
NS - Not sampled due to field filtered samples only being taken if turbidity was above 10 NTU.
Shaded and **bold** results exceed corresponding Class GA Value
U - Non-detect

TABLE 11A

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET METALS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-18UG								LTMW-19								LTMW-20							
SAMPLE ID:		LTMW-18UG-20200429 U		LTMW-18UG-20210916 U		LTMW-18-UG-20221115 U		LTMW-18UG-20240227 U		LTMW-19-20200429 U		LTMW-19-20210916		LTMW-19-20221115		LTMW-19-20240227 U		LTMW-20-20200429 U		NS		LTMW-20-20221118		LTMW-20-20240227 U	
LABORATORY SAMPLE ID:		AD16822-033		AD26083-038		AD34569-003		AD42985-011		AD16822-029		AD26083-048		AD34569-002		AD42985-007		AD16822-038				AD34621-016		AD42985-005	
DATE SAMPLE COLLECTED:		4/29/2020		9/16/2021		11/15/2022		2/27/2024		4/29/2020		9/16/2021		11/15/2022		2/27/2024		4/29/2020				11/17/2022		2/27/2024	
METALS (UNFILTERED) (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aluminum	2,000	**3,300**		200	U	410		210		200	UJ	200	U	200	U	920		**3,300**		NS		200	U	200	U
Antimony	3	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	NS		3.0	U	3.0	U
Arsenic	25	6.9		2.0	U	3.8		3.9		6.9		7.0		7.1		18		3.3		NS		2.0	U	2.0	U
Barium	1,000	340		57		270		420		220		340		470		680		89		NS		83		83	
Beryllium	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	UJ	1.0	U	1.0	U	1.0	U	1.0	U	NS		1.0	U	1.0	U
Cadmium	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	UJ	2.0	U	2.0	U	2.0	U	2.0	U	NS		2.0	U	2.0	U
Calcium	NC	58,000		20,000		26,000		71,000		130,000	J	170,000		170,000		210,000		270,000		NS		350,000		370,000	
Chromium	50	50	U	50	U	4.1		2.6		50	U	50	U	2.6		3.0		50	U	NS		2.0	U	2.0	U
Cobalt	NC	5.2		2.0	U	2.0	U	2.0	U	3.5		2.4		2.2		3.4		4.5		NS		2.0	U	2.0	U
Copper	200	50	U	50	U	10	U	10	U	50	U	50	U	10	U	10	U	50	U	NS		10	U	10	U
Iron	300	**11,000**		300	U	**3,800**		**2,800**		**27,000**	**J**	**27,000**		**25,000**		**38,000**		**13,000**		NS		**6,800**		**6,900**	
Lead	25	3.1		3.0	U	3.0	U	3.0	U	3.0	UJ	3.0	U	3.0	U	6.3		6.1		NS		3.0	U	3.0	U
Magnesium	35,000	33,000		6,600		20,000		**38,000**		**260,000**	**J**	**270,000**		**280,000**		**320,000**		**330,000**		NS		**350,000**		**430,000**	
Manganese	300	**450**		40	U	190		240		**1,700**	**J**	**2,500**		**3,600**		**2,800**		**640**		NS		**510**		**520**	
Mercury	0.7	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NS		0.50	U	0.50	U
Nickel	100	50	U	50	U	9.4		10	U	50	U	50	U	4.4		10	U	50	U	NS		3.0	U	10	U
Potassium	NC	5,000	U	5,000	U	2,400		3,200		100,000	J	110,000		110,000		110,000		88,000		NS		120,000		120,000	
Selenium	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	NS		10	U	10	U
Silver	50	20	U	20	U	1.0	U	2.0	U	20	U	20	U	1.0	U	2.0	U	20	U	NS		1.0	U	2.0	U
Sodium	20,000	19,000		17,000		14,000		**24,000**		**2,800,000**		**2,700,000**		**2,300,000**		**3,300,000**		**3,600,000**		NS		**3,400,000**		**4,200,000**	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	UJ	2.0	U	2.0	U	2.0	U	2.0	U	NS		2.0	U	2.0	U
Vanadium	NC	50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.9		9.4		50	U	NS		2.1		2.1	
Zinc	2,000	50	U	50	U	20	U	40	U	50	U	50	U	20	U	40	U	51		NS		20	U	40	U

Notes
µg/L - micrograms per liter
J - Estimated value
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility
NC - No criterion
NS - Not sampled due to field filtered samples only being taken if turbidity was above 10 NTU.
Shaded and **bold** results exceed corresponding Class GA Value
U - Non-detect

TABLE 11A

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR TARGET METALS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-21								LTMW-22								LTMW-23							
SAMPLE ID:		LTMW-21-20200427 U		LTMW-21-20210914 U		LTMW-21-20221117 U		LTMW-21-20240229 U		LTMW-22-20200428		LTMW-22-20210913		LTMW-22-20221118		LTMW-22-20240229 U		LTMW-23-20200430 U		LTMW-23-20210916 U		LTMW-23-20221117 U		LTMW-23-20240301 U	
LABORATORY SAMPLE ID:		AD16822-003		AD26083-012		AD34621-009		AD42985-056		AD16822-014		AD26083-001		AD34621-017		AD42985-054		AD16822-049		AD26083-046		AD34621-012		AD42985-058	
DATE SAMPLE COLLECTED:		4/27/2020		9/14/2021		11/17/2022		2/29/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024		4/30/2020		9/16/2021		11/17/2022		3/1/2024	
METALS (UNFILTERED) (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aluminum	2,000	660		320		200	U	200	U	200	U	200	U	200	U	200	U	980		200	U	440		200	U
Antimony	3	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	**5.2**		3.0	U	**4.5**		3.0	U
Arsenic	25	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.6		2.0	U	2.0	U	2.0	U
Barium	1,000	99		110		74		100		50	U	50	U	21		15		50	U	53		13		230	
Beryllium	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Calcium	NC	7,600		8,800		11,000		8,600		11,000		11,000		11,000		11,000		39,000		12,000		21,000		86,000	
Chromium	50	50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.0	U	2.0	U
Cobalt	NC	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Copper	200	50	U	50	U	10	U	10	U	50	U	50	U	10	U	10	U	50	U	50	U	10	U	10	U
Iron	300	**19,000**		**20,000**		**5,300**		**19,000**		**690**		**1,000**		**2,800**		**970**		300	U	**710**		300	U	**550**	
Lead	25	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Magnesium	35,000	5,000	U	5,800		5,800		5,200		5,000	U	5,000	U	2,000		1,600		5,000	U	5,000	U	500	U	9,100	
Manganese	300	**660**		**750**		220		**770**		40	U	41		150		27		40	U	120		6.0	U	**650**	
Mercury	0.7	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Nickel	100	50	U	50	U	3.0	U	10	U	50	U	50	U	3.0	U	10	U	50	U	50	U	3.0	U	10	U
Potassium	NC	5,000	U	5,000	U	3,800		3,700		5,000	U	5,000	U	2,000		1,700		6,700		27,000		9,200		11,000	
Selenium	10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Silver	50	20	U	20	U	1.0	U	2.0	U	20	U	20	U	1.0	U	2.0	U	20	U	20	U	1.0	U	2.0	U
Sodium	20,000	7,300		7,400		9,600		8,800		11,000		14,000		11,000		12,000		17,000		29,000		18,000		**33,000**	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Vanadium	NC	50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.0	U	2.0	U	50	U	50	U	2.0	U	2.0	U
Zinc	2,000	50	U	50	U	24		40	U	50	U	50	U	20	U	40	U	50	U	50	U	20	U	40	U

Notes
µg/L - micrograms per liter
J - Estimated value
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility
NC - No criterion
NS - Not sampled due to field filtered samples only being taken if turbidity was above 10 NTU.
Shaded and **bold** results exceed corresponding Class GA Value
U - Non-detect

TABLE 11B

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR DISSOLVED METALS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-1								LTMW-2								LTMW-3							
SAMPLE ID:		LTMW-1-20200501 F		LTMW-1-20210916 F		LTMW-1-20221115 F		LTMW-1-20240227 F		LTMW-2-20200430 F		LTMW-2-20210916 F		LTMW-2-20221115		LTMW-2-20240227 F		LTMW-3-20200430 F		LTMW-3-20210915		LTMW-3-20221115 F		LTMW-3-20240228 F	
LABORATORY SAMPLE ID:		AD16822-063		AD26083-041		AD34569-010		AD42985-002		AD16822-046		AD26083-037		NS		AD42985-004		AD16822-048		NS		AD34569-011		AD42985-025	
DATE SAMPLE COLLECTED:		5/1/2020		9/16/2021		11/15/2022		2/27/2024		4/30/2020		9/16/2021				2/27/2024		4/30/2020				11/15/2022		2/28/2024	
METALS (FILTERED) (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aluminum	2,000	200	U	200	U	200	U	200	U	200	U	200	U	NS		200	U	200	U	NS		200	U	200	U
Antimony	3	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	NS		3.0	U	3.0	U	NS		9.0	U	3.0	U
Arsenic	25	3.2		2.0	U	2.0		2.0	U	4.6		3.2		NS		2.4		4.5		NS		4.4		2.0	U
Barium	1,000	**2,800**		**2,000**		**2,100**		**2,100**		50	U	50	U	NS		56		73		NS		73		64	
Beryllium	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NS		1.0	U	1.0	U	NS		3.0	U	1.0	U
Cadmium	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		2.0	U	2.0	U	NS		6.0	U	2.0	U
Calcium	NC	110,000		83,000		130,000		150,000		960,000		830,000		NS		1,100,000		600,000		NS		670,000		590,000	
Chromium	50	50	U	50	U	6.4		5.1		50	U	50	U	NS		2.0	U	50	U	NS		2.0	U	2.0	U
Cobalt	NC	9.6		7.0		7.5		8.9		9.1		4.7		NS		12		2.0	U	NS		2.0	U	2.0	U
Copper	200	50	U	50	U	10	U	10	U	250	U	50	U	NS		10	U	250	U	NS		10	U	10	U
Iron	300	**12,000**		**9,400**		**12,000**		**310**		**3,500**		**2,300**		NS		**1,400**		**25,000**		NS		**31,000**		300	U
Lead	25	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	NS		3.0	U	3.0	U	NS		9.0	U	3.0	U
Magnesium	35,000	**170,000**		**120,000**		**160,000**		**210,000**		**390,000**		**280,000**		NS		**470,000**		**590,000**		NS		**68,000**		**530,000**	
Manganese	300	**610**		**470**		**600**		**660**		**8,400**		**5,100**		NS		**11,000**		**2,900**		NS		**3,700**		**2,700**	
Mercury	0.7	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NS		0.50	U	0.50	U	NS		0.50	U	0.50	U
Nickel	100	50	U	50	U	17		24		50	U	50	U	NS		14		50	U	NS		3.0	U	10	U
Potassium	NC	160,000		86,000		110,000		130,000		57,000		31,000		NS		59,000		93,000		NS		84.000		71,000	
Selenium	10	10	U	10	U	10	U	10	U	10	U	10	U	NS		10	U	10	U	NS		10	U	10	U
Silver	50	20	U	20	U	1.0	U	2.0	U	20	U	20	U	NS		2.0	U	20	U	NS		3.0	U	2.0	U
Sodium	20,000	**1,700,000**		**990,000**		**1,200,000**		**1,900,000**		**3,100,000**		**2,000,000**		NS		**3,700,000**		**5,000,000**		NS		**5,600,000**		**4,800,000**	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		2.0	U	2.0	U	NS		6.0	U	2.0	U
Vanadium	NC	50	U	50	U	14		4.9		50	U	50	U	NS		2.0	U	50	U	NS		2.0	U	2.0	U
Zinc	2,000	50	U	50	U	20	U	40	U	50	U	50	U	NS		40	U	50	U	NS		39		550	

Notes
µg/L - micrograms per liter
J - Estimated value
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility
NC - No criterion
NS - Not sampled due to field filtered samples only being taken if turbidity was above 10 NTU.
Shaded and **bold** results exceed corresponding Class GA Value
U - Non-detect

TABLE 11B

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR DISSOLVED METALS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-4								LTMW-5A								LTMW-5B							
SAMPLE ID:		LTMW-4-20200501 F		LTMW-4-20210915 F		LTMW-4-20221115 F		LTMW-4-20240228 F		LTMW-5A-20200427 F		LTMW-5A-20210915		LTMW-5A-20221116 F		LTMW-5A-20240301 F		LTMW-5B-20200428 F		LTMW-5B-20210914 F		LTMW-5B-20221116		LTMW-5B-20240301 F	
LABORATORY SAMPLE ID:		AD16822-059		AD26083-029		AD34583-003		AD42985-027		AD16822-006		NS		AD34583-010		AD42985-063		AD16822-011		AD26083-022		NS		AD42985-065	
DATE SAMPLE COLLECTED:		5/1/2020		9/15/2021		11/16/2022		2/28/2024		4/27/2020				11/16/2022		3/1/2024		4/28/2020		9/14/2022				3/1/2024	
METALS (FILTERED) (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aluminum	2,000	200	U	200	U	200	U	200	U	200	U	NS		200	U	200	U	200	U	200	U	NS		200	U
Antimony	3	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	NS		3.0	U	3.0	U	3.0	U	3.0	U	NS		3.0	U
Arsenic	25	2.9		2.0	U	2.1		2.1		2.3		NS		2.2		2.0		2.0	U	2.0	U	NS		2.0	U
Barium	1,000	**1,600**		**1,300**		**1,500**		**1,700**		420		NS		430		430		190		160		NS		180	
Beryllium	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NS		1.0	U	1.0	U	1.0	U	1.0	U	NS		1.0	U
Cadmium	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		2.0	U	2.0	U	2.0	U	2.0	U	NS		2.0	U
Calcium	NC	250,000		200,000		250,0000		260,000		61,000		NS		61,000		56,000		36,000		31,000		NS		32,000	
Chromium	50	50	U	50	U	2.0	U	2.0	U	50	U	NS		2.0	U	2.0	U	50	U	50	U	NS		2.0	U
Cobalt	NC	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		2.0	U	2.0	U	2.0	U	2.0	U	NS		2.0	U
Copper	200	50	U	50	U	2.0	U	10	U	50	U	NS		10	U	10	U	50	U	50	U	NS		10	U
Iron	300	300	U	**410**		300	U	300	U	300	U	NS		300	U	300	U	300	U	300	U	NS		300	U
Lead	25	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	NS		3.0	U	3.0	U	3.0	U	3.0	U	NS		3.0	U
Magnesium	35,000	**71,000**		**59,000**		**72,000**		**74,000**		13,000		NS		13,000		12,000		11,000		9,400		NS		9,900	
Manganese	300	**850**		**660**		**820**		**840**		43		NS		98		32		270		170		NS		240	
Mercury	0.7	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NS		0.50	U	0.50	U	0.50	U	0.50	U	NS		0.50	U
Nickel	100	50	U	50	U	3.0	U	10	U	50	U	NS		3.0	U	10	U	50	U	50	U	NS		10	U
Potassium	NC	8,500		6,200		7,200		7,900		5,000	U	NS		2,400		2,200		5,000	U	5,000	U	NS		2,200	
Selenium	10	10	U	10	U	10	U	10	U	10	U	NS		10	U	10	U	10	U	10	U	NS		10	U
Silver	50	20	U	20	U	1.0	U	2.0	U	20	U	NS		1.0	U	2.0	U	20	U	20	U	NS		2.0	U
Sodium	20,000	**230,000**		**170,000**		**220,000**		**230,000**		**44,000**		NS		**42,000**		**38,000**		**21,000**		17,000		NS		18,000	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		2.0	U	2.0	U	2.0	U	2.0	U	NS		2.0	U
Vanadium	NC	50	U	50	U	2.0	U	2.0	U	50	U	NS		2.0	U	2.0	U	50	U	50	U	NS		2.0	U
Zinc	2,000	50	U	50	U	20	U	40	U	50	U	NS		20	U	40	U	50	U	50	U	NS		40	U

Notes
µg/L - micrograms per liter
J - Estimated value
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility
NC - No criterion
NS - Not sampled due to field filtered samples only being taken if turbidity was above 10 NTU.
Shaded and **bold** results exceed corresponding Class GA Value
U - Non-detect

TABLE 11B

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR DISSOLVED METALS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-6								LTMW-7								LTMW-8							
SAMPLE ID:		LTMW-6-20200427 F		LTMW-6-20210914 F		LTMW-6-20221117 F		LTMW-6-20240228 F		LTMW-7-20200428 F		LTMW-7-20210913		LTMW-7-20221117		LTMW-7-20240229 F		LTMW-8-20200427 F		LTMW-8-20210913		LTMW-8-20221117		LTMW-8-20240229 F	
LABORATORY SAMPLE ID:		AD16822-008		AD26083-017		AD34621-003		AD42985-029		AD16822-013		NS		NS		AD42985-034		AD16822-001		NS		NS		AD42985-042	
DATE SAMPLE COLLECTED:		4/27/2020		9/14/2021		11/17/2022		2/28/2024		4/28/2020						2/29/2024		4/27/2020						2/29/2024	
METALS (FILTERED) (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aluminum	2,000	200	U	200	U	200	U	200	U	200	U	NS		NS		200	U	200	U	NS		NS		200	U
Antimony	3	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	NS		NS		3.0	U	3.0	U	NS		NS		3.0	U
Arsenic	25	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		NS		2.0	U	2.0	U	NS		NS		2.0	U
Barium	1,000	180		150		170		160		280		NS		NS		180		300		NS		NS		220	
Beryllium	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NS		NS		1.0	U	1.0	U	NS		NS		1.0	U
Cadmium	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		NS		2.0	U	2.0	U	NS		NS		2.0	U
Calcium	NC	41,000		33,000		39,000		40,000		76,000		NS		NS		61,000		200,000		NS		NS		110,000	
Chromium	50	50	U	50	U	2.0	U	2.0	U	50	U	NS		NS		2.0	U	50	U	NS		NS		2.0	U
Cobalt	NC	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		NS		2.0	U	14		NS		NS		12	
Copper	200	50	U	50	U	10	U	10	U	50	U	NS		NS		10	U	50	U	NS		NS		10	U
Iron	300	300	U	300	U	300	U	300	U	300	U	NS		NS		300	U	**550**		NS		NS		300	U
Lead	25	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	NS		NS		3.0	U	3.0	U	NS		NS		3.0	U
Magnesium	35,000	11,000		8,600		10,000		10,000		15,000		NS		NS		12,000		**77,000**		NS		NS		**49,000**	
Manganese	300	210		150		190		10	U	**570**		NS		NS		11		**5,300**		NS		NS		**4,800**	
Mercury	0.7	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NS		NS		0.50	U	0.50	U	NS		NS		0.50	U
Nickel	100	50	U	50	U	3.0	U	10	U	50	U	NS		NS		10	U	61		NS		NS		58	
Potassium	NC	5,000	U	5,000	U	2300		2,300		5,000	U	NS		NS		1,300		5,000	U	NS		NS		3,400	
Selenium	10	10	U	10	U	10	U	10	U	10	U	NS		NS		10	U	10	U	NS		NS		10	U
Silver	50	20	U	20	U	1.0	U	2.0	U	20	U	NS		NS		2.0	U	20	U	NS		NS		2.0	U
Sodium	20,000	14,000		11,000		14,000		15,000		20,000		NS		NS		15,000		**890,000**		NS		NS		**580,000**	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		NS		2.0	U	2.0	U	NS		NS		2.0	U
Vanadium	NC	50	U	50	U	2.0	U	2.0	U	50	U	NS		NS		2.0	U	50	U	NS		NS		2.0	U
Zinc	2,000	50	U	50	U	20	U	40	U	50	U	NS		NS		40	U	50	U	NS		NS		40	U

Notes
µg/L - micrograms per liter
J - Estimated value
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility
NC - No criterion
NS - Not sampled due to field filtered samples only being taken if turbidity was above 10 NTU.
Shaded and **bold** results exceed corresponding Class GA Value
U - Non-detect

TABLE 11B

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR DISSOLVED METALS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-9								LTMW-10								LTMW-11							
SAMPLE ID:		LTMW-9-20200428 F		LTMW-9-20210913 F		LTMW-9-20221118 F		LTMW-9-20240229 F		LTMW-10-20200429 F		LTMW-10-20210913 F		LTMW-10-20221118		LTMW-10-20240229 F		LTMW-11-20200428 F		LTMW-11-20210913		LTMW-11-20221117		LTMW-11-20240229 F	
LABORATORY SAMPLE ID:		AD16822-018		AD26083-007		AD34621-019		AD42985-053		AD16822-026		AD26083-004		NS		AD42985-048		AD16822-020		NS		NS		AD42985-046	
DATE SAMPLE COLLECTED:		4/28/2020		9/13/2021		11/18/2022		2/29/2024		4/29/2020		9/13/2021				2/29/2024		4/28/2020						2/29/2024	
METALS (FILTERED) (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aluminum	2,000	200	U	200	U	200	U	200	U	200	U	200	U	NS		200	U	200	U	NS		NS		200	U
Antimony	3	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	NS		3.0	U	3.0	U	NS		NS		3.0	U
Arsenic	25	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		2.0	U	2.0	U	NS		NS		2.0	U
Barium	1,000	290		250		300		300		260		220		NS		280		170		NS		NS		74	
Beryllium	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NS		1.0	U	1.0	U	NS		NS		1.0	U
Cadmium	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		2.0	U	2.0	U	NS		NS		2.0	U
Calcium	NC	57,000		46,000		55,000		54,000		62,000		51,000		NS		62,000		130,000		NS		NS		88,000	
Chromium	50	50	U	50	U	2.0	U	2.0	U	50	U	50	U	NS		2.0	U	50	U	NS		NS		2.0	U
Cobalt	NC	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		2.0	U	2.0	U	NS		NS		2.0	U
Copper	200	50	U	50	U	10	U	10	U	50	U	50	U	NS		10	U	50	U	NS		NS		10	U
Iron	300	300	U	300	U	300	U	300	U	**370**		300	U	NS		300	U	**1,600**		NS		NS		300	U
Lead	25	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	30	U	NS		3.0	U	3.0	U	NS		NS		3.0	U
Magnesium	35,000	22,000		18,000		21,000		20,000		24,000		21,000		NS		26,000		**63,000**		NS		NS		**37,000**	
Manganese	300	**430**		**350**		**430**		**430**		94		84		NS		100		**380**		NS		NS		89	
Mercury	0.7	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NS		0.50	U	0.50	U	NS		NS		0.50	U
Nickel	100	50	U	50	U	3.0	U	10	U	50	U	50	U	NS		10	U	50	U	NS		NS		10	U
Potassium	NC	5,000	U	5,000	U	1,400		1,300		5,000	U	5,000	U	NS		1,300		7,800		NS		NS		6,700	
Selenium	10	10	U	10	U	10	U	10	U	10	U	10	U	NS		10	U	10	U	NS		NS		10	U
Silver	50	20	U	20	U	1.0	U	2.0	U	20	U	20	U	NS		2.0	U	20	U	NS		NS		2.0	U
Sodium	20,000	12,000		8,900		11,000		11,000		16,000		12,000		NS		16,000		**24,000**		NS		NS		**40,000**	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		2.0	U	2.0	U	NS		NS		2.0	U
Vanadium	NC	50	U	50	U	2.0	U	2.0	U	50	U	50	U	NS		2.3		50	U	NS		NS		2.0	U
Zinc	2,000	50	U	50	U	20	U	40	U	50	U	50	U	NS		40	U	50	U	NS		NS		40	U

Notes
µg/L - micrograms per liter
J - Estimated value
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility
NC - No criterion
NS - Not sampled due to field filtered samples only being taken if turbidity was above 10 NTU.
Shaded and **bold** results exceed corresponding Class GA Value
U - Non-detect

TABLE 11B

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR DISSOLVED METALS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-12								LTMW-13								LTMW-15							
SAMPLE ID:		LTMW-12-20200429 F		LTMW-12-20210914 F		LTMW-12-20221115 F		LTMW-12-20240229 F		LTMW-13-20200430 F		LTMW-13-20210914		LTMW-13-20221117		LTMW-13-20240228 F		LTMW-15-20200430 F		LTMW-15-20210914 F		LTMW-15-20221116		LTMW-15-20240228 F	
LABORATORY SAMPLE ID:		AD16822-028		AD26083-015		AD34569-008		AD42985-044		AD16822-056		NS		NS		AD42985-015		AD16822-054		AD26083-020		NS		AD42985-031	
DATE SAMPLE COLLECTED:		4/29/2020		9/14/2021		11/15/2022		2/29/2024		4/30/2020						2/28/2024		4/30/2020		9/14/2021				2/28/2024	
METALS (FILTERED) (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aluminum	2,000	200	U	200	U	200	U	200	U	200	U	NS		NS		200	U	200	U	200	U	NS		200	U
Antimony	3	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	NS		NS		3.0	U	3.0	U	3.0	U	NS		3.0	U
Arsenic	25	14		11		15		13		2.0	U	NS		NS		2.0	U	7.3		6.1		NS		7.2	
Barium	1,000	110		97		120		100		99		NS		NS		110		75		64		NS		78	
Beryllium	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NS		NS		1.0	U	1.0	U	1.0	U	NS		1.0	U
Cadmium	5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		NS		2.0	U	2.0	U	2.0	U	NS		2.0	U
Calcium	NC	19,000		17,000		21,000		18,000		12,000		NS		NS		14,000		32,000		27,000		NS		36,000	
Chromium	50	50	U	50	U	2.0	U	2.0	U	50	U	NS		NS		2.0	U	50	U	50	U	NS		2.0	U
Cobalt	NC	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		NS		2.0	U	2.0	U	2.0	U	NS		2.0	U
Copper	200	50	U	50	U	10	U	10	U	50	U	NS		NS		13		50	U	50	U	NS		10	U
Iron	300	300	U	300	U	300	U	300	U	300	U	NS		NS		300	U	**340**		**600**		NS		300	U
Lead	25	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	NS		NS		3.0	U	3.0	U	3.0	U	NS		3.0	U
Magnesium	35,000	9,100		8,100		10,000		9,000		12,000		NS		NS		15,000		**39,000**		35,000		NS		**44,000**	
Manganese	300	92		79		99		76		120		NS		NS		130		96		94		NS		110	
Mercury	0.7	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NS		NS		0.50	U	0.50	U	0.50	U	NS		0.50	U
Nickel	100	50	U	50	U	3.0	U	10	U	50	U	NS		NS		10	U	50	U	50	U	NS		10	U
Potassium	NC	5,000	U	5,000	U	1,400		1,200		5,000	U	NS		NS		4,600		31,000		25,000		NS		31,000	
Selenium	10	10	U	10	U	10	U	10	U	10	U	NS		NS		10	U	10	U	10	U	NS		10	U
Silver	50	20	U	20	U	1.0	U	2.0	U	20	U	NS		NS		2.0	U	20	U	20	U	NS		2.0	U
Sodium	20,000	**110,000**		**88,000**		**110,000**		**94,000**		**100,000**		NS		NS		**100,000**		**540,000**		**440,000**		NS		**600,000**	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		NS		2.0	U	2.0	U	2.0	U	NS		2.0	U
Vanadium	NC	50	U	50	U	2.0	U	2.0	U	50	U	NS		NS		2.0	U	50	U	50	U	NS		2.0	U
Zinc	2,000	50	U	50	U	37		40	U	50	U	NS		NS		40	U	50	U	50	U	NS		40	U

Notes
µg/L - micrograms per liter
J - Estimated value
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility
NC - No criterion
NS - Not sampled due to field filtered samples only being taken if turbidity was above 10 NTU.
Shaded and **bold** results exceed corresponding Class GA Value
U - Non-detect

TABLE 11B

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR DISSOLVED METALS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-16								LTMW-17								LTMW-18C							
SAMPLE ID:		LTMW-16-20200430 F		LTMW-16-20210915 F		LTMW-16-20221116		LTMW-16-20240228 F		LTMW-17-20200501 F		LTMW-17-20210915		LTMW-17-20221116		LTMW-17-20240228 F		LTMW-18C-20200429 F		LTMW-18C-20210916		LTMW-18C-20221116		LTMW-18C-20240227 F	
LABORATORY SAMPLE ID:		AD16822-052		AD26083-031		NS		AD42985-017		AD16822-061		NS		NS		AD42985-023		AD16822-032		NS		NS		AD42985-010	
DATE SAMPLE COLLECTED:		4/30/2020		9/15/2021				2/28/2024		5/1/2020						2/28/2024		4/29/2020						2/27/2024	
METALS (FILTERED) (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aluminum	2,000	200	U	200	U	NS		200	U	200	U	NS		NS		200	U	200	U	NS		NS		200	U
Antimony	3	3.0	U	3.0	U	NS		3.0	U	3.0	U	NS		NS		3.0	U	3.0	U	NS		NS		3.0	U
Arsenic	25	2.0	U	2.0	U	NS		2.2		15		NS		NS		11		2.0	U	NS		NS		2.0	U
Barium	1,000	81		87		NS		110		150		NS		NS		62		260		NS		NS		120	
Beryllium	3	1.0	U	1.0	U	NS		1.0	U	1.0	U	NS		NS		1.0	U	1.0	U	NS		NS		1.0	U
Cadmium	5	2.0	U	2.0	U	NS		2.0	U	2.0	U	NS		NS		2.0	U	2.0	U	NS		NS		2.0	U
Calcium	NC	5,000	U	5,200		NS		5,900		7,500		NS		NS		5,600		46,000		NS		NS		30,000	
Chromium	50	50	U	50	U	NS		2.0	U	50	U	NS		NS		3.5		50	U	NS		NS		2.0	U
Cobalt	NC	2.0	U	2.0	U	NS		2.0	U	2.0	U	NS		NS		2.0	U	2.0	U	NS		NS		2.0	U
Copper	200	50	U	50	U	NS		10	U	50	U	NS		NS		10	U	50	U	NS		NS		10	U
Iron	300	300	U	300	U	NS		300	U	300	U	NS		NS		300	U	**3,500**		NS		NS		300	U
Lead	25	3.0	U	3.0	U	NS		3.0	U	3.0	U	NS		NS		3.0	U	3.0	U	NS		NS		3.0	U
Magnesium	35,000	5,000	U	5,000	U	NS		5,800		7,800		NS		NS		5,900		17,000		NS		NS		10,000	
Manganese	300	40	U	40	U	NS		36		40	U	NS		NS		10	U	160		NS		NS		92	
Mercury	0.7	0.50	U	0.50	U	NS		0.50	U	0.50	U	NS		NS		0.50	U	0.50	U	NS		NS		0.50	U
Nickel	100	50	U	50	U	NS		10	U	50	U	NS		NS		10	U	50	U	NS		NS		10	U
Potassium	NC	7,800		6,500		NS		7,700		20,000		NS		NS		16,000		5,000	U	NS		NS		3,000	
Selenium	10	10	U	10	U	NS		10	U	10	U	NS		NS		10	U	10	U	NS		NS		10	U
Silver	50	20	U	20	U	NS		2.0	U	20	U	NS		NS		2.0	U	20	U	NS		NS		2.0	U
Sodium	20,000	**88,000**		**66,000**		NS		**74,000**		**400,000**		NS		NS		**360,000**		**23,000**		NS		NS		21,000	
Thallium	0.5	2.0	U	2.0	U	NS		2.0	U	2.0	U	NS		NS		2.0	U	2.0	U	NS		NS		2.0	U
Vanadium	NC	50	U	50	U	NS		2.0	U	50	U	NS		NS		4.9		50	U	NS		NS		2.0	U
Zinc	2,000	50	U	50	U	NS		40	U	50	U	NS		NS		40	U	50	U	NS		NS		40	U

Notes
µg/L - micrograms per liter
J - Estimated value
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility
NC - No criterion
NS - Not sampled due to field filtered samples only being taken if turbidity was above 10 NTU.
Shaded and **bold** results exceed corresponding Class GA Value
U - Non-detect

TABLE 11B

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR DISSOLVED METALS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-18UG								LTMW-19								LTMW-20							
SAMPLE ID:		LTMW-18UG-20200429 F		LTMW-18UG-20210916 F		LTMW-18-UG-20221115 F		LTMW-18UG-20240227 F		LTMW-19-20200429 F		LTMW-19-20210916		LTMW-19-20221115		LTMW-19-20240227 F		LTMW-20-20200429 F		NS		LTMW-20-20221118		LTMW-20-20240227 F	
LABORATORY SAMPLE ID:		AD16822-034		AD26083-039		AD34569-009		AD42985-012		AD16822-030		NS		NS		AD42985-008		AD16822-039				NS		AD42985-006	
DATE SAMPLE COLLECTED:		4/29/2020		9/16/2021		11/15/2022		2/27/2024		4/29/2020						2/27/2024		4/29/2020						2/27/2024	
METALS (FILTERED) (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aluminum	2,000	200	U	200	U	200	U	200	U	200	U	NS		NS		200	U	390		NS		NS		200	U
Antimony	3	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	NS		NS		3.0	U	3.0	U	NS		NS		3.0	U
Arsenic	25	2.0	U	2.0	U	2.0	U	2.0	U	6.6		NS		NS		3.1		2.0	U	NS		NS		2.0	U
Barium	1,000	300		50	U	220		370		190		NS		NS		470		79		NS		NS		67	
Beryllium	3	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NS		NS		1.0	U	1.0	U	NS		NS		1.0	U
Cadmium	5	2.0	U	2.0	U	2.0		2.0	U	2.0	U	NS		NS		2.0	U	2.0	U	NS		NS		2.0	U
Calcium	NC	64,000		20,000		26,000		68,000		290,000		NS		NS		210,000		290,000		NS		NS		340,000	
Chromium	50	50	U	50	U	2.0	U	2.0	U	50	U	NS		NS		2.0	U	50	U	NS		NS		2.0	U
Cobalt	NC	2.0	U	2.0	U	2.0	U	2.0	U	3.0		NS		NS		2.0	U	2.0	U	NS		NS		2.0	U
Copper	200	50	U	50	U	10	U	10	U	50	U	NS		NS		10	U	50	U	NS		NS		10	U
Iron	300	300	U	300	U	300	U	300	U	**24,000**		NS		NS		16,000		**7,100**		NS		NS		300	U
Lead	25	3.0	U	3.0	U	3.0	U	3.0	U	3.0	U	NS		NS		3.0	U	3.0	U	NS		NS		3.0	U
Magnesium	35,000	33,000		7,100		19,000		**36,000**		**360,000**		NS		NS		**290,000**		**350,000**		NS		NS		**420,000**	
Manganese	300	210		40	U	110		160		**2,500**		NS		NS		**2,200**		**470**		NS		NS		**480**	
Mercury	0.7	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NS		NS		0.50	U	0.50	U	NS		NS		0.50	U
Nickel	100	50	U	50	U	3.0	U	10	U	50	U	NS		NS		10	U	50	U	NS		NS		10	U
Potassium	NC	5,000	U	5,000	U	2400		3,000		94,000		NS		NS		88,000		100,000		NS		NS		110,000	
Selenium	10	10	U	10	U	10	U	10	U	10	U	NS		NS		10	U	10	U	NS		NS		10	U
Silver	50	20	U	20	U	1.0	U	2.0	U	20	U	NS		NS		2.0	U	20	U	NS		NS		2.0	U
Sodium	20,000	20,000		16,000		14,000		**23,000**		**3,400,000**		NS		NS		**2,900,000**		**3,700,000**		NS		NS		**3,800,000**	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U	NS		NS		2.0	U	2.0	U	NS		NS		2.0	U
Vanadium	NC	50	U	50	U	2.0	U	2.0	U	50	U	NS		NS		2.0	U	50	U	NS		NS		2.0	U
Zinc	2,000	50	U	50	U	20	U	40	U	50	U	NS		NS		40	U	50	U	NS		NS		40	U

Notes
µg/L - micrograms per liter
J - Estimated value
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility
NC - No criterion
NS - Not sampled due to field filtered samples only being taken if turbidity was above 10 NTU.
Shaded and **bold** results exceed corresponding Class GA Value
U - Non-detect

TABLE 11B

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS FOR DISSOLVED METALS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-21								LTMW-22								LTMW-23							
SAMPLE ID:		LTMW-21-20200427 F		LTMW-21-20210914 F		LTMW-21-20221117 F		LTMW-21-20240229 F		LTMW-22-20200428		LTMW-22-20210913		LTMW-22-20221118		LTMW-22-20240229 F		LTMW-23-20200430 F		LTMW-23-20210916 F		LTMW-23-20221117 F		LTMW-23-20240301 F	
LABORATORY SAMPLE ID:		AD16822-004		AD26083-013		AD34621-010		AD42985-057		NS		NS		NS		AD42985-055		AD16822-050		AD26083-047		AD34621-013		AD42985-059	
DATE SAMPLE COLLECTED:		4/27/2020		9/14/2021		11/17/2022		2/29/2024								2/29/2024		4/30/2020		9/16/2021		11/17/2022		3/1/2024	
METALS (FILTERED) (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aluminum	2,000	200	U	200	U	200	U	200	U	NS		NS		NS		200	U	920		200	U	210		200	U
Antimony	3	3.0	U	3.0	U	3.0	U	3.0	U	NS		NS		NS		3.0	U	**4.2**		3.0	U	**4.4**		3.0	U
Arsenic	25	2.0	U	2.0	U	2.0	U	2.0	U	NS		NS		NS		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Barium	1,000	96		84		74		82		NS		NS		NS		14		50	U	50	U	6.7		210	
Beryllium	3	1.0	U	1.0	U	1.0	U	1.0	U	NS		NS		NS		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	5	2.0	U	2.0	U	2.0	U	2.0	U	NS		NS		NS		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Calcium	NC	8,100		7,300		11,000		7,900		NS		NS		NS		9,500		37,000		9,100		13,000		80,000	
Chromium	50	50	U	50	U	2.0	U	2.0	U	NS		NS		NS		2.0	U	50	U	50	U	2.0	U	2.0	U
Cobalt	NC	2.0	U	2.0	U	2.0	U	2.0	U	NS		NS		NS		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Copper	200	50	U	50	U	10	U	10	U	NS		NS		NS		10	U	50	U	50	U	10	U	10	U
Iron	300	**19,000**		**15,000**		**4300**		**1,400**		NS		NS		NS		**810**		300	U	300	U	300	U	300	U
Lead	25	3.0	U	3.0	U	3.0	U	3.0	U	NS		NS		NS		3.0	U	3.0	U	3.0	U	3.0	U	3.0	U
Magnesium	35,000	5,100		5,000	U	5900		4,900		NS		NS		NS		1,400		5,000	U	5,000	U	500	U	8,500	
Manganese	300	**660**		**570**		200		**680**		NS		NS		NS		26		40	U	40	U	9.7		**640**	
Mercury	0.7	0.50	U	0.50	U	0.50	U	0.50	U	NS		NS		NS		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Nickel	100	50	U	50	U	3.0	U	10	U	NS		NS		NS		10	U	50	U	50	U	3.0	U	10	U
Potassium	NC	5,000	U	5,000	U	3,900		3,300		NS		NS		NS		1,500		6,800		22,000		9,000		10,000	
Selenium	10	10	U	10	U	10	U	10	U	NS		NS		NS		10	U	10	U	10	U	10	U	10	U
Silver	50	20	U	20	U	1.0	U	2.0	U	NS		NS		NS		2.0	U	20	U	20	U	1.0	U	2.0	U
Sodium	20,000	7,700		6,600		9,700		7,900		NS		NS		NS		11,000		17,000		25,000		18,000		**31,000**	
Thallium	0.5	2.0	U	2.0	U	2.0	U	2.0	U	NS		NS		NS		2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Vanadium	NC	50	U	50	U	2.0	U	2.0	U	NS		NS		NS		2.0	U	50	U	50	U	2.0	U	2.0	U
Zinc	2,000	50	U	50	U	20	U	40	U	NS		NS		NS		40	U	50	U	50	U	21		40	U

Notes
µg/L - micrograms per liter
J - Estimated value
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility
NC - No criterion
NS - Not sampled due to field filtered samples only being taken if turbidity was above 10 NTU.
Shaded and **bold** results exceed corresponding Class GA Value
U - Non-detect

TABLE 12

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER SAMPLING ANALYTICAL RESULTS FOR POLYCHLORINATED BIPHENYLS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-1								LTMW-2								LTMW-3							
SAMPLE ID:		LTMW-1-20200501 U		LTMW-1-20210916 U		LTMW-1-20221115 U		LTMW-1-20240227 U		LTMW-2-20200430 U		LTMW-2-20210916 U		LTMW-2-20221115		LTMW-2-20240227 U		LTMW-3-20200430 U		LTMW-3-20210915		LTMW-3-20221115 U		LTMW-3-20240228 U	
LABORATORY SAMPLE ID:		AD16822-062		AD26083-040 (R)		AD34569-004		AD42985-001		AD16822-045		AD26083-036		AD34569-005		AD42985-003		AD16822-047		AD26083-032		AD34569-006		AD42985-024	
DATE SAMPLE COLLECTED:		5/1/2020		9/16/2021		11/15/2022		2/27/2024		4/30/2020		9/16/2021		11/15/2022		2/27/2024		4/30/2020		9/15/2021		11/15/2022		2/28/2024	
POLYCHLORINATED BIPHENYLS (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aroclor-1016	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1221	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1232	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1242	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1248	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1254	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1260	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Araclor-1262	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Araclor-1268	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Total PCBs	0.09	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U

Notes
µg/L - micrograms per liter
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.
NC - No criterion
Shaded and **bold** results exceed corresponding Class GA Value.
U - Non-detect

TABLE 12

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER SAMPLING ANALYTICAL RESULTS FOR POLYCHLORINATED BIPHENYLS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-4								LTMW-5A								LTMW-5B							
SAMPLE ID:		LTMW-4-20200501 U		LTMW-4-20210915 U		LTMW-4-20221116 U		LTMW-4-20240228 U		LTMW-5A-20200427 U		LTMW-5A-20210915		LTMW-5A-20221116 U		LTMW-5A-20240301 U		LTMW-5B-20200428 U		LTMW-5B-20210914 U		LTMW-5B-20221116		LTMW-5B-20240301 U	
LABORATORY SAMPLE ID:		AD16822-058		AD26083-028		AD34583-002		AD42985-026		AD16822-005		AD26083-026		AD34583-009		AD42985-062		AD16822-010		AD26083-021		AD34583-011		AD42985-064	
DATE SAMPLE COLLECTED:		5/1/2020		9/15/2021		11/16/2022		2/28/2024		4/27/2020		9/15/2021		11/16/2022		3/1/2024		4/27/2020		9/14/2021		11/16/2022		3/1/2024	
POLYCHLORINATED BIPHENYLS (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aroclor-1016	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1221	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1232	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1242	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1248	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1254	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1260	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Araclor-1262	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Araclor-1268	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Total PCBs	0.09	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U

Notes
µg/L - micrograms per liter
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.
NC - No criterion
Shaded and **bold** results exceed corresponding Class GA Value.
U - Non-detect

TABLE 12

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER SAMPLING ANALYTICAL RESULTS FOR POLYCHLORINATED BIPHENYLS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		**LTMW-6**								**LTMW-7**								**LTMW-8**							
SAMPLE ID:		**LTMW-6-20200427 U**		**LTMW-6-20210914 U**		**LTMW-6-20221117 U**		**LTMW-6-20240228 U**		**LTMW-7-20200428 U**		**LTMW-7-20210913**		**LTMW-7-20221117**		**LTMW-7-20240229 U**		**LTMW-8-20200427 U**		**LTMW-8-20210913**		**LTMW-8-20221117**		**LTMW-8-20240229 U**	
LABORATORY SAMPLE ID:		AD16822-007		AD26083-016		AD34621-002		AD42985-028		AD16822-012		AD26083-011		AD34621-006		AD42985-033		AD16822-001		AD26083-002 ®		AD34621-018		AD42985-041	
DATE SAMPLE COLLECTED:		4/27/2020		9/14/2021		11/17/2022		2/28/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024		4/27/2020		9/13/2021		11/17/2022		2/29/2024	
POLYCHLORINATED BIPHENYLS (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aroclor-1016	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1221	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1232	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1242	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1248	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1254	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1260	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Araclor-1262	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Araclor-1268	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Total PCBs	0.09	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U

Notes
µg/L - micrograms per liter
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.
NC - No criterion
Shaded and **bold** results exceed corresponding Class GA Value.
U - Non-detect

TABLE 12

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER SAMPLING ANALYTICAL RESULTS FOR POLYCHLORINATED BIPHENYLS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-9								LTMW-10								LTMW-11							
SAMPLE ID:		LTMW-9-20200428 U		LTMW-9-20210913 U		LTMW-9-20221118 U		LTMW-9-20240229 U		LTMW-10-20200429 U		LTMW-10-20210913 U		LTMW-10-20221118		LTMW-10-20240229 U		LTMW-11-20200428 U		LTMW-11-20210913		LTMW-11-20221117		LTMW-11-20240229 U	
LABORATORY SAMPLE ID:		AD16822-017		AD26083-006		AD34621-018		AD42985-052		AD16822-025		AD26083-003		AD34621-020		AD42985-047		AD16822-019		AD26083-008		AD34621-004		AD42985-045	
DATE SAMPLE COLLECTED:		4/7/2020		9/13/2021		11/17/2022		2/29/2024		4/29/2020		9/13/2021		11/17/2022		2/29/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024	
POLYCHLORINATED BIPHENYLS (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aroclor-1016	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1221	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1232	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1242	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1248	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1254	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1260	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Araclor-1262	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Araclor-1268	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Total PCBs	0.09	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U

Notes
µg/L - micrograms per liter
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.
NC - No criterion
Shaded and **bold** results exceed corresponding Class GA Value.
U - Non-detect

TABLE 12

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER SAMPLING ANALYTICAL RESULTS FOR POLYCHLORINATED BIPHENYLS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		**LTMW-12**								**LTMW-13**								**LTMW-15**							
SAMPLE ID:		**LTMW-12-20200429 U**		**LTMW-12-20210914 U**		**LTMW-12-20221115 U**		**LTMW-12-20240229 U**		**LTMW-13-20200430 U**		**LTMW-13-20210914**		**LTMW-13-20221117**		**LTMW-13-20240228 U**		**LTMW-15-20200430 U**		**LTMW-15-20210914 U**		**LTMW-15-20221116**		**LTMW-15-20240228 U**	
LABORATORY SAMPLE ID:		AD16822-027		AD26083-014		AD34569-001		AD42985-043		AD16822-055		AD26083-018		AD34621-001		AD42985-014		AD16822-053		AD26083-019		AD34583-008		AD42985-030	
DATE SAMPLE COLLECTED:		4/29/2020		9/14/2021		11/15/2022		2/29/2024		4/29/2020		9/14/2021		11/17/2022		2/28/2024		4/30/2020		9/14/2021		11/16/2022		2/28/2024	
POLYCHLORINATED BIPHENYLS (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aroclor-1016	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
Aroclor-1221	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
Aroclor-1232	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
Aroclor-1242	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
Aroclor-1248	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
Aroclor-1254	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
Aroclor-1260	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
Araclor-1262	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
Araclor-1268	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
Total PCBs	0.09	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U

Notes
µg/L - micrograms per liter
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.
NC - No criterion
Shaded and **bold** results exceed corresponding Class GA Value.
U - Non-detect

TABLE 12

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER SAMPLING ANALYTICAL RESULTS FOR POLYCHLORINATED BIPHENYLS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		**LTMW-16**								**LTMW-17**								**LTMW-18C**							
SAMPLE ID:		**LTMW-16-20200430 U**		**LTMW-16-20210915 U**		**LTMW-16-20221116**		**LTMW-16-20240228 U**		**LTMW-17-20200501 U**		**LTMW-17-20210915**		**LTMW-17-20221116**		**LTMW-17-20240228 U**		**LTMW-18C-20200429 U**		**LTMW-18C-20210916**		**LTMW-18C-20221116**		**LTMW-18C-20240227 U**	
LABORATORY SAMPLE ID:		AD16822-051		AD26083-030		AD34583-007		AD42985-016		AD16822-060		AD26083-027		AD34583-004		AD42985-022		AD16822-031		AD26083-035		AD34583-001		AD42985-009	
DATE SAMPLE COLLECTED:		4/30/2020		9/15/2021		11/16/2022		2/28/2024		5/1/2020		9/15/2021		11/16/2022		2/28/2024		4/29/2020		9/16/2021		11/16/2022		2/27/2024	
POLYCHLORINATED BIPHENYLS (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aroclor-1016	NC	0.28	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1221	NC	0.28	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1232	NC	0.28	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1242	NC	0.28	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1248	NC	0.28	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1254	NC	0.28	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Aroclor-1260	NC	0.28	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Araclor-1262	NC	0.28	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Araclor-1268	NC	0.28	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Total PCBs	0.09	0.28	U	0.25	U	0.28	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U

Notes
µg/L - micrograms per liter
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.
NC - No criterion
Shaded and **bold** results exceed corresponding Class GA Value.
U - Non-detect

TABLE 12

NEW YORK CITY PARKS AND RECREATION
BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER SAMPLING ANALYTICAL RESULTS FOR POLYCHLORINATED BIPHENYLS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		**LTMW-18UG**								**LTMW-19**								**LTMW-20**							
SAMPLE ID:		**LTMW-18UG-20200429 U**		**LTMW-18UG-20210916 U**		**LTMW-18UG-20221115 U**		**LTMW-18UG-20240227 U**		**LTMW-19-20200429 U**		**LTMW-19-20210916**		**LTMW-19-20221115**		**LTMW-19-20240227 U**		**LTMW-20-20200429 U**		**NS**		**LTMW-20-20221118**		**LTMW-20-20240227 U**	
LABORATORY SAMPLE ID:		AD16822-033		AD26083-038		AD34569-003		AD42985-011		AD16822-029		AD26083-048		AD34569-002		AD42985-007		AD16822-038				AD34621-016		AD42985-005	
DATE SAMPLE COLLECTED:		4/29/2020		9/16/2021		11/15/2022		2/27/2024		4/29/2020		9/16/2021		11/15/2022		2/27/2024		4/29/2020				11/17/2022		2/27/2024	
POLYCHLORINATED BIPHENYLS (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aroclor-1016	NC	0.25	U	0.26	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U	0.27	U	NS		0.25	U	0.25	U
Aroclor-1221	NC	0.25	U	0.26	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U	0.27	U	NS		0.25	U	0.25	U
Aroclor-1232	NC	0.25	U	0.26	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U	0.27	U	NS		0.25	U	0.25	U
Aroclor-1242	NC	0.25	U	0.26	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U	0.27	U	NS		0.25	U	0.25	U
Aroclor-1248	NC	0.25	U	0.26	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U	0.27	U	NS		0.25	U	0.25	U
Aroclor-1254	NC	0.25	U	0.26	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U	0.27	U	NS		0.25	U	0.25	U
Aroclor-1260	NC	0.25	U	0.26	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U	0.27	U	NS		0.25	U	0.25	U
Araclor-1262	NC	0.25	U	0.26	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U	0.27	U	NS		0.25	U	0.25	U
Araclor-1268	NC	0.25	U	0.26	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U	0.27	U	NS		0.25	U	0.25	U
Total PCBs	0.09	0.25	U	0.26	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U	0.27	U	NS		0.25	U	0.25	U

Notes
µg/L - micrograms per liter
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.
NC - No criterion
Shaded and **bold** results exceed corresponding Class GA Value.
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TABLE 12

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BROOKFIELD AVENUE LANDFILL
STATEN ISLAND, NEW YORK
SUMMARY OF GROUNDWATER SAMPLING ANALYTICAL RESULTS FOR POLYCHLORINATED BIPHENYLS

APRIL 2020 THROUGH MARCH 2025

MONITORING WELL:		LTMW-21								LTMW-22								LTMW-23							
SAMPLE ID:		LTMW-21-20200427 U		LTMW-21-20210914 U		LTMW-21-20221117 U		LTMW-21-20240229 U		LTMW-22-20200428		LTMW-22-20210913		LTMW-22-20221118		LTMW-22-20240229 U		LTMW-23-20200430 U		LTMW-23-20210916 U		LTMW-23-20221117 U		LTMW-23-20240301 U	
LABORATORY SAMPLE ID:		AD16822-003		AD26083-012		AD34621-009		AD42985-056		AD16822-014		AD26083-001		AD34621-017		AD42985-054		AD16822-049		AD26083-046		AD34621-012		AD42985-058	
DATE SAMPLE COLLECTED:		4/27/2020		9/14/2021		11/17/2022		2/29/2024		4/28/2020		9/13/2021		11/17/2022		2/29/2024		4/30/2020		9/16/2021		11/17/2022		3/1/2024	
POLYCHLORINATED BIPHENYLS (µg/L)	Class GA Value (µg/L)	Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)		Results (µg/L)	
Aroclor-1016	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
Aroclor-1221	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
Aroclor-1232	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
Aroclor-1242	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
Aroclor-1248	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
Aroclor-1254	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
Aroclor-1260	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
Araclor-1262	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
Araclor-1268	NC	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U
Total PCBs	0.09	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.25	U	0.26	U	0.25	U	0.25	U

Notes
µg/L - micrograms per liter
LTMW-20 was not sampled in 2021 due to dense vegetation and poison ivy causing inaccessibility.
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U - Non-detect

APPENDIX A

PRR FORMS

NEW YORK STATE | Department of Environmental Conservation

KATHY HOCHUL
Governor

SEAN MAHAR
Interim Commissioner

2/11/2025

Ryan Wilson
Project Manager Environmental Rem Unit
NYC DEP
117-02 Roosevelt Ave
Corona, NY 11368
Ryan.Wilson@parks.nyc.gov

Re: Reminder Notice: Site Management Periodic Review Report and IC/EC Certification Submittal
Site Name: Brookfield Avenue Landfill
Site No.: 243006
Site Address: Arthur Kill Road
Staten Island, NY 10031

Dear Ryan Wilson:

This letter serves as a reminder that sites in active Site Management (SM) require the submittal of a periodic progress report. This report, referred to as the Periodic Review Report (PRR), must document the implementation of, and compliance with, site-specific SM requirements. Section 6.3(b) of DER-10 *Technical Guidance for Site Investigation and Remediation* (available online at http://www.dec.ny.gov/regulations/67386.html) provides guidance regarding the information that must be included in the PRR. Further, if the site is comprised of multiple parcels, then you as the Certifying Party must arrange to submit one PRR for all parcels that comprise the site. The PRR must be received by the Department no later than **April 30, 2025**. Guidance on the content of a PRR is enclosed.

Site Management is defined in regulation (6 NYCRR 375-1.2(at)) and in Chapter 6 of DER-10. Depending on when the remedial program for your site was completed, SM may be governed by multiple documents (e.g., Operation, Maintenance, and Monitoring Plan; Soil Management Plan) or one comprehensive Site Management Plan.

A Site Management Plan (SMP) may contain one or all of the following elements, as applicable to the site: a plan to maintain institutional controls and/or engineering controls ("IC/EC Plan"); a plan for monitoring the performance and effectiveness of the selected remedy ("Monitoring Plan"); and/or a plan for the operation and maintenance of the selected remedy ("O&M Plan"). Additionally, the technical requirements for SM are stated in the decision document (e.g., Record of Decision) and, in some cases, the legal agreement directing the remediation of the site (e.g., order on consent, voluntary agreement, etc.).

When you submit the PRR (by the due date above), include the enclosed forms documenting that all SM requirements are being met. The Institutional Controls (ICs) portion of the form (Box 6) must be signed by you or your designated representative. The Engineering Controls (ECs) portion of the form (Box 7) must be signed by a Professional Engineer (PE). If you cannot certify that all SM requirements are being met, you must submit a Corrective Measures Work Plan that identifies the actions to be taken to restore compliance. The work plan must include a schedule to be approved by the Department. The Periodic Review process will not be considered complete until all necessary corrective measures are completed and all required controls are certified. Instructions for completing the certifications are enclosed.

All site-related documents and data, including the PRR, must be submitted in electronic format to the Department of Environmental Conservation. The required format for documents is an Adobe PDF file with optical character recognition and no password protection. Data must be submitted as an electronic data deliverable (EDD) according to the instructions on the following webpage:

https://www.dec.ny.gov/chemical/62440.html

Documents may be submitted to the project manager either through electronic mail or by using the Department's file transfer service at the following webpage:

https://fts.dec.state.ny.us/fts/

The Department will not approve the PRR unless all documents and data generated in support of the PRR have been submitted using the required formats and protocols.

You may contact Jasmine Stefansky, the Project Manager, at 518-402-9575 or jasmine.stefansky@dec.ny.gov with any questions or concerns about the site. Please notify the project manager before conducting inspections or field work. You may also write to the project manager at the following address:

New York State Department of Environmental Conservation
Division of Environmental Remediation, BURE
625 Broadway
Albany, NY 12233-7017

Enclosures

PRR General Guidance
Certification Form Instructions
Certification Forms

ec: w/ enclosures

ec: w/ enclosures
Jasmine Stefansky, Project Manager
Jeffrey Dyber, Section Chief
Jane O'Connell, Hazardous Waste Remediation Supervisor, Region 2
TRC - Wes Lindemuth - WLindemuth@trccompanies.com

The following parcel owner did not receive an ec:
- Parcel Owner
City Of New York - Parcel Owner

Enclosure 1

Certification Instructions

I. Verification of Site Details (Box 1 and Box 2):

Answer the three questions in the Verification of Site Details Section. The Owner and/or Qualified Environmental Professional (QEP) may include handwritten changes and/or other supporting documentation, as necessary.

II. Certification of Institutional Controls/ Engineering Controls (IC/ECs)(Boxes 3, 4, and 5)

1.1.1. Review the listed IC/ECs, confirming that all existing controls are listed, and that all existing controls are still applicable. If there is a control that is no longer applicable the Owner / Remedial Party should petition the Department separately to request approval to remove the control.

2. In Box 5, complete certifications for all Plan components, as applicable, by checking the corresponding checkbox.

3. If you cannot certify "YES" for each Control listed in Box 3 & Box 4, sign and date the form in Box 5. Attach supporting documentation that explains why the **Certification** cannot be rendered, as well as a plan of proposed corrective measures, and an associated schedule for completing the corrective measures. Note that this **Certification** form must be submitted even if an IC or EC cannot be certified; however, the certification process will not be considered complete until corrective action is completed.

If the Department concurs with the explanation, the proposed corrective measures, and the proposed schedule, a letter authorizing the implementation of those corrective measures will be issued by the Department's Project Manager. Once the corrective measures are complete, a new Periodic Review Report (with IC/EC Certification) must be submitted within 45 days to the Department. If the Department has any questions or concerns regarding the PRR and/or completion of the IC/EC Certification, the Project Manager will contact you.

III. IC/EC Certification by Signature (Box 6 and Box 7**):**

If you certified "YES" for each Control, please complete and sign the IC/EC Certifications page as follows:

- For the Institutional Controls on the use of the property, the certification statement in Box 6 shall be completed and may be made by the property owner or designated representative.

- For the Engineering Controls, the certification statement in Box 7 must be completed by a Professional Engineer or Qualified Environmental Professional, as noted on the form.

Enclosure 2
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form

Site Details **Box 1**

Site No. 243006

Site Name Brookfield Avenue Landfill

Site Address: Arthur Kill Road Zip Code: ~~10031~~ 10308
City/Town: Staten Island
County: Richmond
Site Acreage: 243.580

Reporting Period: March 31, 2020 to March 31, 2025

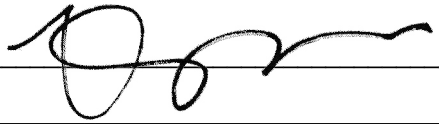
	YES	NO
1. Is the information above correct?	☐	☑
If NO, include handwritten above or on a separate sheet.		
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	☐	☑
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	☐	☑
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	☑	☐
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.		
5. Is the site currently undergoing development?	☐	☑

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? Commercial and Industrial	☑	☐
7. Are all ICs in place and functioning as designed?	☑	☐

IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.



07/07/2025

Signature of Owner, Remedial Party or Designated Representative Date

SITE NO. 243006 **Box 3**

Description of Institutional Controls

Parcel	Owner	Institutional Control
4449-01		Ground Water Use Restriction Soil Management Plan Landuse Restriction Surface Water Use Restriction Monitoring Plan Site Management Plan O&M Plan

Institutional and Engineering Controls. the controls and requirements listed in the Department approved SMP including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the controlled property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

(1) The controlled property may be used for: Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the SMP;

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled property must be reported at the frequency and in a manner defined in the SMP;

(7) All Future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to property owner to assure compliance with the restrictions identified by this Environmental Easement.

The Controlled property shall not be used for residential or restricted residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-state engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement. Excepting form the Controlled Property and excluded from the easement in the portion of Block 5550 Lot 1, containing the NYC HPD structures as noted in Schedule A and the SMP the portion of Block 5559 Lot 260, containing the NYC DEP Eltingville PS, as noted in Schedule A and the SMP; and Block 5570 Lots 150 and 101 (as reflected on the current tax map)

4454-01		Ground Water Use Restriction Soil Management Plan Landuse Restriction Surface Water Use Restriction Monitoring Plan Site Management Plan

O&M Plan

Institutional and Engineering Controls. the controls and requirements listed in the Department approved SMP including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the controlled property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.
(1) The controlled property may be used for: Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)
(2) All Engineering Controls must be operated and maintained as specified in the SMP;
(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;
(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;
(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;
(6) Data and information pertinent to Site Management of the Controlled property must be reported at the frequency and in a manner defined in the SMP;
(7) All Future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;
(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;
(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;
(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to property owner to assure compliance with the restrictions identified by this Environmental Easement.

The Controlled property shall not be used for residential or restricted residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-state engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement. Excepting form the Controlled Property and excluded from the easement in the portion of Block 5550 Lot 1, containing the NYC HPD structures as noted in Schedule A and the SMP the portion of Block 5559 Lot 260, containing the NYC DEP Eltingville PS, as noted in Schedule A and the SMP; and Block 5570 Lots 150 and 101 (as reflected on the current tax map)
4454-49

Ground Water Use Restriction
Soil Management Plan
Landuse Restriction
Surface Water Use Restriction
Monitoring Plan
Site Management Plan
O&M Plan

Institutional and Engineering Controls. the controls and requirements listed in the Department approved SMP including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the controlled property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

(1) The controlled property may be used for: Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)
(2) All Engineering Controls must be operated and maintained as specified in the SMP;
(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;
(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;
(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;
(6) Data and information pertinent to Site Management of the Controlled property must be reported at the frequency and in a manner defined in the SMP;
(7) All Future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;
(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;
(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;
(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to property owner to assure compliance with the restrictions identified by this Environmental Easement.

The Controlled property shall not be used for residential or restricted residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-state engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement. Excepting form the Controlled Property and excluded from the easement in the portion of Block 5550 Lot 1, containing the NYC HPD structures as noted in Schedule A and the SMP the portion of Block 5559 Lot 260, containing the NYC DEP Eltingville PS, as noted in Schedule A and the SMP; and Block 5570 Lots 150 and 101 (as reflected on the current tax map)
5540-01

Ground Water Use Restriction
Soil Management Plan
Landuse Restriction
Surface Water Use Restriction
Monitoring Plan
Site Management Plan
O&M Plan

Institutional and Engineering Controls. the controls and requirements listed in the Department approved SMP including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the controlled property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.
(1) The controlled property may be used for: Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)
(2) All Engineering Controls must be operated and maintained as specified in the SMP;
(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;
(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;
(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;
(6) Data and information pertinent to Site Management of the Controlled property must be reported at the frequency and in a manner defined in the SMP;

(7) All Future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;
(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;
(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;
(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to property owner to assure compliance with the restrictions identified by this Environmental Easement.

The Controlled property shall not be used for residential or restricted residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-state engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement. Excepting form the Controlled Property and excluded from the easement in the portion of Block 5550 Lot 1, containing the NYC HPD structures as noted in Schedule A and the SMP the portion of Block 5559 Lot 260, containing the NYC DEP Eltingville PS, as noted in Schedule A and the SMP; and Block 5570 Lots 150 and 101 (as reflected on the current tax map)

5550-01

Surface Water Use Restriction
O&M Plan

Ground Water Use Restriction
Landuse Restriction
Site Management Plan

Institutional and Engineering Controls. the controls and requirements listed in the Department approved SMP including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the controlled property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.
(1) The controlled property may be used for: Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)
(2) All Engineering Controls must be operated and maintained as specified in the SMP;
(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;
(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;
(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;
(6) Data and information pertinent to Site Management of the Controlled property must be reported at the frequency and in a manner defined in the SMP;
(7) All Future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;
(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;
(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;
(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to property owner to assure compliance with the restrictions identified by this Environmental Easement.

The Controlled property shall not be used for residential or restricted residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-state engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement. Excepting form the Controlled Property and excluded from the easement in the portion of Block 5550 Lot 1, containing the NYC HPD structures as

noted in Schedule A and the SMP the portion of Block 5559 Lot 260, containing the NYC DEP Eltingville PS, as noted in Schedule A and the SMP; and Block 5570 Lots 150 and 101 (as reflected on the current tax map)

5550-10

Ground Water Use Restriction
Soil Management Plan
Landuse Restriction
Surface Water Use Restriction
Monitoring Plan
Site Management Plan
O&M Plan

Institutional and Engineering Controls. the controls and requirements listed in the Department approved SMP including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the controlled property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

(1) The controlled property may be used for: Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the SMP;

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled property must be reported at the frequency and in a manner defined in the SMP;

(7) All Future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to property owner to assure compliance with the restrictions identified by this Environmental Easement.

The Controlled property shall not be used for residential or restricted residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-state engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement. Excepting form the Controlled Property and excluded from the easement in the portion of Block 5550 Lot 1, containing the NYC HPD structures as noted in Schedule A and the SMP the portion of Block 5559 Lot 260, containing the NYC DEP Eltingville PS, as noted in Schedule A and the SMP; and Block 5570 Lots 150 and 101 (as reflected on the current tax map)

5550-22

Ground Water Use Restriction
Soil Management Plan
Landuse Restriction
Surface Water Use Restriction
Monitoring Plan
Site Management Plan
O&M Plan

Institutional and Engineering Controls. the controls and requirements listed in the Department approved SMP including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the controlled property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.
(1) The controlled property may be used for: Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)
(2) All Engineering Controls must be operated and maintained as specified in the SMP;
(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;
(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;
(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;
(6) Data and information pertinent to Site Management of the Controlled property must be reported at the frequency and in a manner defined in the SMP;
(7) All Future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;
(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;
(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;
(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to property owner to assure compliance with the restrictions identified by this Environmental Easement.

The Controlled property shall not be used for residential or restricted residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-state engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement. Excepting form the Controlled Property and excluded from the easement in the portion of Block 5550 Lot 1, containing the NYC HPD structures as noted in Schedule A and the SMP the portion of Block 5559 Lot 260, containing the NYC DEP Eltingville PS, as noted in Schedule A and the SMP; and Block 5570 Lots 150 and 101 (as reflected on the current tax map)
5551-01

Surface Water Use Restriction
O&M Plan

Ground Water Use Restriction
Landuse Restriction
Site Management Plan

Institutional and Engineering Controls. the controls and requirements listed in the Department approved SMP including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the controlled property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.
(1) The controlled property may be used for: Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)
(2) All Engineering Controls must be operated and maintained as specified in the SMP;
(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;
(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;
(6) Data and information pertinent to Site Management of the Controlled property must be reported at the frequency and in a manner defined in the SMP;
(7) All Future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;
(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;
(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;
(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to property owner to assure compliance with the restrictions identified by this Environmental Easement.

The Controlled property shall not be used for residential or restricted residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-state engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement. Excepting form the Controlled Property and excluded from the easement in the portion of Block 5550 Lot 1, containing the NYC HPD structures as noted in Schedule A and the SMP the portion of Block 5559 Lot 260, containing the NYC DEP Eltingville PS, as noted in Schedule A and the SMP; and Block 5570 Lots 150 and 101 (as reflected on the current tax map)

5552-01

Ground Water Use Restriction
Landuse Restriction
Site Management Plan

Surface Water Use Restriction
O&M Plan

Institutional and Engineering Controls. the controls and requirements listed in the Department approved SMP including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the controlled property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.
(1) The controlled property may be used for: Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)
(2) All Engineering Controls must be operated and maintained as specified in the SMP;
(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;
(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;
(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;
(6) Data and information pertinent to Site Management of the Controlled property must be reported at the frequency and in a manner defined in the SMP;
(7) All Future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;
(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;
(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to property owner to assure compliance with the restrictions identified by this Environmental Easement.

The Controlled property shall not be used for residential or restricted residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-state engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement. Excepting form the Controlled Property and excluded from the easement in the portion of Block 5550 Lot 1, containing the NYC HPD structures as noted in Schedule A and the SMP the portion of Block 5559 Lot 260, containing the NYC DEP Eltingville PS, as noted in Schedule A and the SMP; and Block 5570 Lots 150 and 101 (as reflected on the current tax map)

5553-01

Ground Water Use Restriction
Soil Management Plan
Landuse Restriction
Surface Water Use Restriction
Monitoring Plan
Site Management Plan
O&M Plan

Institutional and Engineering Controls. the controls and requirements listed in the Department approved SMP including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the controlled property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

(1) The controlled property may be used for: Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the SMP;

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled property must be reported at the frequency and in a manner defined in the SMP;

(7) All Future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to property owner to assure compliance with the restrictions identified by this Environmental Easement.

The Controlled property shall not be used for residential or restricted residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-state engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement. Excepting form the Controlled Property and excluded from the easement in the portion of Block 5550 Lot 1, containing the NYC HPD structures as noted in Schedule A and the SMP the portion of Block 5559 Lot 260, containing the NYC DEP Eltingville PS, as noted in Schedule A and the SMP; and Block 5570 Lots 150 and 101 (as reflected on the current tax map)

5554-01

Ground Water Use Restriction

Soil Management Plan
Landuse Restriction
Surface Water Use Restriction
Monitoring Plan
Site Management Plan
O&M Plan

Institutional and Engineering Controls. the controls and requirements listed in the Department approved SMP including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the controlled property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.
(1) The controlled property may be used for: Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)
(2) All Engineering Controls must be operated and maintained as specified in the SMP;
(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;
(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;
(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;
(6) Data and information pertinent to Site Management of the Controlled property must be reported at the frequency and in a manner defined in the SMP;
(7) All Future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;
(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;
(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;
(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to property owner to assure compliance with the restrictions identified by this Environmental Easement.

The Controlled property shall not be used for residential or restricted residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-state engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement. Excepting form the Controlled Property and excluded from the easement in the portion of Block 5550 Lot 1, containing the NYC HPD structures as noted in Schedule A and the SMP the portion of Block 5559 Lot 260, containing the NYC DEP Eltingville PS, as noted in Schedule A and the SMP; and Block 5570 Lots 150 and 101 (as reflected on the current tax map)

5555-01

Surface Water Use Restriction
O&M Plan

Ground Water Use Restriction
Landuse Restriction
Site Management Plan

Institutional and Engineering Controls. the controls and requirements listed in the Department approved SMP including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the controlled

property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.
(1) The controlled property may be used for: Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)
(2) All Engineering Controls must be operated and maintained as specified in the SMP;
(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;
(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;
(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;
(6) Data and information pertinent to Site Management of the Controlled property must be reported at the frequency and in a manner defined in the SMP;
(7) All Future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;
(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;
(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;
(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to property owner to assure compliance with the restrictions identified by this Environmental Easement.

The Controlled property shall not be used for residential or restricted residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-state engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement. Excepting form the Controlled Property and excluded from the easement in the portion of Block 5550 Lot 1, containing the NYC HPD structures as noted in Schedule A and the SMP the portion of Block 5559 Lot 260, containing the NYC DEP Eltingville PS, as noted in Schedule A and the SMP; and Block 5570 Lots 150 and 101 (as reflected on the current tax map)
5559-01

Ground Water Use Restriction
Landuse Restriction
Site Management Plan

Surface Water Use Restriction
O&M Plan

Institutional and Engineering Controls. the controls and requirements listed in the Department approved SMP including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the controlled property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.
(1) The controlled property may be used for: Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)
(2) All Engineering Controls must be operated and maintained as specified in the SMP;
(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;
(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;
(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;
(6) Data and information pertinent to Site Management of the Controlled property must be reported at the

frequency and in a manner defined in the SMP;
(7) All Future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;
(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;
(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;
(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to property owner to assure compliance with the restrictions identified by this Environmental Easement.

The Controlled property shall not be used for residential or restricted residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-state engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement. Excepting form the Controlled Property and excluded from the easement in the portion of Block 5550 Lot 1, containing the NYC HPD structures as noted in Schedule A and the SMP the portion of Block 5559 Lot 260, containing the NYC DEP Eltingville PS, as noted in Schedule A and the SMP; and Block 5570 Lots 150 and 101 (as reflected on the current tax map)

5559-100

Ground Water Use Restriction
Soil Management Plan
Landuse Restriction
Surface Water Use Restriction
Monitoring Plan
Site Management Plan
O&M Plan

Institutional and Engineering Controls. the controls and requirements listed in the Department approved SMP including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the controlled property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.
(1) The controlled property may be used for: Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)
(2) All Engineering Controls must be operated and maintained as specified in the SMP;
(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;
(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;
(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;
(6) Data and information pertinent to Site Management of the Controlled property must be reported at the frequency and in a manner defined in the SMP;
(7) All Future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;
(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;
(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;
(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to property owner to assure compliance with the restrictions identified by this Environmental Easement.

The Controlled property shall not be used for residential or restricted residential purposes as defined in

6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-state engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement. Excepting form the Controlled Property and excluded from the easement in the portion of Block 5550 Lot 1, containing the NYC HPD structures as noted in Schedule A and the SMP the portion of Block 5559 Lot 260, containing the NYC DEP Eltingville PS, as noted in Schedule A and the SMP; and Block 5570 Lots 150 and 101 (as reflected on the current tax map)

5570-01 City of New York

Surface Water Use Restriction
O&M Plan

Ground Water Use Restriction
Landuse Restriction

Site Management Plan
Monitoring Plan
Soil Management Plan

Institutional and Engineering Controls. the controls and requirements listed in the Department approved SMP including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the controlled property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

(1) The controlled property may be used for: Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the SMP;

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled property must be reported at the frequency and in a manner defined in the SMP;

(7) All Future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to property owner to assure compliance with the restrictions identified by this Environmental Easement.

The Controlled property shall not be used for residential or restricted residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-state engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement. Excepting form the Controlled Property and excluded from the easement in the portion of Block 5550 Lot 1, containing the NYC HPD structures as noted in Schedule A and the SMP the portion of Block 5559 Lot 260, containing the NYC DEP Eltingville PS, as noted in Schedule A and the SMP; and Block 5570 Lots 150 and 101 (as reflected on the current tax map)

Box 4

Description of Engineering Controls

Parcel	Engineering Control
4449-01	Cover System Leachate Collection Subsurface Barriers Fencing/Access Control Monitoring Wells
4454-01	Cover System Leachate Collection Subsurface Barriers Fencing/Access Control Monitoring Wells
4454-49	Cover System Leachate Collection Subsurface Barriers Fencing/Access Control Monitoring Wells
5540-01	Cover System Leachate Collection Subsurface Barriers Fencing/Access Control Monitoring Wells
5550-01	Fencing/Access Control Monitoring Wells Cover System Leachate Collection Subsurface Barriers
5550-10	Cover System Leachate Collection Subsurface Barriers Fencing/Access Control Monitoring Wells
5550-22	Cover System Leachate Collection Subsurface Barriers Fencing/Access Control Monitoring Wells
5551-01	Vapor Mitigation Cover System Leachate Collection Fencing/Access Control Monitoring Wells

Parcel	Engineering Control
5552-01	
	Fencing/Access Control
	Monitoring Wells
	Vapor Mitigation
	Cover System
	Leachate Collection
5553-01	
	Cover System
	Leachate Collection
	Fencing/Access Control
	Monitoring Wells
5554-01	
	Cover System
	Leachate Collection
	Subsurface Barriers
	Fencing/Access Control
	Monitoring Wells
5555-01	
	Fencing/Access Control
	Monitoring Wells
	Cover System
	Leachate Collection
	Subsurface Barriers
5559-01	
	Cover System
	Leachate Collection
	Subsurface Barriers
	Fencing/Access Control
	Monitoring Wells
5559-100	
	Cover System
	Leachate Collection
	Subsurface Barriers
	Fencing/Access Control
	Monitoring Wells
5570-01	
	Fencing/Access Control
	Monitoring Wells
	Cover System
	Leachate Collection
	Subsurface Barriers

Box 5

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the Engineering Control certification;

b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and compete.

YES	NO
☑	☐

2. For each Engineering control listed in Box 4, I certify by checking "YES" below that all of the following statements are true:

(a) The Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

(b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

(c) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

(d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

(e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES	NO
☑	☐

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative

07/07/2025
Date

IC CERTIFICATIONS
SITE NO. 243006

Box 6

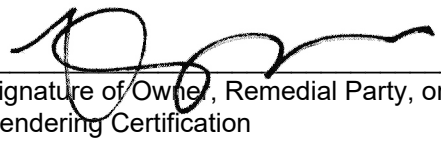
SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 1,2, and 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Kirsten Myers (print name) at 1407 Broadway, Suite 3301, NY, NY 1018 (print business address),

am certifying as Designated Representative for Owner (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.



Signature of Owner, Remedial Party, or Designated Representative Rendering Certification — Date: 07/07/2025

EC CERTIFICATIONS

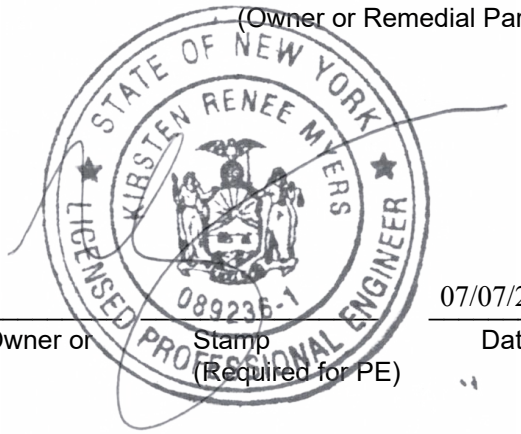
Box 7

Professional Engineer Signature

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Kirsten Myers (print name) at 1407 Broadway, Suite 3301, NY, NY 10018 (print business address),

am certifying as a Professional Engineer for the Owner (Owner or Remedial Party)



Signature of Professional Engineer, for the Owner or Remedial Party, Rendering Certification

Stamp (Required for PE)

07/07/2025
Date

Enclosure 3
Periodic Review Report (PRR) General Guidance

I. Executive Summary: (1/2-page or less)
   A. Provide a brief summary of site, nature and extent of contamination, and remedial history.
   B. Effectiveness of the Remedial Program - Provide overall conclusions regarding;
      1. progress made during the reporting period toward meeting the remedial objectives for the site
      2. the ultimate ability of the remedial program to achieve the remedial objectives for the site.
   C. Compliance
      1. Identify any areas of non-compliance regarding the major elements of the Site Management Plan (SMP, i.e., the Institutional/Engineering Control (IC/EC) Plan, the Monitoring Plan, and the Operation & Maintenance (O&M) Plan).
      2. Propose steps to be taken and a schedule to correct any areas of non-compliance.
   D. Recommendations
      1. recommend whether any changes to the SMP are needed
      2. recommend any changes to the frequency for submittal of PRRs (increase, decrease)
      3. recommend whether the requirements for discontinuing site management have been met.

II. Site Overview (one page or less)
   A. Describe the site location, boundaries (figure), significant features, surrounding area, and the nature and extent of contamination prior to site remediation.
   B. Describe the chronology of the main features of the remedial program for the site, the components of the selected remedy, cleanup goals, site closure criteria, and any significant changes to the selected remedy that have been made since remedy selection.

III. Evaluate Remedy Performance, Effectiveness, and Protectiveness
   Using tables, graphs, charts and bulleted text to the extent practicable, describe the effectiveness of the remedy in achieving the remedial goals for the site. Base findings, recommendations, and conclusions on objective data. Evaluations and should be presented simply and concisely.

IV. IC/EC Plan Compliance Report (if applicable)
   A. IC/EC Requirements and Compliance
      1. Describe each control, its objective, and how performance of the control is evaluated.
      2. Summarize the status of each goal (whether it is fully in place and its effectiveness).
      3. Corrective Measures: describe steps proposed to address any deficiencies in ICECs.
      4. Conclusions and recommendations for changes.
   B. IC/EC Certification
      1. The certification must be complete (even if there are IC/EC deficiencies), and certified by the appropriate party as set forth in a Department-approved certification form(s).

V. Monitoring Plan Compliance Report (if applicable)
   A. Components of the Monitoring Plan (tabular presentations preferred) - Describe the requirements of the monitoring plan by media (i.e., soil, groundwater, sediment, etc.) and by any remedial technologies being used at the site.
   B. Summary of Monitoring Completed During Reporting Period - Describe the monitoring tasks actually completed during this PRR reporting period. Tables and/or figures should be used to show all data.
   C. Comparisons with Remedial Objectives - Compare the results of all monitoring with the remedial objectives for the site. Include trend analyses where possible.
   D. Monitoring Deficiencies - Describe any ways in which monitoring did not fully comply with the monitoring plan.
   E. Conclusions and Recommendations for Changes - Provide overall conclusions regarding the monitoring completed and the resulting evaluations regarding remedial effectiveness.

VI. Operation & Maintenance (O&M) Plan Compliance Report (if applicable)
   A. Components of O&M Plan - Describe the requirements of the O&M plan including required activities, frequencies, recordkeeping, etc.

B. Summary of O&M Completed During Reporting Period - Describe the O&M tasks actually completed during this PRR reporting period.
C. Evaluation of Remedial Systems - Based upon the results of the O&M activities completed, evaluated the ability of each component of the remedy subject to O&M requirements to perform as designed/expected.
D. O&M Deficiencies - Identify any deficiencies in complying with the O&M plan during this PRR reporting period.
E. Conclusions and Recommendations for Improvements - Provide an overall conclusion regarding O&M for the site and identify any suggested improvements requiring changes in the O&M Plan.

VII. Overall PRR Conclusions and Recommendations
A. Compliance with SMP - For each component of the SMP (i.e., IC/EC, monitoring, O&M), summarize;
1. whether all requirements of each plan were met during the reporting period
2. any requirements not met
3. proposed plans and a schedule for coming into full compliance.
B. Performance and Effectiveness of the Remedy - Based upon your evaluation of the components of the SMP, form conclusions about the performance of each component and the ability of the remedy to achieve the remedial objectives for the site.
C. Future PRR Submittals
1. Recommend, with supporting justification, whether the frequency of the submittal of PRRs should be changed (either increased or decreased).
2. If the requirements for site closure have been achieved, contact the Departments Project Manager for the site to determine what, if any, additional documentation is needed to support a decision to discontinue site management.

VIII. Additional Guidance

Additional guidance regarding the preparation and submittal of an acceptable PRR can be obtained from the Departments Project Manager for the site.

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Environmental Protection

Rohit Aggarwala
Commissioner

Angela M. De Lillo, P.E.
Deputy Commissioner
Bureau of Wastewater Treatment

96-05 Horace Harding Expressway – 2nd Floor
Corona, NY 11368

July 26, 2023

New York City Parks and Recreation
Environmental Remediation Unit
Brookfield Avenue Landfill Remediation
Olmsted Center, Flushing Meadows Corona Park
117-02 Roosevelt Avenue
Flushing, NY 11368

Re: Issuance of Industrial Wastewater Discharge Permit No. 23-P3149-1

Certified Mail/Return Receipt Requested

Attention: Ms. Kay Zias

Enclosed is your Industrial Wastewater Discharge Permit No. 23-P3149-1, authorizing the discharge of industrial wastewater from your facility located at 575 ARTHUR KILL ROAD, STATEN ISLAND, NY 10308, into the New York City sewerage system. This control mechanism is effective as of August 10, 2023 and expires at midnight on August 9, 2028 and is contingent upon the Industrial User's compliance with any other Federal, State or Local laws applicable to the permitted activity. In order to continue discharging after the expiration date of this Permit, a request for reissuance of this Permit must be emailed a minimum of 120 days prior to its expiration date, to Bwt-permits@dep.nyc.gov. **This Permit shall supersede Permit No. 18-P3149-1 issued to you on August 7, 2018. Please note that your self-monitoring report due dates have not been changed in your new Permit.**

Your Permit contains applicable Federal Categorical Standards and New York City Sewer Use Limits, as well as self-monitoring, reporting and record keeping requirements. Failure to comply with all terms and conditions contained in the Permit and the New York City Sewer Use Regulations (available upon request) may result in issuance of Notices of Summonses (returnable to the New York City Office of Administrative Trials and Hearings) currently carrying civil penalties of up to $10,000 per violation per day and/or other enforcement proceedings.

Substantial changes have been made to the New York City Industrial Wastewater Discharge Permits. It is therefore vital that you read through your Permit carefully and become aware of the new requirements. Please make special note of the extensive changes in discharge limitations and monitoring requirements.

In order to facilitate your periodic self-monitoring and reporting, a standardized four-page Industrial Self-Monitoring Report Form and an Analytical Report Form are enclosed. Additional forms are always available upon request. When completing the forms, your Permit should be referred to for specific monitoring and reporting requirements.

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The SMR must be submitted to:

Sean Hulbert, P.E., Acting Chief
Industrial Resource Management and Permitting Section
Bureau of Wastewater Treatment
New York City Department of Environmental Protection
96-05 Horace Harding Expressway
Corona, New York 11368

Please contact Ms. Kene Umeasor at Bwt-permits@dep.nyc.gov if you have any questions regarding this Permit.

Sincerely,

DocuSigned by:
Sean Hulbert
F0FA5DB140EA4BB...

Sean Hulbert, P.E., Acting Chief
Industrial Resource Management
and Permitting Section

enc: Industrial Wastewater Discharge Permit
Industrial User Self-Monitoring Report Form
Analytical Report Form

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NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDUSTRIAL WASTEWATER DISCHARGE PERMIT

Permit No.: **23-P3149-1**
Effective Date: **August 10, 2023**
Expiration Date: **August 9, 2028**

In accordance with the provision of Title 24, Chapter 5, Section 24-523 (c) (1) of the New York City Administrative Code (NYCAC)

Industrial User Name: **NEW YORK CITY PARKS AND RECREATION**
ENVIRONMENTAL REMEDIATION UNIT
BROOKFIELD AVENUE LANDFILL REMEDIATION
Facility Address: **575 ARTHUR KILL ROAD**
STATEN ISLAND, NY 10308
Mailing Address: **OLMSTED CENTER, FLUSHING MEADOWS CORONA PARK**
117-02 ROOSEVELT AVENUE
FLUSHING, NEW YORK 11368

is hereby authorized to discharge industrial wastewater from the above identified facility into the New York City sewerage system in accordance with the discharge limitations, monitoring requirements, and other conditions set forth in this Permit.

All discharges authorized herein shall be consistent with the terms and conditions of this Permit. The discharge of any pollutant not identified in this Permit, or any pollutant identified in this Permit more frequently than or at levels in excess of that authorized, shall constitute a violation of the Permit.

The Industrial User shall not discharge any process or regulated wastewater after the expiration date of this Permit. If the Industrial User wishes to continue to discharge thereafter, a request for reissuance of this Permit must be emailed a minimum of 120 days prior to its expiration date, to Bwt-permits@dep.nyc.gov.

By: DocuSigned by: Frances Leung 8AE9809992814A0...
Frances Leung, P.E., Chief
Division of Pollution Prevention and Monitoring
Bureau of Wastewater Treatment

Issued this 26th day of July, 2023

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PART I - SPECIFIC CONDITIONS

SECTION A. DISCHARGE LIMITATIONS

1. Discharge Points

The Industrial User is authorized to discharge leachate generated from the Brookfield Avenue Landfill, subject to the conditions in this Permit, through the discharge point(s) listed below to the New York City sewerage system.

DISCHARGE POINT	DESCRIPTION
M1	A 6" diameter pipe discharging leachate into the sewer, located 54" below the ground in a 24" diameter manhole. The manhole is situated 192" from the facility driveway/walkway and 312" from a fence facing Entrance Road 1.

2. Sewer Use Limits

The discharge from point **M1** shall not exceed the following New York City sewer use limits, including but not limited to:

SEWER USE LIMITS
(15 R.C.N.Y. ch. 19)

POLLUTANT	PERMISSIBLE MAXIMUM CONCENTRATION FOR ANY GIVEN TIME (MG/L)	DAILY MAXIMUM CONCENTRATION (MG/L)
pH	5.0–12.0 Standard Units	—
Cadmium	2.0	0.69
Chromium (Hexavalent)	5.0	—
Copper	5.0	—
Lead	2.0	—
Mercury	0.05	—
Nickel	3.0	—
Zinc	5.0	—
Cyanide (Amenable to Chlorination)	0.2	—
Non-Polar Material	50.0	—

The discharge of leachate with temperature above 150 degrees Fahrenheit and/or closed-

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cup flash point below 140 degrees Fahrenheit (using the test methods specified in 40 C. F. R. 261.21) at any time is prohibited.

The following limits shall also apply:

Pollutant	Permissible Maximum Concentration for any Given Time
Total Suspended Solids (TSS)	350 ppm
Maximum Flow Rate	288,000 GPD
Methyl-Tert-Butyl-Ether (MTBE)	50 ppb
Tetrachloroethylene (Perc)	20 ppb
Total PCB*	1 ppb

Pollutant	Daily Limit (ppb)	Monthly Limit (ppb)
Benzene	134	57
Ethylbenzene	380	142
Naphthalene	47	19
Toluene	74	28
Xylenes (Total)	74	28

* Total PCBs shall equal the sum of all concentrations of the 7 PCB compounds listed on pages I-4 and I-5 of this Permit.

SECTION B. MONITORING REQUIREMENTS

1. Sampling

The Industrial User shall monitor the specified discharge points for the pollutants listed below. All sampling shall take place on days representative of normal operations. Sampling shall be conducted in accordance with 40 C.F.R. § 403.12(g)(3) which states, in pertinent part, that grab samples must be used for pH, cyanide, total phenols, oil and grease, sulfide, and volatile organic compounds. For all other pollutants, 24-hour composite samples must be obtained through flow-proportional composite sampling techniques, unless time-proportional composite sampling or grab sampling is authorized by the [Department]. Where time-proportional composite sampling or grab sampling is authorized by the [Department], the samples must be representative of the discharge. Where the Industrial

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User batch discharges, the company must state how it will take representative samples.

POLLUTANT	SAMPLE LOCATION	FREQUENCY	SAMPLE TYPE
VOLATILE ORGANICS (VOC)			
Benzene	**M1**	Once a month	4 grab samples, taken at least 1 hour apart for 1 day. Each grab sample must be individually preserved and sent to a certified laboratory. The laboratory may then composite the grab samples.
Ethylbenzene	**M1**	" "	" "
Methyl-Tert-Butyl-Ether (MTBE)	**M1**	" "	" "
Tetrachloroethylene (Perc)	**M1**	" "	" "
Toluene	**M1**	" "	" "
Xylenes	**M1**	" "	" "
Carbon tetrachloride	**M1**	" "	" "
Chloroform	**M1**	" "	" "
1,1,1-trichloroethane	**M1**	" "	" "
SEMI-VOLATILE ORGANICS			
Naphthalene	**M1**	Once a month	A one-day composite sample.
1,4-dichlorobenzene	**M1**	" "	" "
Phenol	**M1**	" "	" "
1,2,4-trichlorobenzene	**M1**	" "	" "
PCB-1016[3] (Arochlor 1016)	**M1**	" "	" "
PCB-1242[3] (Arochlor 1242)	**M1**	" "	" "
PCB-1254[3] (Arochlor 1254)	**M1**	" "	" "

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POLLUTANT	SAMPLE LOCATION	FREQUENCY	SAMPLE TYPE
PCB-1221[3] (Arochlor 1221)	**M1**	Once a month	A one-day composite sample.
PCB-1232[3] (Arochlor 1232)	**M1**	" "	" "
PCB-1248[3] (Arochlor 1248)	**M1**	" "	" "
PCB-1260[3] (Arochlor 1260)	**M1**	" "	" "
OTHER TOXIC ORGANICS OF CONCERN[1]			
1) Volatile Organics (VOC)	**M1**	Once a month	4 grab samples, taken at least 1 hour apart for 1 day. Each grab sample must be individually preserved and sent to a certified laboratory. The laboratory may then composite the grab samples. See Part II, Sect. C (1).
2) Semi-Volatile Organics	**M1**	" "	A one-day composite sample. See Part II, Sect. C (1).
OTHER POLLUTANTS, PH, AND FLOW			
Cadmium	**M1**	Once a month	A one-day composite sample.
Chromium (Total)	**M1**	" "	" "
Chromium (Hexavalent)[2]	**M1**	" "	" "
Copper	**M1**	" "	" "
Lead	**M1**	" "	" "
Mercury	**M1**	" "	" "
Molybdenum	**M1**	" "	" "
Nickel	**M1**	" "	" "
Silver	**M1**	" "	" "
Zinc	**M1**	" "	" "

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POLLUTANT	SAMPLE LOCATION	FREQUENCY	SAMPLE TYPE
Carbonaceous Biochemical Oxygen Demand (CBOD)	**M1**	Once a month	A one-day composite sample.
Total Nitrogen	**M1**	" "	" "
Chloride	**M1**	" "	" "
Cyanide (Total)	**M1**	" "	4 grab samples, taken at least 1 hour apart for 1 day. Each grab sample must be individually preserved and sent to a certified laboratory. The laboratory should then composite the 4 grab samples.
Cyanide (Amenable)[4]	**M1**	" "	" "
Total Suspended Solids (TSS)	**M1**	" "	4 grab samples, taken at least 1 hour apart for 1 day. Each grab sample must be individually preserved and sent to a certified laboratory.
Non- Polar Material	**M1**	" "	" "
pH	**M1**	" "	Either by 4 in situ measurements or by 4 grab samples, each taken at least 1 hour apart.

FOOTNOTES TO MONITORING REQUIREMENTS

1. Monitoring for Other Toxic Organics of Concern (OTOC) may not be required. See Part II, Sect. C(1). OTOC are comprised of two subcategories, volatile organic compounds (VOCs) and semi-volatile organic compounds. There are different sampling methods for each subcategory (See Part 1, Sect. B. Monitoring Requirements). These compounds include:

	(1)	acenaphtene	VOC	(7)	1,2-dichloroethane
VOC	(2)	acrolein		(8)	hexachloroethane
VOC	(3)	acrylonitrile	VOC	(9)	1,1-dichloroethane
	(4)	benzidine	VOC	(10)	1,1,2-trichloroethane
VOC	(5)	chlorobenzene	VOC	(11)	1,1,2,2-tetrachloroethane
	(6)	hexachlorobenzene	VOC	(12)	chloroethane

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	(13)	bis (2-chloroethyl) ether
VOC	(14)	2-chloroethylvinyl ether (mixed)
	(15)	2-chloronaphthalene
	(16)	2,4,6-trichlorophenol
	(17)	parachlorometa cresol
	(18)	2-chlorophenol
	(19)	1,2-dichlorobenzene
	(20)	1,3-dichlorobenzene
	(21)	3,3-dichlorobenzidine
VOC	(22)	1,1-dichloroethylene
VOC	(23)	1,2-trans-dichloroethylene
	(24)	2,4-dichlorophenol
VOC	(25)	1,2-dichloropropane
VOC	(26)	1,3-dichloropropylene (1,3-dichloropropene)
	(27)	2,4-dimethylphenol
	(28)	2,4-dinitrotoluene
	(29)	2,6-dinitrotoluene
	(30)	1,2-diphenylhydrazine
	(31)	fluoranthene
	(32)	4-chlorophenyl phenyl ether
	(33)	4-bromophenyl phenyl ether
	(34)	bis (2-chloroisopropyl) ether
	(35)	bis (2-chloroethoxy) methane
VOC	(36)	methylene chloride (dichloromethane)
VOC	(37)	methyl chloride (chloromethane)
VOC	(38)	methyl bromide (bromomethane)
VOC	(39)	bromoform (tribromomethane)
VOC	(40)	dichlorobromomethane
VOC	(41)	chlorodibromomethane
	(42)	hexachlorobutadiene
	(43)	hexachlorocyclopentadiene
	(44)	isophorone
	(45)	nitrobenzene
	(46)	2-nitrophenol
	(47)	4-nitrophenol
	(48)	2,4-dinitrophenol
	(49)	4,6-dinitro-o-cresol
	(50)	n-nitrosodimethylamine
	(51)	n-nitrosodiphenylamine
	(52)	n-nitrosodi-n-propylamine
	(53)	pentachlorophenol
	(54)	bis (2-ethylhexyl) phthalate
	(55)	butyl benzyl phthalate
	(56)	di-n-butyl phthalate
	(57)	di-n-octyl phthalate
	(58)	diethyl phthalate
	(59)	dimethyl phthalate
	(60)	1,2-benzanthracene (benzo(a)anthracene)
	(61)	benzo(a)pyrene (3,4-benzopyrene)
	(62)	3,4-benzofluoranthene (benzo(b)fluoranthene)
	(63)	11,12-benzofluoranthene (benzo(k)fluoranthene)
	(64)	chrysene
	(65)	acenaphthylene
	(66)	anthracene
	(67)	1,12-benzoperylene (benzo(ghi)perylene)
	(68)	fluorene
	(69)	phenanthrene
	(70)	1,2,5,6-dibenzanthracene (dibenzo(a,h)anthracene)
	(71)	indeno (1,2,3-cd) pyrene (2,3-o-phenylene pyrene)
	(72)	pyrene
VOC	(73)	trichloroethylene
VOC	(74)	vinyl chloride (chloroethylene)
	(75)	aldrin
	(76)	dieldrin
	(77)	chlordane (technical mixture and metabolites)
	(78)	4,4-DDT
	(79)	4,4-DDE (p,p-DDX)
	(80)	4,4-DDD (p,p-TDE)
	(81)	alpha-endosulfan
	(82)	beta-endosulfan
	(83)	endosulfan sulfate
	(84)	endrin
	(85)	endrin aldehyde
	(86)	heptachlor
	(87)	heptachlor epoxide (BHC-hexachlorocyclohexane)
	(88)	alpha-BHC
	(89)	beta-BHC
	(90)	gamma-BHC

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(91) delta-BHC
(92) toxaphene
(93) 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)
(94) azinophos-methyl
(95) chlorpyrifos
(96) demeton
(97) halomethanes
(98) manganese (inorganic element)
(99) methoxychlor
(100) pentachlorinated ethane
(101) 2,3,4,6-tetrachlorophenol

2. If the Chromium (Total) level at discharge point **M1**, is less than or equal to 5.0 mg/L, then analyzing for Chromium (Hexavalent) at that point is not required. The Chromium (Total) level can be submitted in lieu of analyzing for Chromium (Hexavalent).

3. The analysis of PCB compounds must be done by EPA Method 608, with a method detection level less than or equal to 65 ppt.

4. If the Cyanide (Total) level at discharge point **M1**, is less than or equal to 0.2 mg/L, then analyzing for Cyanide (Amenable) at that point is not required. The Cyanide (Total) level can be submitted in lieu of analyzing for Cyanide (Amenable).

2. Additional Monitoring Requirements

See Part II, Sect. C for additional monitoring requirements.

SECTION C. REPORTING REQUIREMENTS

1. Periodic Reports Concerning Continued Compliance

The Industrial User shall implement a self-monitoring program, as required in Part I, Sect. B of this Permit. Reports are due on a quarterly basis as follows:

Monitoring Period	Report Due Date
June 1 to August 31	**September 30**
September 1 to November 30	**December 31**
December 1 to February 28	**March 31**
March 1 to May 31	**June 30**

Reports must be received by the Department on or before the due dates specified above.

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2. Additional Reporting Requirements

See Part II, Sect. D for additional reporting requirements.

3. Submission of Reports and Notices

The self-monitoring report and all other reports and notices required by this Permit shall be submitted to the Department at the following address, unless otherwise indicated:

Sean Hulbert, P.E., Acting Chief
Industrial Resource Management and Permitting Section
Bureau of Wastewater Treatment
New York City Department of Environmental Protection
96-05 Horace Harding Expressway
Corona, New York 11368

It is recommended that you send all reports and notices by certified mail in the event that you are required to prove that such reports or notices were submitted in a timely manner.

4. Reporting Format

a. Periodic reports shall be submitted on the Department's Industrial User **Self-Monitoring Report Form**.

b. Analytical results submitted to the Department for any reason, including but not limited to self-monitoring reports, split sampling, and pursuant to Commissioner's Orders, shall be reported by the certified laboratory performing the analysis in a format consistent with the Department's **Analytical Report Form**. The sampling points referenced on the Analytical Report Form must be identified exactly as they are in the Industrial User's Permit.

c. Copies of the Self-Monitoring Report Form and the Analytical Report Form are enclosed with this Permit. Additional copies are also available from the Department upon request.

SECTION D. SPECIAL CONDITIONS

1. The Industrial User must maintain a logbook on daily volume of discharge (in gallons per day). **A copy of the logbook entries for the monitoring period must be submitted in each self-monitoring report.**

2. Storm Water Monitoring Requirement:

   a. The Industrial User is prohibited, at all times, from engaging in industrial activities at its facility that might result in the discharge of contaminated storm water from the facility. Such industrial activities include, but are not limited to,

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outdoor storage of chemicals, drums or containers, outdoor material handling, etc. All such industrial activities constitute a violation of this Permit.

b. If the Industrial User wishes to engage in any such industrial activity at its facility, the Industrial User shall submit a written request to the Industrial Resource Management and Permitting Section (IRMPS) and must obtain a written approval from IRMPS prior to commencing any such industrial activity. Engaging in such industrial activity without receiving prior written approval from IPP constitutes a violation of this Permit.

c. In lieu of sampling the facility's storm water runoff, the Industrial User must make the following certification in its periodic self-monitoring reports:

CERTIFICATION OF NO CONTAMINATED STORM WATER RUNOFF FROM FACILITY

"Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, there was no contaminated storm water runoff from this facility during the reporting period covered by this report. Storm water runoff becomes contaminated when exposed to material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, industrial machinery or operations, or significant materials from past industrial activity that are located in areas of the facility and that are within the drainage area of the runoff. I further certify that this facility is implementing a storm water pollution prevention plan to protect against the release of pollutants to the environment. I certify that I am duly authorized by the establishment to make this statement on its behalf and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

Name (print): _____ Signature: _____

Title: _____ Date:_____ Phone#_____

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PART II - GENERAL CONDITIONS

SECTION A. DEFINITIONS AND STANDARD CONDITIONS

1) Definitions

a. Allowable Runoff - Non-stormwater discharges associated with firefighting activities or as otherwise authorized by the Commissioner pursuant to this chapter.

b. Biochemical Oxygen Demand - The laboratory determination of the quantity of oxygen utilized in the biochemical oxidation of organic matter in a given time and at a specified temperature. It is expressed in parts per million (ppm) or (mg/L) of oxygen used in a period of five days at 20 degrees Celsius.

c. Bypass - The intentional diversion of wastes from any portion of a treatment system.

d. Commissioner - The Commissioner of the New York City Department of Environmental Protection.

e. Composite Sample - A sample composed of two or more discrete samples. The aggregate sample will reflect the average water quality covering the compositing or sample period.

f. Cooling water - The water discharged from any system of condensation, air conditioning, cooling, refrigeration, or other similar temperature reducing sources. It shall contain no polluting substances which would produce BOD or SS in excess of 10 mg/L or toxic substances in concentrations or amounts greater than those specified herein.

g. Daily Maximum - The maximum allowable discharge of a pollutant during a 24-hour period. Where daily maximum limitations are expressed in units of mass, the daily discharge is the total mass of the pollutant discharged over the course of the day. Where daily maximum limitations are expressed in terms of a concentration, the daily discharge is the arithmetic average measurement of the pollutant concentration derived from all measurements taken that day.

h. Department - The New York City Department of Environmental Protection.

i. Grab Sample - A sample which is taken from a wastestream on a one-time basis with no regard to the flow of the wastestream and without consideration of time. A single grab sample should be taken over a period of time not to exceed 15 minutes.

j. Indirect discharge - A discharge from a private sewer to a public sewer, or a discharge to any street, gutter, pipe, channel, pumping station, catch basin, drain, waterway, or other conveyance leading to or connecting with a public sewer, including but not limited

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to the placement or abandonment of any substance which could reasonably enter a public sewer under the force of stormwater or other influence.

k. Industrial User - A source of Indirect Discharge.

l. Instantaneous Maximum Concentration - The maximum concentration allowed in any single grab sample.

m. Interference - A discharge that alone or in conjunction with a discharge or discharges from other sources both:

i) Inhibits or disrupts the POTW, its treatment processes or operations or its sludge processes, use or disposal; and

ii) Causes a violation of any requirement of the POTW's SPDES Permit (including an increase in the magnitude or duration of a violation) or prevents the use or disposal of sewage sludge in compliance with the following statutory provisions and regulations or Permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA) and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act and the Marine Protection, Research and Sanctuaries Act.

n. Maximum Monthly Average - The maximum allowable value for the monthly average.

o. Monthly Average - The average of all samples taken during one calendar month. Thus, if only one sample is taken during a calendar month, the monthly average for that month will be based on only that one sample.

p. Pass Through - A discharge that exits the POTW into waters of the United States in quantities or concentrations that, alone or in conjunction with a discharge or discharges from other sources, cause a violation of any requirement of the POTW's SPDES Permit (including an increase in the magnitude or duration of a violation).

q. Publicly Owned Treatment Works (POTW) - A treatment works as defined by Section 212 of the Clean Water Act that is owned by the State or municipality. This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW treatment plant.

r. Resource Conservation and Recovery Act (RCRA) - A Federal statute regulating the management of hazardous waste from its generation through ultimate disposal. The Act

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contains requirements for waste generators, transporters and owners and operators of treatment, storage and disposal facilities.

s. Sewer Use Regulations - Rules of the City of New York relating to the "Use of the Public Sewers." 15 R.C.N.Y. ch. 19.

t. Shall - mandatory.

u. Slug Discharge - Any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge, which has a reasonable potential to cause interference or pass through, or in any other way violate the POTW's regulations, local limits or permit conditions.

v. Stormwater - Runoff that is generated when precipitation from rain events or snowmelt flows overland and does not percolate into the ground.

w. Toxic Organics - Either the organic compounds listed in the definition of Total Toxic Organics (TTO) in Part I, Sect. A (2), and the Other Toxic Organics of Concern (OTOC) listed in Part I, Sect. B (1); or the Toxic Organics of Concern listed in Part I, Sect. B (1).

x. Upset - An exceptional incident in which there is unintentional and temporary noncompliance with technology based Permit effluent limitations because of factors beyond the reasonable control of the Industrial User, excluding such factors as operational error, improperly designed or inadequate treatment facilities or improper operation and maintenance or lack thereof.

2) Severability

The provisions of this Permit are severable, and if any provision of this Permit or the application of any provision of this Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Permit, shall not be affected thereby.

3) Duty to Comply

The Industrial User must comply with the provisions of the New York City Administrative Code (NYCAC) and the Sewer Use Regulations promulgated pursuant thereto, and all conditions of this Permit. Failure to comply with these requirements may be grounds for administrative action, or enforcement proceedings including civil and/or criminal penalties, injunctive relief and summary abatements.

4) Duty to Mitigate

The Industrial User shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Permit, including, but not limited to, such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

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5) Permit Action

This Permit may be modified, revoked and reissued, or terminated for good cause, including, but not limited to, the following:

a) Incorporation of any new or revised Federal, State, or local pretreatment standards or requirements;

b) Material or substantial alterations or additions to the discharger's operations that were not covered in the effective Permit;

c) A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge;

d) Information indicating that the Permitted discharge poses a threat to the New York City collection and treatment systems, POTW personnel or the receiving waters;

e) Violation of any terms or conditions of this Permit;

f) Obtaining this Permit by misrepresentation or failure to disclose fully all relevant facts;

g) Upon request of the Industrial User, provided such request does not create a violation of any existing applicable requirements, standards, laws, or rules and regulations; or

h) Correction of typographical or other errors in the Permit.

The filing of a request by the Industrial User for a Permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any Permit condition.

6) Property Rights

The issuance of this Permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private or public property or any invasion of personal rights, nor any violation of Federal, State or local laws or regulations.

7) Limitation on Permit Transfer

This wastewater discharge Permit is issued to the named Industrial User for the specific operation(s) described herein. It is not assignable to any other named individual or entity or transferable to any other location without the prior written approval of the Department. Any change in the name of the Industrial User shall be considered to be such an assignment. The sale of 50% or more of the stock of the Industrial User, if the Industrial User is a corporation, or the change of any partners, general or limited, if the Industrial User is a partnership, or the change in ownership, if the Industrial User is a sole proprietorship, shall also be considered an assignment. In the event

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of such a sale, the Industrial User must inform the purchaser of all responsibilities and obligations under this Permit.

8) Duty to Reapply

If the Industrial User wishes to continue to discharge any process or regulated wastewater after the expiration date of this Permit, the Industrial User must request and obtain a new Permit. The request must be submitted at least 120 days before the expiration date to Bwt-permits@dep.nyc.gov.

9) Dilution

The Industrial User shall not increase the use of process water or, in any way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the limitations contained in this Permit.

The Industrial User shall post a Dilution Notice in a conspicuous manner. The Dilution Notice shall state that the New York City Department of Environmental Protection is to be notified of the illegal dilution of any wastewater discharges or any illegal discharges by calling 311, New York City's General Information Number. You must ask for and record your complaint number for proof of compliance with your notification requirements. The Dilution Notice shall include the following definition of illegal dilution: Illegal dilution is an increase in the use of process water, or any other attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with a Pretreatment Standard or Requirement.

10) General Prohibitive Standards

The Industrial User shall comply with all of the general prohibitive discharge standards in the General Pretreatment Regulations, 40 C.F.R. pt. 403 and the Department's Sewer Use Regulations.

The Industrial User shall not discharge or cause to be discharged, directly or indirectly, into any storm sewer, catch basin, or manhole any substance other than stormwater or allowable runoff.

Except as expressly allowed by this Permit, if the Industrial User discharges or causes to be discharged, including any placement, run, leak, or escape into any combined or sanitary sewer, pipe, channel, pumping station, catch basins, drain connecting with any combined or sanitary sewer or any other sewer appurtenances, or green infrastructure, or waterway connecting with any combined or sanitary sewer, or into any private sewer connected with a combined or sanitary sewer any of the following described materials, substances or wastes, except as authorized in writing by the Commissioner or such small quantities through a building drainage system as may be present in normal household wastes, shall be strictly liable, without regard to fault:

a) Construction materials, concrete or concrete contaminated water, ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastic, wood, paunch manure, coffee grounds, fur, wax, power wash waste, building wash waste, fats, oils, grease, or any solids

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or viscous substances capable of causing obstruction to the flow in sewers or other interference with the proper operation of the sewerage system. No amount of the following shall be considered normal household wastes for purposes of this section: wipes that are not flushable, diapers, paper towels, floss, condoms, razors, hypodermic needles, contact lenses, bandages, sanitary pads, tampons, tampon applicators, gauze, cotton balls, swabs, any other personal hygiene products, drinking straws, any other items that are not toilet paper, sanitary waste, or items that have otherwise been authorized in writing by the Commissioner;

b) Snow and ice at locations not authorized in writing by the Commissioner;

c) Steam or wastewater above 150°F;

d) Flammable or explosive liquids, solids or gases, including but not limited to gasoline, benzene and naphtha (notwithstanding anything to the contrary contained in these Regulations, under no circumstances may any such substances be discharged into the sewerage system, even if diluted prior to or after discharge);

e) Oil sludges, waste oil, motor oil, heating oil, diesel and other fuels, dielectric fluid, brake fluid, transmission fluid, hydraulic fluid, or other similar substances;

f) Non-polar material, as defined in 15 RCNY § 19-01, in concentrations greater than 50 mg/L for any given time;

g) Coal tar, its derivatives and waste;

h) Paints and related paint waste products from any source that tend to clog or otherwise interfere with the operation of the sewerage system;

i) Corrosive wastewater having a pH lower than 5.0 or higher than 12.0 or having any other corrosive property likely to cause damage to structures or equipment of the sewerage system or create a hazard to personnel;

j) Toxic substances in such quantities, which may when discharged from a single source or in combination with other sources:

(i) interfere with any sewage treatment process, including sludge digestion;

(ii) limit the City's options for operating its sewerage system or disposing of the sewage sludge, grit or scum generated at wastewater resource recovery facilities;

(iii) be detrimental to the health of human beings, animals, or aquatic life;

(iv) have any negative impact on the receiving waters; or

(v) violate federal or state laws or regulations or the requirements of a discharge permit of a sewage treatment plant issued pursuant to § 402 of the Federal Water Pollution Control

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Act, commonly referred to as the Clean Water Act, as amended, or any other permit issued pursuant to federal or state law.

k) Toxic substances in such quantities which may, when discharged from a single source or in combination with other sources:

(i) violate any federal or state laws, regulations, rules or standards governing such discharge; or

(ii) violate the toxic discharge limits to be set by the Commissioner, contained in a list to be maintained by the Commissioner and which may be published from time to time in the City Record, or

(iii) violate any discharge limit contained in 15 RCNY § 19-04(a) or ordered pursuant to 15 RCNY § 19-04(b).

l) Any liquids or wastes containing pollutants of such quality and/or quantity that become burdensome in the operation and maintenance of a sewage treatment plant;

m) Any noxious or malodorous gas or substance capable of creating a public nuisance;

n) Any wastewater or substance, that in the opinion of the Commissioner, will result in a violation of any applicable Federal, State or local water quality standard concerning discoloration or other undesirable physical changes in the appearance of the receiving waters;

o) Radioactive material either directly or indirectly into the sewerage system, unless all restrictions, prohibitions, and requirements of 24 RCNY Health Code Article 175 are fully complied with

p) Any still bottom or sludge residues resulting from dry cleaning processes including, but not limited to, dirt, lint, soil and any other deposits or residues extracted as a result of any dry cleaning processes. The discharge of filters or filter media used in dry cleaning processes is also prohibited;

q. Antifreeze;

r. Hazardous waste pharmaceuticals, as defined in the Code of Federal Regulations, in 40 C.F.R. Part 266.500.

11) Compliance with Applicable Pretreatment Standards and Requirements

The Industrial User shall comply at all times with any and all applicable local, State and Federal pretreatment standards and requirements, including any such standards or requirements that may become effective during the term of this Permit.

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12) Combined Sewer Overflow (CSO) Prevention

The Industrial User shall hold its process wastewater and non-contact cooling water to the maximum extent practicable during heavy rainfall.

13) Confidentiality

As provided in Section 19-09 of the Sewer Use Regulations, any information submitted to the Department, except for discharge and effluent data, may be claimed by the discharger to be confidential. Any such claim must be asserted at the time of submission of the information and should contain a stamped legend or any other suitable form of notice on each page containing such information, employing language such as trade secret, proprietary or confidential business information. If no claim is asserted at the time of submission, the information may be made available to the public without further notice. If a claim is asserted, it will be treated in accordance with Section 19-09.

Effluent data shall be available to the public without restriction.

14) Duty to Provide Information

The Industrial User shall furnish to the Department within a reasonable time, any information that the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Industrial User shall also furnish to the Department, upon request, copies of records required to be kept by this Permit.

15) Annual Publication by the Department

A list of all Industrial Users who, at any time during the previous twelve (12) months, were in significant noncompliance with applicable pretreatment requirements shall be annually published by the Department in a newspaper of general circulation that provides meaningful public notice within the city of New York, as required by 40 C.F.R. Part 403.8(f)(2)(viii) and Section 19-10(g) of the Sewer Use Regulations.

16) Civil and Criminal Liability

Nothing in this Permit shall be construed to relieve the Industrial User from civil and/or criminal penalties for noncompliance under Section 24-524 (f) of the NYCAC.

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17) Penalties for Violations of Permit Conditions

Section 24-524 (f) of NYCAC provides that any person who fails to comply with any of the provisions of Sections 24-504 through 24-522 and 24-523 of the Code, the Sewer Use Regulations, Order of the Commissioner or Environmental Control Board or a Permit condition shall be liable for a civil penalty of up to $10,000.00 for each violation. In the case of a continuing violation, each day's continuance shall be a separate and distinct offense. In addition to civil penalties, any person who knowingly violates or fails to comply with any of the above-cited provisions shall be guilty of a misdemeanor and subject to a fine of up to $10,000.00 and/or to imprisonment not exceeding thirty days. The Industrial User may also be subject to sanctions under State and/or Federal law.

SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROL SYSTEMS

1) Proper Operation and Maintenance

The Industrial User shall at all times properly operate and maintain all facilities and systems for treatment, monitoring and control (and related appurtenances) that are installed or used by the Industrial User to achieve compliance with the conditions of this Permit. Proper operation and maintenance includes, but is not limited to, effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the Permit.

2) Duty to Halt or Reduce Activity

Upon reduction of efficiency of operation or loss or failure of all or part of the pretreatment facility, the Industrial User shall, to the extent necessary to maintain compliance with its Permit, control production or all discharges or both until operation of the pretreatment facility is restored or an alternative method of pretreatment is provided. This requirement applies, for example, when the primary source of power of the pretreatment facility fails or is reduced. It shall not be a defense for an Industrial User in an enforcement action to state that it would have been necessary to halt or reduce the Permitted activity in order to maintain compliance with the conditions of this Permit.

3) Bypass of Pretreatment Facilities

a) Bypass is prohibited unless

i) it is unavoidable to prevent loss of life, personal injury, or severe property damage, no feasible alternatives exist, and the Industrial User submits notification as required by subparagraph (b) of this paragraph; or

ii) it is for essential maintenance to assure efficient operation, it does not cause pretreatment standards or requirements to be violated, and the Industrial User submits notification as required by subparagraph (b) of this paragraph.

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b) Notification of bypass:

i) Anticipated bypass - If the Industrial User knows in advance of the need for a bypass, it shall submit prior written notice, at least ten days before the date of the bypass, to the Department.

ii) Unanticipated bypass - The Industrial User shall immediately notify the Department by calling 311, New York City's General Information Number, and shall submit a written notice to the Department within 5 days after the bypass. This report shall specify:

(1) a description of the bypass, its cause and duration;
(2) whether the bypass has been corrected; and
(3) the steps being taken or to be taken to reduce, eliminate and prevent a recurrence of the bypass.

When calling 311, you must ask for and record your complaint number for proof of compliance with your notification requirements.

4) Disposal of Hazardous Wastes

All solids, sludges, resins or residues, filter backwash or other pollutants removed in the course of pretreatment or control of wastewater shall be handled and disposed of in accordance with all New York State hazardous wastes requirements and RCRA requirements including, but not limited to, subtitles C and D thereof.

SECTION C. MONITORING AND RECORDS

1) Toxic Organics

The Industrial User may not use the certifications provided below for any organic pollutants for which sampling is required under the Industrial User's applicable Federal Categorical Standards. The Industrial User must sample and analyze its wastewater for all such organic pollutants.

The Industrial User shall satisfy the following Toxic Organics requirements:

a) Indicate in each periodic report concerning continued compliance as required by Part I, Sect. C of this Permit which Toxic Organics, if any, were used or stored during the reporting period, and their amounts.

b) Sample and analyze its wastewater for those Toxic Organics that would reasonably be expected to be present.

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c) In lieu of monitoring for Toxic Organics and upon scribed request, the Department may allow the Industrial User to make one of the following certifications in its periodic self-monitoring reports:

i) "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, no toxic organics were used or stored at my facility during the reporting period covered by this report. I certify that I am duly authorized by the establishment to make this statement on its behalf and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

OR

ii) "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, there was no discharge to a public sewer of toxic organics during the reporting period covered by this report. I also certify that the explanations provided concerning the disposal of toxic organics from the facility are true, accurate and complete. I further certify that this facility is implementing a toxic organics management plan to protect against the release of such compounds to a public sewer. I certify that I am duly authorized by the establishment to make this statement on its behalf and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

If certification **(ii)** is made, the facility must also submit a Toxic Organics Management Plan (TOMP) for approval by the Department. An acceptable TOMP must contain:

i) a list of all toxic organic compounds used or stored at your facility; and

ii) a description of the storage, handling and disposal practices for control of toxic compounds at your facility, including procedures for ensuring that toxic organics do not spill or leak into your wastewater.

2) <u>Sampling and Analysis</u>

a) Samples and measurements taken as required in this Permit shall be representative of the volume and nature of the monitored discharge. Samples shall be taken at the monitoring points specified in this Permit and, unless otherwise specified, before the effluent joins or is diluted by any other wastestream, body of water or substance. Monitoring points shall not be changed without prior written approval of the Department.

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b) All handling and preservation of collected samples and laboratory analyses of samples shall be performed in accordance with 40 C.F.R. pt. 136. If 40 C.F.R. pt. 136 does not cover the pollutant in question, the handling, preservation, and analysis must be performed in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater." All analyses shall be performed using a detection limit less than the lowest applicable regulatory discharge limit.

c) All laboratory analyses must be conducted by a New York State Health Department certified wastewater laboratory. The results must be certified by the laboratory and submitted on the laboratory's letterhead. For each sample, the laboratory report must indicate the date of sampling, time sample was taken, sample location, chain of custody, sampling preservation procedures, analytical techniques used, date of analysis, units of measurement, and the laboratory's sample identification; where the analytical result reported is below the method detection level, the laboratory report must also indicate the method detection level.

3) Flow Measurements

If flow measurements are required by this Permit, the appropriate flow measurement devices and methods consistent with approved scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharge. The devices shall be installed, calibrated and maintained to ensure that the accuracy of the measurements are consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than 10% from true discharge rates throughout the range of expected discharge volumes.

4) Inspection and Entry

The Industrial User shall allow duly authorized representatives of the Department to:

a) Enter upon the Industrial User's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Permit;

b) Have access to and copy, at reasonable times, any records that must be kept by law or regulation and/or under the conditions of this Permit;

c) Inspect, videotape, photograph or otherwise record at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit;

d) Sample or monitor, for the purposes of assuring Permit compliance, any substance or parameters at any location; and

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e) Inspect, videotape, photograph or otherwise record any production, manufacturing, fabricating or storage area where pollutants, regulated or required under this Permit could originate, be stored or be discharged to the public sewer.

The applicant, by accepting any Permit issued, does hereby consent and agree to entry upon the premises as described herein.

5) Retention of Records

a) The Industrial User shall retain records of all monitoring information, including all calibration and maintenance records and original strip chart recordings for all continuous monitoring instrumentation, copies of all reports required by this Permit, and records of all data used to complete the application for this Permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by order of the Commissioner at any time, and shall also be extended during the course of any unresolved litigation regarding the IU or POTW or when requested by the Director (as defined in 40 C.F.R. § 403.3(g)) or the United States Environmental Protection Agency Regional Administrator.

b) All records that pertain to matters that are the subject of or related to special orders or any other enforcement or litigation activities brought by the Department regarding the IU or POTW or when requested by the Director (as defined in 40 C.F.R. § 403.3(g)) or the United States Environmental Protection Agency Regional Administrator shall be retained and preserved by the Industrial User until all enforcement activities have concluded and all periods of limitations with respect to any and all appeals have expired.

6) Record Contents

Records of sampling information shall include:

a) The date, exact place, time and methods of sampling or measurement, and sample preservation techniques or procedures;

b) Who performed the sampling or measurements;

c) The date(s) analyses were performed;

d) Laboratory that performed the analyses;

e) The analytical techniques or methods used;

f) The results of each analysis;

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g) The chain of custody of each sample;

h) Method detection level where analytical result reported is non-detect;

i) Units of measurement for each analytical result; and

j) Laboratory's sample identification for each sample.

7) Falsifying Information

It is unlawful to make any false statement representation or certification in any application, report, plan or other document required by this Permit or to falsify, tamper with or knowingly render any monitoring device or method inaccurate.

SECTION D. ADDITIONAL REPORTING REQUIREMENTS

1) Additional Monitoring

If the Industrial User monitors any pollutant more frequently than required by this Permit, using test procedures prescribed in 40 C.F.R. pt. 136 or otherwise approved by EPA or specified in this Permit, the results of such monitoring shall be submitted to the Department in its next self-monitoring report.

2) Automatic Resampling

If the results of the Industrial User's wastewater discharge sampling indicates a violation, the Industrial User shall:

a) notify the Department within 24 hours of becoming aware of the violation; and

b) repeat the sampling and analysis and submit the results of the second analysis to the Department within 30 days after becoming aware of the violation.

3) Split Sampling Results

If the Industrial User requests and analyzes a split sample(s) during a Department sampling event, the results of such analysis shall not be considered as valid samples for determining compliance unless all handling and preservation of collected samples and laboratory analyses of samples have been performed in accordance with 40 C.F.R. pt. 136, as per Part II, Section (C)(2)(b) of this Permit, and such sample results have been submitted to the Department within 45 days of the date that the Industrial User received the sample(s) from the Department.

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4) Accidental Discharge Notification

In the event of an accidental discharge in violation of any provision of the Sewer Use Regulations, the Industrial User shall immediately notify the Department, at any hour, by calling 311, New York City's General Information Number. You must ask for and record your complaint number for proof of compliance with your notification requirements.

Within five days following an accidental discharge, the Industrial User shall submit to the Department a detailed written report. The report shall specify:

a) the description of the accidental discharge, the cause thereof, and the impact on the Industrial User's compliance status, including the location of discharge, type, concentration and volume of waste;

b) the duration of noncompliance, including exact dates and time of noncompliance, and if the noncompliance continues, the time by which compliance is reasonably expected to occur; and

c) all steps taken to reduce, eliminate and prevent recurrence of such an upset, slug, accidental discharge, or other conditions of noncompliance.

5) Operating Upsets

Any Industrial User that experiences an upset in operations that places the Industrial User in a temporary state of noncompliance with the provisions of either this Permit or the Sewer Use Regulations, shall inform the Department immediately after becoming aware of the upset by calling 311, New York City's General Information Number. You must ask for and record your complaint number for proof of compliance with your notification requirements.

A written follow-up report thereof shall be filed by the Industrial User with the Department within five (5) days. The report shall specify:

a) the description of the upset or slug discharge, the cause(s) thereof and the upset's or slug discharge's impact on the Industrial User's compliance status;

b) the duration of noncompliance, including exact dates and times of noncompliance, and if the noncompliance continues, the time by which compliance is reasonably expected to occur; and

c) all steps taken or to be taken to reduce, eliminate and prevent recurrence of such an upset, slug discharge or other conditions of noncompliance.

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6) Planned Changes

The Industrial User shall give written notice to the Department 90 days prior to any change in the Industrial User's name or address, or any facility expansion, production increase, or process modification that results in new or substantially increased discharges or a change in the nature of the discharge. The Industrial User shall also provide written notice 90 days prior to discontinuing any regulated process. The Industrial User shall notify the Department immediately of any changes at its facility affecting its potential for a slug discharge.

7) Anticipated Noncompliance

The Industrial User shall give a minimum of ten days advance notice to the Department of any planned changes in the Permitted facility or activity that may result in noncompliance with this Permit.

8) Signatory Requirements

All applications, reports or information submitted to the Department shall contain the following certification:

> "I certify under penalty of law that I have personally examined and am familiar with the information contained in this document and all attachments therein. Furthermore, based on my inquiry of those persons immediately responsible for obtaining the information contained in this document, I believe that this information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment."

This certification shall be signed by:

a) a responsible corporate officer if the Industrial User submitting the reports is a corporation. For the purpose of this paragraph, a responsible corporate officer means:

   i) president, secretary, treasurer or vice-president of the corporation in charge of a principal business function or any other person who performs similar policy or decision making functions for the corporation, or

   ii) the manager of one or more manufacturing, production or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit duty of making major capital investment recommendations, and initiate and direct other comprehensive measures to assure long-term environmental compliance with

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environmental laws and regulations; can ensure that the necessary systems are established or actions taken to gather complete and accurate information for control mechanism requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

b) a general partner or proprietor if the Industrial User submitting the report is a partnership or sole proprietorship, respectively.

c) a duly authorized representative of the individual designated in paragraph (a) or (b) of this section if:

i) The authorization is made in writing by the individual described in paragraph (a) or (b);

ii) The authorization specifies either an individual or a position having responsibility for the overall operation of the facility from which the industrial discharge originates, such as the position of plant manager, or a position of equivalent responsibility, or a position having overall responsibility for environmental matters for the company; and

iii) The written authorization is submitted to the Department.

If an authorization under this paragraph is no longer accurate because a different individual or position has responsibility for the overall operation of the facility or overall responsibility for the environmental matters of the company, a new authorization satisfying the requirement of this paragraph must be submitted to the Department prior to or together with any reports to be signed by an authorized representative.

THE CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Environmental Protection

Vincent Sapienza, P.E.
Commissioner

Bureau of Environmental Compliance
59-17 Junction Blvd. 9th Floor, Flushing, NY 11373
Records Control (718) 595-3855

Michael Gilsenan
Assistant Commissioner
Environmental Compliance

Industrial General Registration

Business Owner Information

Owner Information: NYC Parks

Owner Address : 117-02 Roosevelt Avenue Corona NY 11368

Application ID: **PB025811**
Issued: **11/4/2020**
Expiration: **10/21/2023**
Request ID: **313642**

FACILITY ADDRESS: Brookfield Avenue Landfill, 575 Arthur Kill Road, Staten Island, NY 10308

Type of Process	Other - Flare	Contaminants	NOx, Other - VOCs
Material Being Processed	Digester Gas		
Emission Control Type			

Emission Control	**Process Equipment**
	1 Perennial Energy Enclosed Landfill Gas Flare

Total number of units	1	ACFM/ unit	1173
Hours per day	24	Stack Height	25
Days per year	365	Exhaust Location	Other - Outside

Process Description
Flare burning unused digester gas.

PB025811

Kit Liang

Kit Liang, P.E.
Director of Engineering

DISPLAY REGISTRATION ON PREMISES NEAR EQUIPMENT

THE CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Environmental Protection

Rohit T. Aggarwala
Commissioner

Bureau of Environmental Compliance
59-17 Junction Blvd. 9th Floor, Flushing, NY 11373
Records Control (718) 595-3855

Mark N Page, Jr.
Executive Director
Environmental Compliance

Industrial General Registration

Business Owner Information

Owner Information: NYC Parks

Owner Address : 117-02 Roosevelt Avenue Corona NY 11368

Application ID: **PB025811**
Issued: **10/12/2023**
Expiration: **10/21/2026**
Request ID: **405362**

FACILITY ADDRESS: Brookfield Avenue Landfill, 575 Arthur Kill Road, StatenIsland, NY 10308

Type of Process	Other - Flare	Contaminants	NOx, Other - VOCs
Material Being Processed	Digester Gas		
Emission Control Type			

Emission Control	**Process Equipment**
1 N/A N/A	1 Perennial Energy Enclosed Landfill Gas Flare

Total number of units	1	ACFM/ unit	1173
Hours per day	24	Stack Height	25
Days per year	365	Exhaust Location	Other - Outside

Process Description
Flare burning unused digester gas.

PB025811

Kit Liang

Kit Liang, P.E.
Director of Engineering

DISPLAY REGISTRATION ON PREMISES NEAR EQUIPMENT

Division of Air Resources

Registration ID: 2-6403-00207/00005 **Ren:** 2

AIR FACILITY REGISTRATION CERTIFICATE
in accordance with 6 NYCRR Subpart 201-4

Registration Issued to:
NYC DEPT OF ENVIRONMENTAL PROTECTION
96-05 HORACE HARDING EXPY FL 5
CORONA,NY 11368

Contact:
Ryan Wilson
117-02 Roosevelt Ave
Corona,NY 11368
(718) 760-6894

Facility:
BROOKFIELD AVENUE LANDFILL
ARTHUR KILLS RD
STATEN ISLAND,NY 10314

Description:
The facility operates a BAL Gas collection system for the base of the landfill. There are 2 centrifugal blowers and a burner management system. During normal operation, one blower is on-line while other is in standby mode. The enclosed gas flare is approximately 5 feet in diameter and 25 feet in height. The strategies below are changes to be implemented to improve flare operation.

Strategy 1- Decrease Overall Flow
Under this strategy the overall flow will be reduced by 10%. If during the testing at this initial flow rate, a suitable constant operating flow rate is found (for 24/7 operation), the system will be allowed to operate at this rate with continued long-term monitored of all applicable parameters. If this this initial reduced flow rate does not produce the desired results, the flow rate will be further reduced in 10% increments. If no suitable constant flow rate (for 24/7 operation) is found, then testing will move to cycled operation as described below.

Strategy 2- Cycled Operation
Cycled operation of a gas collection and flare system is accomplished by alternating operating and rest (down periods). The rest periods allow the landfill to build up methane which is extracted by the gas collection system during the operating periods. Downtime will be minimized (kept as short as possible) while maximizing the flare performance during operating periods.

Total Number of Emission Points: 1 **Cap By Rule:** No

Division of Air Resources

Registration ID: 2-6403-00207/00005 **Ren:** 2

AIR FACILITY REGISTRATION CERTIFICATE
in accordance with 6 NYCRR Subpart 201-4

Authorized Activity By Standard Industrial Classification Code:

4953 - REFUSE SYSTEMS

Registration Effective Date: 08/29/2023 **Registration Expiration Date:** 08/28/2033

List of Regulations in Application:

6 NYCRR Part 200	General Provisions
6 NYCRR Part 201	Permits and Registrations
6 NYCRR Part 211	General Prohibitions
6 NYCRR Part 212	Process Operations
6 NYCRR Part 227	Stationary Combustion Installations
40 CFR Part 60	New Source Performance Standards

SAM LIEBLICH
REGION 2 AIR POLLUTION CONTROL ENGINEER
NYSDEC - REGION 2
47-40 21ST ST
LONG ISLAND CITY,NY 11101

This registrant is required to operate this facility in accordance with all air pollution control applicable Federal and State laws and regulations. Failure to comply with these laws and regulations is a violation of the ECL and the registrant is subject to fines and/or penalties as provided by the ECL. If ownership of this facility changes, the registrant is required to notify the Department at the address shown above using the appropriate forms and procedures within 30 days after the transfer takes place. The present registrant will continue to be responsible for all fees and penalties until the Department has been notified of any change in ownership.

APPENDIX B

LEACHATE MANAGEMENT SYSTEM

FORM LMS-1
INSPECTION CHECKLIST
LEACHATE MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL
APRIL 2024

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
4/1/2024	LSW 1	16,038.2	13,655.7	83.0	--	Pump Off	Pump Off	Diagnossing Issue	√
4/1/2024	LSW 2	7,149.4	7,146.4	0.0	--	Pump Off	Pump Off	Diagnossing Issue	√
4/1/2024	LSW 3	18,213.6	14,941.4	82.9	--	Pump Off	Pump Off	Diagnossing Issue	√
4/1/2024	LSE 1	543.3	1,189.0	0.0	--	Pump Off	Pump Off	Diagnossing Issue	√
4/1/2024	LSE 2	4,950.3	4,951.2	30.0	--	Pump Off	Pump Off	Diagnossing Issue	√
4/1/2024	LSE 3	7,537.5	32,735.1	82.1	--	Pump Off	Pump Off	Diagnossing Issue	√
4/1/2024	LSE 4	180.4	225.7	0.0	--	Pump Off	Pump Off	Diagnossing Issue	√
4/1/2024	LSE 5	2,454.2	2,856.6	0.0	--	Pump Off	Pump Off	Diagnossing Issue	√
4/1/2024	LSE 6	8,899.6	21,651.0	19.1	--	Pump Off	Pump Off	Diagnossing Issue	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
4/1/2024	√	√	√	297.1	18,960,471	9	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
4/8/2024	LSW 1	16,046.0	13,655.7	7.8	--	√	√	√	√
4/8/2024	LSW 2	7,149.4	7,146.4	0.0	--	√	√	√	√
4/8/2024	LSW 3	18,213.6	14,949.2	7.8	--	√	√	√	√
4/8/2024	LSE 1	543.3	1,196.5	7.5	--	√	√	√	√
4/8/2024	LSE 2	4,957.8	4,951.2	7.5	--	√	√	√	√
4/8/2024	LSE 3	7,537.0	32,743.0	7.4	--	√	√	√	√
4/8/2024	LSE 4	180.4	225.7	0.0	--	√	√	√	√
4/8/2024	LSE 5	2,454.2	2,856.6	0.0	--	√	√	√	√
4/8/2024	LSE 6	8,907.5	21,651.0	7.9	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
4/8/2024	√	√	√	45.9	19,124,250	59.5	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
4/15/2024	LSW 1	16,213.0	13,655.2	166.5	--	√	√	√	√
4/15/2024	LSW 2	7,149.4	7,146.4	0.0	--	√	√	√	√
4/15/2024	LSW 3	18,213.6	15,071.8	122.6	--	√	√	√	√
4/15/2024	LSE 1	543.3	1,196.5	0.0	--	√	√	√	√
4/15/2024	LSE 2	5,011.2	4,969.9	72.1	--	√	√	√	√
4/15/2024	LSE 3	7,537.5	32,910.2	167.7	--	√	√	√	√
4/15/2024	LSE 4	180.4	225.7	0.0	--	√	√	√	√
4/15/2024	LSE 5	2,454.2	2,856.6	0.0	--	√	√	√	√
4/15/2024	LSE 6	8,907.5	21,818.0	167.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
4/15/2024	√	√	√	695.9	19,893,500	18.4	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Monthly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
4/23/2024	LSW 1	16,260.8	13,655.7	48.3	--	√	√	√	√
4/23/2024	LSW 2	7,149.4	7,146.4	0.0	--	√	√	√	√
4/23/2024	LSW 3	18,213.6	15,082.2	10.4	--	√	√	√	√
4/23/2024	LSE 1	543.3	1,555.9	359.4	--	√	√	√	√
4/23/2024	LSE 2	5,036.4	5,002.8	58.1	--	√	√	√	√
4/23/2024	LSE 3	7,537.5	33,102.2	192.0	--	√	√	√	√
4/23/2024	LSE 4	180.4	225.7	0.0	--	√	√	√	√
4/23/2024	LSE 5	2,454.2	2,856.6	0.0	--	√	√	√	√
4/23/2024	LSE 6	8,907.5	22,010.0	192.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
4/23/2024	√	√	√	860.2	20,560,302	12.9	√	√	√

Monthly Totals

Inspection Month	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Monthly Sump Runtime (hrs)	Leachate Elevation (ft) Monthly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
April 2024	LSW 1	16,260.8	13,655.7	305.6	16.32	√	√	√	√
April 2024	LSW 2	7,149.4	7,146.4	0.0	15.80	√	√	√	√
April 2024	LSW 3	18,213.6	15,082.2	223.7	19.65	√	√	√	√
April 2024	LSE 1	543.3	1,555.9	366.9	9.94	√	√	√	√
April 2024	LSE 2	5,036.4	5,002.8	167.7	14.56	√	√	√	√
April 2024	LSE 3	7,537.5	33,102.3	449.2	14.30	√	√	√	√
April 2024	LSE 4	180.4	225.7	0.0	14.57	√	√	√	√
April 2024	LSE 5	2,454.2	2,856.6	0.0	10.86	√	√	√	√
April 2024	LSE 6	8,907.5	22,010.2	386.0	6.10	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Monthly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
April 2024	√	√	√	1899.1	20,560,302	15.5	√	√	√

FORM LMS-2

SEMI - ANNUAL INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

APRIL 2024

Date: October 2022 | **Inspected By: D. Stewart / A. Carlton**

INSPECTION TASK	SUMP NUMBER						REMARKS
	LSE1	LSE2	LSE3	LSE4	LSE5	LSE6	
Power Cable Supply (cable holder and bracing)	√	√	√	√	√	√	10/7/2022 PSI
Pumping Accessories - Hoist and Suspension Cable	√	√	√	√	√	√	10/7/2022 PSI
Check Valves - Functional, Signs of Leakage	√	√	√	√	√	√	10/7/2022 PSI
Float Switches - Verify Operation	√	√	√	√	√	√	10/7/2022 PSI
Float and Cable	√	√	√	√	√	√	10/7/2022 PSI
Pump Controls - Disconnect and Reset Switches	√	√	√	√	**NS**	√	10/7/2022 PSI- LSE5 Issues with Pump Controls
Sump and Vault Lids	√	√	√	√	√	√	10/7/2022 PSI
Flow Switch and Sump Level Meter	√	√	√	√	√	√	10/7/2022 PSI
Markings	√	√	√	√	√	√	10/7/2022 PSI
Control Cabinets	√	√	√	√	√	√	10/7/2022 PSI
	LSW1	**LSW2**	**LSW3**				
Power Cable Supply (cable holder and bracing)	√	√	√				10/7/2022 PSI
Pumping Accessories - Hoist and Suspension Cable	√	√	√				10/7/2022 PSI
Check Valves - Functional, Signs of Leakage	√	√	√				10/7/2022 PSI
Float Switches - Verify Operation	√	√	√				10/7/2022 PSI
Float and Cable	√	√	√				10/7/2022 PSI
Pump Controls - Disconnect and Reset Switches	√	√	√				10/7/2022 PSI
Sump and Vault Lids	√	√	√				10/7/2022 PSI
Flow Switch and Sump Level Meter	√	√	√				10/7/2022 PSI
Markings	√	√	√				10/7/2022 PSI
Control Cabinets	√	√	√				10/7/2022 PSI

Comments: All sumps were pumped down to the lowest achievable elevation to examine the interior conditions.

TRC is working to obtain additional estimates for future inspections and pump repairs.

FORM LMS-3

ANNUAL INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

APRIL 2024

Date: October 2022 | **Inspected By: D. Stewart / A. Carlton**

INSPECTION TASK	SUMP NUMBER						REMARKS
	LSE1	LSE2	LSE3	LSE4	LSE5	LSE6	
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting	√	√	√	√	√	√	10/7/2022 PSI
Resistance On Pump Motors	√	√	√	√	√	√	10/7/2022 PSI
Change Pump Lubricant In Seal Chamber	√	√	√	√	√	√	10/7/2022 PSI
Safety Control Devices	√	√	√	√	√	√	10/7/2022 PSI
Empty Leakage Chamber	√	√	√	√	√	√	10/7/2022 PSI
Inspect Pump Isolation Valve	√	√	√	√	√	√	10/7/2022 PSI
Open and Close Valve Fully	√	√	√	√	√	√	10/7/2022 PSI
Inspect Valve Stem for Leakage	√	√	√	√	√	√	10/7/2022 PSI
Tighten if Necessary	√	√	√	√	√	√	10/7/2022 PSI
	LSW1	LSW2	LSW3				
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting	√	√	√				10/7/2022 PSI
Resistance On Pump Motors	√	√	√				10/7/2022 PSI
Change Pump Lubricant In Seal Chamber	√	√	√				10/7/2022 PSI
Safety Control Devices	√	√	√				10/7/2022 PSI
Empty Leakage Chamber	√	√	√				10/7/2022 PSI
Inspect Pump Isolation Valve	√	√	√				10/7/2022 PSI
Open and Close Valve Fully	√	√	√				10/7/2022 PSI
Inspect Valve Stem for Leakage	√	√	√				10/7/2022 PSI
Tighten if Necessary	√	√	√				10/7/2022 PSI

Comments:

***every 8000 hours or two years**

Annual inspection items on hold pending leachate pump investigation.

FORM DP-1
LEACHATE MANAGEMENT SYSTEM
APRIL 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
2/26/2024	Leachate Control Panel	The Leachate control panel is not correctly recording flow totalizer values.	TRC and JMP were on-site on 03/11 to connect to LPC to review LPC logic. Totalizer value reset and issue resolved.
2/28/2024	All Stations	All stations are discovered with power but not operating.	TRC is coordinating with W20 to inspect diagnose issue with pumps.
3/11/2024	All Stations	All stations are discovered with power but not operating.	W2O contractor visits the Site and tests the electrical of all pumps throughout the site. Concludes issue is software and not anything physical.
3/12/2024	All Stations	All stations are discovered with power but not operating.	JMP is on-site to review the LPC logic. An incorrect value for logic was found to be the reason for the pump shut off, the value was corrected, and the pumps are operational. The Leachate management system is restored and running as normal.
3/15/2024	Leachate Management System	NYCDEP Inspection	Mohammed Salahi, NYCDEP, inspected Leachate Management System.
4/01/2024 - 04/03/2024	Leachate Management System	Leachate management system's panel has a power outage.	The system was discovered without power on 04/01/2024, TRC and NYCDPR Electricians located and reset tripped breaker on 04/03/2024.
4/9/2024	Leachate Management System	Leachate management system's panel needed a new UPS and bypass switch.	JMP is on-site to review the LPC and to troubleshoot UPS (Uninterrupted Power Supply) and install bypass switch.

Date: 4/16/2024

Inspected By: I. Gonzalez

Signature: _____

FORM LMS-1
INSPECTION CHECKLIST
LEACHATE MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL
MAY 2024

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
5/1/2024	LSW 1	16,260.8	13,655.7	0.0	--	√	√	√	√
5/1/2024	LSW 2	7,149.4	7,146.4	0.0	--	√	√	√	√
5/1/2024	LSW 3	18,213.6	15,099.8	17.6	--	√	√	√	√
5/1/2024	LSE 1	543.3	1,748.1	192.2	--	√	√	√	√
5/1/2024	LSE 2	5,058.8	5,030.5	50.1	--	√	√	√	√
5/1/2024	LSE 3	7,537.5	33,294.5	192.3	--	√	√	√	√
5/1/2024	LSE 4	180.4	225.7	0.0	--	√	√	√	√
5/1/2024	LSE 5	2,616.2	2,856.6	162.0	--	√	√	√	√
5/1/2024	LSE 6	8,907.5	22,202.4	192.4	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
5/1/2024	√	√	√	806.6	21,051,268	10.1	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
5/6/2024	LSW 1	16,260.8	13,655.7	0.0	--	√	√	√	√
5/6/2024	LSW 2	7,149.4	7,146.4	0.0	--	√	√	√	√
5/6/2024	LSW 3	18,223.4	15,106.3	16.3	--	√	√	√	√
5/6/2024	LSE 1	543.3	1,793.7	45.6	--	√	√	√	√
5/6/2024	LSE 2	5,061.4	5,030.5	2.6	--	√	√	√	√
5/6/2024	LSE 3	7,560.8	33,350.0	78.8	--	√	√	√	√
5/6/2024	LSE 4	180.4	225.7	0.0	--	√	√	√	√
5/6/2024	LSE 5	2,736.2	2,856.6	120.0	--	√	√	√	√
5/6/2024	LSE 6	8,940.9	22,289.4	120.4	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
5/6/2024	√	√	√	383.7	21,562,060	22.2	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
5/16/2024	LSW 1	16,260.8	13,655.7	0.0	--	√	√	√	√
5/16/2024	LSW 2	7,149.4	7,146.4	0.0	--	√	√	√	√
5/16/2024	LSW 3	18,273.8	15,106.3	50.4	--	√	√	√	√
5/16/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
5/16/2024	LSE 2	5,095.1	5,007.9	11.1	--	√	√	√	√
5/16/2024	LSE 3	7,560.8	33,589.6	239.6	--	√	√	√	√
5/16/2024	LSE 4	180.4	225.7	0.0	--	√	√	√	√
5/16/2024	LSE 5	2,976.2	2,856.6	240.0	--	√	√	√	√
5/16/2024	LSE 6	8,940.9	22,528.5	239.1	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
5/16/2024	√	√	√	780.2	22,159,638	12.8	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Monthly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
5/20/2024	LSW 1	16,260.8	13,655.7	0.0	--	√	√	√	√
5/20/2025	LSW 2	7,149.4	7,146.4	0.0	--	√	√	√	√
5/20/2026	LSW 3	18,291.8	15,106.3	18.0	--	√	√	√	√
5/20/2027	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
5/20/2028	LSE 2	5,100.3	5,087.2	84.5	--	√	√	√	√
5/20/2029	LSE 3	7,560.8	33,684.9	95.3	--	√	√	√	√
5/20/2030	LSE 4	180.4	225.7	0.0	--	√	√	√	√
5/20/2031	LSE 5	3,072.2	2,856.6	96.0	--	√	√	√	√
5/20/2032	LSE 6	8,940.9	22,624.2	95.7	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
5/20/2024	√	√	√	389.5	22,288,006	5.5	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Monthly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
5/29/2024	LSW 1	16,260.8	13,655.7	0.0	--	√	√	√	√
5/29/2024	LSW 2	7,149.4	7,146.4	0.0	--	√	√	√	√
5/29/2024	LSW 3	18,508.1	15,106.0	216.0	--	√	√	√	√
5/29/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
5/29/2024	LSE 2	5,148.2	5,128.8	89.5	--	√	√	√	√
5/29/2024	LSE 3	7,560.8	33,900.9	216.0	--	√	√	√	√
5/29/2024	LSE 4	180.4	225.7	0.0	--	√	√	√	√
5/29/2024	LSE 5	3,288.2	2,904.1	263.5	--	√	√	√	√
5/29/2024	LSE 6	8,940.9	22,840.3	216.1	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
5/29/2024	√	√	√	1001.1	22,666,924	6.3	√	√	√

Monthly Totals

Inspection Month	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Monthly Sump Runtime (hrs)	Leachate Elevation (ft) Monthly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
May 2024	LSW 1	16,260.8	13,655.7	0.0	15.51	√	√	√	√
May 2024	LSW 2	7,149.4	7,146.4	0.0	14.59	√	√	√	√
May 2024	LSW 3	18,508.1	15,106.0	102.3	19.61	√	√	√	√
May 2024	LSE 1	543.3	1,793.7	237.8	10.21	√	√	√	√
May 2024	LSE 2	5,148.2	5,128.8	148.3	15.02	√	√	√	√
May 2024	LSE 3	7,560.8	33,900.9	606.0	14.79	√	√	√	√
May 2024	LSE 4	180.4	225.7	0.0	14.25	√	√	√	√
May 2024	LSE 5	3,288.2	2,904.1	618.0	9.51	√	√	√	√
May 2024	LSE 6	8,940.9	22,840.3	647.6	4.91	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Monthly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
May 2024	√	√	√	2360.0	22,666,924	14.9	√	√	√

FORM LMS-2

SEMI - ANNUAL INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

MAY 2024

Date: October 2022 | **Inspected By: D. Stewart / A. Carlton**

INSPECTION TASK	SUMP NUMBER						REMARKS
	LSE1	LSE2	LSE3	LSE4	LSE5	LSE6	
Power Cable Supply (cable holder and bracing)	√	√	√	√	√	√	10/7/2022 PSI
Pumping Accessories - Hoist and Suspension Cable	√	√	√	√	√	√	10/7/2022 PSI
Check Valves - Functional, Signs of Leakage	√	√	√	√	√	√	10/7/2022 PSI
Float Switches - Verify Operation	√	√	√	√	√	√	10/7/2022 PSI
Float and Cable	√	√	√	√	√	√	10/7/2022 PSI
Pump Controls - Disconnect and Reset Switches	√	√	√	√	**NS**	√	10/7/2022 PSI- LSE5 Issues with Pump Controls
Sump and Vault Lids	√	√	√	√	√	√	10/7/2022 PSI
Flow Switch and Sump Level Meter	√	√	√	√	√	√	10/7/2022 PSI
Markings	√	√	√	√	√	√	10/7/2022 PSI
Control Cabinets	√	√	√	√	√	√	10/7/2022 PSI
	LSW1	**LSW2**	**LSW3**				
Power Cable Supply (cable holder and bracing)	√	√	√				10/7/2022 PSI
Pumping Accessories - Hoist and Suspension Cable	√	√	√				10/7/2022 PSI
Check Valves - Functional, Signs of Leakage	√	√	√				10/7/2022 PSI
Float Switches - Verify Operation	√	√	√				10/7/2022 PSI
Float and Cable	√	√	√				10/7/2022 PSI
Pump Controls - Disconnect and Reset Switches	√	√	√				10/7/2022 PSI
Sump and Vault Lids	√	√	√				10/7/2022 PSI
Flow Switch and Sump Level Meter	√	√	√				10/7/2022 PSI
Markings	√	√	√				10/7/2022 PSI
Control Cabinets	√	√	√				10/7/2022 PSI

Comments: All sumps were pumped down to the lowest achievable elevation to examine the interior conditions.

TRC is working to obtain additional estimates for future inspections and pump repairs.

FORM LMS-3

ANNUAL INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

MAY 2024

Date: October 2022 | **Inspected By: D. Stewart / A. Carlton**

INSPECTION TASK	SUMP NUMBER						REMARKS
	LSE1	LSE2	LSE3	LSE4	LSE5	LSE6	
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting	√	√	√	√	√	√	10/7/2022 PSI
Resistance On Pump Motors	√	√	√	√	√	√	10/7/2022 PSI
Change Pump Lubricant In Seal Chamber	√	√	√	√	√	√	10/7/2022 PSI
Safety Control Devices	√	√	√	√	√	√	10/7/2022 PSI
Empty Leakage Chamber	√	√	√	√	√	√	10/7/2022 PSI
Inspect Pump Isolation Valve	√	√	√	√	√	√	10/7/2022 PSI
Open and Close Valve Fully	√	√	√	√	√	√	10/7/2022 PSI
Inspect Valve Stem for Leakage	√	√	√	√	√	√	10/7/2022 PSI
Tighten if Necessary	√	√	√	√	√	√	10/7/2022 PSI
	LSW1	LSW2	LSW3				
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting	√	√	√				10/7/2022 PSI
Resistance On Pump Motors	√	√	√				10/7/2022 PSI
Change Pump Lubricant In Seal Chamber	√	√	√				10/7/2022 PSI
Safety Control Devices	√	√	√				10/7/2022 PSI
Empty Leakage Chamber	√	√	√				10/7/2022 PSI
Inspect Pump Isolation Valve	√	√	√				10/7/2022 PSI
Open and Close Valve Fully	√	√	√				10/7/2022 PSI
Inspect Valve Stem for Leakage	√	√	√				10/7/2022 PSI
Tighten if Necessary	√	√	√				10/7/2022 PSI

Comments:

***every 8000 hours or two years**

Annual inspection items on hold pending leachate pump investigation.

FORM DP-1
LEACHATE MANAGEMENT SYSTEM
MAY 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
2/26/2024	Leachate Control Panel	The Leachate control panel is not correctly recording flow totalizer values.	TRC and JMP were on-site on 03/11 to connect to LPC to review LPC logic. Totalizer value reset and issue resolved.
2/28/2024	All Stations	All stations are discovered with power but not operating.	TRC is coordinating with W20 to inspect diagnose issue with pumps.
3/11/2024	All Stations	All stations are discovered with power but not operating.	W2O contractor visits the Site and tests the electrical of all pumps throughout the site. Concludes issue is software and not anything physical.
3/12/2024	All Stations	All stations are discovered with power but not operating.	JMP is on-site to review the LPC logic. An incorrect value for logic was found to be the reason for the pump shut off, the value was corrected, and the pumps are operational. The Leachate management system is restored and running as normal.
3/15/2024	Leachate Management System	NYCDEP Inspection	Mohammed Salahi, NYCDEP, inspected Leachate Management System.
4/01/2024 - 04/03/2024	Leachate Management System	Leachate management system's panel has a power outage.	The system was discovered without power on 04/01/2024, TRC and NYCDPR Electricians located and reset tripped breaker on 04/03/2024.
4/9/2024	Leachate Management System	Leachate management system's panel needed a new UPS and bypass switch.	JMP is on-site to review the LPC and to troubleshoot UPS (Uninterrupted Power Supply) and install bypass switch.
5/9/2024	Leachate Management System	Leachate Management system's panel UPS was sent back to Falcon for repair under warranty.	TRC (Elise He), received the repaired UPS and installed it into the LMS panel, along with the new bypass switch. The system is operating as normal.

Date: 5/14/2024

Inspected By: I. Gonzalez

Signature: 

FORM LMS-1

INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

JUNE 2024

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
6/3/2024	LSW 1	16,260.8	13,655.7	0.0	--	√	√	√	√
6/3/2024	LSW 2	7,149.4	7,146.4	0.0	--	√	√	√	√
6/3/2024	LSW 3	18,627.9	15,106.3	120.1	--	√	√	√	√
6/3/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
6/3/2024	LSE 2	5,169.8	5,156.2	49.0	--	√	√	√	√
6/3/2024	LSE 3	7,560.8	34,021.1	120.2	--	√	√	√	√
6/3/2024	LSE 4	180.4	225.7	0.0	--	√	√	√	√
6/3/2024	LSE 5	3,408.4	2,904.1	120.2	--	√	√	√	√
6/3/2024	LSE 6	8,904.9	23,000.0	123.7	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
6/3/2024	√	√	√	533.2	22,878,964	6.6	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
6/12/2024	LSW 1	16,412.6	13,655.7	151.8	--	√	√	√	√
6/12/2024	LSW 2	7,149.4	7,146.4	0.0	--	√	√	√	√
6/12/2024	LSW 3	18,847.3	15,106.3	219.4	--	√	√	√	√
6/12/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
6/12/2024	LSE 2	5,219.6	5,181.7	75.3	--	√	√	√	√
6/12/2024	LSE 3	7,560.8	34,240.1	219.0	--	√	√	√	√
6/12/2024	LSE 4	180.4	225.7	0.0	--	√	√	√	√
6/12/2024	LSE 5	3,627.5	2,904.1	219.1	--	√	√	√	√
6/12/2024	LSE 6	8,940.9	23,179.4	215.4	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
6/12/2024	√	√	√	1100.0	23,304,732	6.5	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
6/21/2024	LSW 1	16,621.6	13,655.7	209.0	--	√	√	√	√
6/21/2024	LSW 2	7,149.4	7,146.5	0.1	--	√	√	√	√
6/21/2024	LSW 3	19,056.4	15,106.3	209.1	--	√	√	√	√
6/21/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
6/21/2024	LSE 2	5,260.1	5,229.0	87.8	--	√	√	√	√
6/21/2024	LSE 3	7,560.8	34,449.0	208.9	--	√	√	√	√
6/21/2024	LSE 4	180.4	225.7	0.0	--	√	√	√	√
6/21/2024	LSE 5	3,836.2	2,904.1	208.7	--	√	√	√	√
6/21/2024	LSE 6	8,940.9	23,388.3	208.9	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
6/21/2024	√	√	√	1132.5	23,960,236	9.6	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Monthly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
6/26/2024	LSW 1	16,744.0	13,655.7	122.4	--	√	√	√	√
6/26/2024	LSW 2	7,149.4	7,146.5	0.0	--	√	√	√	√
6/26/2024	LSW 3	19,134.2	15,150.8	122.3	--	√	√	√	√
6/26/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
6/26/2024	LSE 2	5,286.4	5,250.0	47.3	--	√	√	√	√
6/26/2024	LSE 3	7,560.8	34,572.0	123.0	--	√	√	√	√
6/26/2024	LSE 4	180.4	225.7	0.0	--	√	√	√	√
6/26/2024	LSE 5	3,959.2	2,904.1	123.0	--	√	√	√	√
6/26/2024	LSE 6	8,940.9	23,511.1	122.8	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
6/26/2024	√	√	√	660.8	24,166,964	5.2	√	√	√

Monthly Totals

Inspection Month	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Monthly Sump Runtime (hrs)	Leachate Elevation (ft) Monthly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
June 2024	LSW 1	16,744.0	13,655.7	483.2	15.51	√	√	√	√
June 2024	LSW 2	7,149.4	7,146.5	0.1	14.59	√	√	√	√
June 2024	LSW 3	19,134.2	15,150.8	670.9	19.61	√	√	√	√
June 2024	LSE 1	543.3	1,793.7	0.0	10.21	√	√	√	√
June 2024	LSE 2	5,286.4	5,250.0	259.4	15.02	√	√	√	√
June 2024	LSE 3	7,560.8	34,572.0	671.1	14.79	√	√	√	√
June 2024	LSE 4	180.4	225.7	0.0	14.25	√	√	√	√
June 2024	LSE 5	3,959.2	2,904.1	671.0	9.51	√	√	√	√
June 2024	LSE 6	8,940.9	23,511.1	670.8	4.91	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Monthly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
June 2024	√	√	√	3426.5	24,166,964	7.3	√	√	√

FORM LMS-2

SEMI - ANNUAL INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

June 2024

Date: October 2022 | **Inspected By: D. Stewart / A. Carlton**

INSPECTION TASK	SUMP NUMBER						REMARKS
	LSE1	LSE2	LSE3	LSE4	LSE5	LSE6	
Power Cable Supply (cable holder and bracing)	√	√	√	√	√	√	10/7/2022 PSI
Pumping Accessories - Hoist and Suspension Cable	√	√	√	√	√	√	10/7/2022 PSI
Check Valves - Functional, Signs of Leakage	√	√	√	√	√	√	10/7/2022 PSI
Float Switches - Verify Operation	√	√	√	√	√	√	10/7/2022 PSI
Float and Cable	√	√	√	√	√	√	10/7/2022 PSI
Pump Controls - Disconnect and Reset Switches	√	√	√	√	**NS**	√	10/7/2022 PSI- LSE5 Issues with Pump Controls
Sump and Vault Lids	√	√	√	√	√	√	10/7/2022 PSI
Flow Switch and Sump Level Meter	√	√	√	√	√	√	10/7/2022 PSI
Markings	√	√	√	√	√	√	10/7/2022 PSI
Control Cabinets	√	√	√	√	√	√	10/7/2022 PSI
	LSW1	**LSW2**	**LSW3**				
Power Cable Supply (cable holder and bracing)	√	√	√				10/7/2022 PSI
Pumping Accessories - Hoist and Suspension Cable	√	√	√				10/7/2022 PSI
Check Valves - Functional, Signs of Leakage	√	√	√				10/7/2022 PSI
Float Switches - Verify Operation	√	√	√				10/7/2022 PSI
Float and Cable	√	√	√				10/7/2022 PSI
Pump Controls - Disconnect and Reset Switches	√	√	√				10/7/2022 PSI
Sump and Vault Lids	√	√	√				10/7/2022 PSI
Flow Switch and Sump Level Meter	√	√	√				10/7/2022 PSI
Markings	√	√	√				10/7/2022 PSI
Control Cabinets	√	√	√				10/7/2022 PSI

Comments: All sumps were pumped down to the lowest achievable elevation to examine the interior conditions.

TRC is scheduling future inspections and pump repairs with W2O.

FORM LMS-3

ANNUAL INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

June 2024

Date: October 2022 | **Inspected By: D. Stewart / A. Carlton**

INSPECTION TASK	SUMP NUMBER						REMARKS
	LSE1	LSE2	LSE3	LSE4	LSE5	LSE6	
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting	√	√	√	√	√	√	10/7/2022 PSI
Resistance On Pump Motors	√	√	√	√	√	√	10/7/2022 PSI
Change Pump Lubricant In Seal Chamber	√	√	√	√	√	√	10/7/2022 PSI
Safety Control Devices	√	√	√	√	√	√	10/7/2022 PSI
Empty Leakage Chamber	√	√	√	√	√	√	10/7/2022 PSI
Inspect Pump Isolation Valve	√	√	√	√	√	√	10/7/2022 PSI
Open and Close Valve Fully	√	√	√	√	√	√	10/7/2022 PSI
Inspect Valve Stem for Leakage	√	√	√	√	√	√	10/7/2022 PSI
Tighten if Necessary	√	√	√	√	√	√	10/7/2022 PSI
	LSW1	LSW2	LSW3				
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting	√	√	√				10/7/2022 PSI
Resistance On Pump Motors	√	√	√				10/7/2022 PSI
Change Pump Lubricant In Seal Chamber	√	√	√				10/7/2022 PSI
Safety Control Devices	√	√	√				10/7/2022 PSI
Empty Leakage Chamber	√	√	√				10/7/2022 PSI
Inspect Pump Isolation Valve	√	√	√				10/7/2022 PSI
Open and Close Valve Fully	√	√	√				10/7/2022 PSI
Inspect Valve Stem for Leakage	√	√	√				10/7/2022 PSI
Tighten if Necessary	√	√	√				10/7/2022 PSI

Comments:

***every 8000 hours or two years**

Annual inspection items on hold pending leachate pump investigation.

FORM DP-1

LEACHATE MANAGEMENT SYSTEM

June 2024

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
5/9/2024	Leachate Management System	Leachate Management system's panel UPS was sent back to Falcon for repair under warranty.	TRC (Elise He), received the repaired UPS and installed it into the LMS panel, along with the new bypass switch. The system is operating as normal.
6/21/2024	Leachate Management System	Leachate Management system's panel UPS was presenting alarms and not holding power.	TRC(Ivan Gonzalez) removed UPS unit, setting power in panel to bypass. Unit was sent back to Falcon for repair or replacement under warranty.

Date: 6/18/2024

Inspected By: I. Gonzalez

Signature: 

FORM LMS-1

INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

JULY 2024

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
7/3/2024	LSW 1	16,912.4	13,655.7	168.4	--	√	√	√	√
7/3/2024	LSW 2	7,149.4	7,146.4	0.0	--	√	√	√	√
7/3/2024	LSW 3	19,134.2	15,319.3	168.5	--	√	√	√	√
7/3/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
7/3/2024	LSE 2	5,321.2	5,270.9	55.7	--	√	√	√	√
7/3/2024	LSE 3	7,560.8	34,739.9	167.9	--	√	√	√	√
7/3/2024	LSE 4	180.4	225.7	0.0	--	√	√	√	√
7/3/2024	LSE 5	4,127.0	2,904.1	167.8	--	√	√	√	√
7/3/2024	LSE 6	8,940.9	23,679.1	168.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
7/3/2024	√	√	√	896.3	24,447,586	5.2	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
7/8/2024	LSW 1	17,029.1	13,655.7	116.7	--	√	√	√	√
7/8/2024	LSW 2	7,149.4	7,146.5	0.1	--	√	√	√	√
7/8/2024	LSW 3	19,134.2	15,436.0	116.7	--	√	√	√	√
7/8/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
7/8/2024	LSE 2	5,341.7	5,292.2	41.8	--	√	√	√	√
7/8/2024	LSE 3	7,560.8	34,856.7	116.8	--	√	√	√	√
7/8/2024	LSE 4	180.4	225.7	0.0	--	√	√	√	√
7/8/2024	LSE 5	4,243.9	2,904.1	116.9	--	√	√	√	√
7/8/2024	LSE 6	8,940.9	23,796.0	116.9	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
7/8/2024	√	√	√	625.9	24,603,426	4.1	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
7/15/2024	LSW 1	17,197.5	13,655.7	168.4	--	√	√	√	√
7/15/2024	LSW 2	7,149.4	7,146.5	0.0	--	√	√	√	√
7/15/2024	LSW 3	19,134.2	15,604.4	168.4	--	√	√	√	√
7/15/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
7/15/2024	LSE 2	5,360.5	5,333.2	59.8	--	√	√	√	√
7/15/2024	LSE 3	7,560.8	35,025.8	169.1	--	√	√	√	√
7/15/2024	LSE 4	180.4	225.7	0.0	--	√	√	√	√
7/15/2024	LSE 5	4,413.0	2,904.1	169.1	--	√	√	√	√
7/15/2024	LSE 6	8,940.9	23,904.2	108.2	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
7/15/2024	√	√	√	843.0	24,859,108	5.1	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Monthly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
7/23/2024	LSW 1	17,389.4	13,655.7	191.9	--	√	√	√	√
7/23/2024	LSW 2	7,149.4	7,146.5	0.0	--	√	√	√	√
7/23/2024	LSW 3	19,134.2	15,796.4	192.0	--	√	√	√	√
7/23/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
7/23/2024	LSE 2	5,397.0	5,352.3	55.6	--	√	√	√	√
7/23/2024	LSE 3	7,560.8	35,217.0	191.2	--	√	√	√	√
7/23/2024	LSE 4	180.4	225.7	0.0	--	√	√	√	√
7/23/2024	LSE 5	4,604.1	2,904.1	191.1	--	√	√	√	√
7/23/2024	LSE 6	8,940.9	24,156.2	252.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
7/23/2024	√	√	√	1073.8	25,084,474	3.5	√	√	√

Monthly Totals

Inspection Month	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Monthly Sump Runtime (hrs)	Leachate Elevation (ft) Monthly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
July 2024	LSW 1	17,389.4	13,655.7	645.4	15.36	√	√	√	√
July 2024	LSW 2	7,149.4	7,146.5	0.1	14.60	√	√	√	√
July 2024	LSW 3	19,134.2	15,796.4	645.6	18.95	√	√	√	√
July 2024	LSE 1	543.3	1,793.7	0.0	10.11	√	√	√	√
July 2024	LSE 2	5,397.0	5,352.3	212.9	15.41	√	√	√	√
July 2024	LSE 3	7,560.8	35,217.0	645.0	14.91	√	√	√	√
July 2024	LSE 4	180.4	225.7	0.0	14.42	√	√	√	√
July 2024	LSE 5	4,604.1	2,904.1	644.9	9.44	√	√	√	√
July 2024	LSE 6	8,940.9	24,156.2	645.1	4.35	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Monthly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
July 2024	√	√	√	3439.0	25,084,474	4.4	√	√	√

FORM LMS-2

SEMI - ANNUAL INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

JULY 2024

Date: October 2022 | **Inspected By: D. Stewart / A. Carlton**

INSPECTION TASK	SUMP NUMBER						REMARKS
	LSE1	LSE2	LSE3	LSE4	LSE5	LSE6	
Power Cable Supply (cable holder and bracing)	√	√	√	√	√	√	10/7/2022 PSI
Pumping Accessories - Hoist and Suspension Cable	√	√	√	√	√	√	10/7/2022 PSI
Check Valves - Functional, Signs of Leakage	√	√	√	√	√	√	10/7/2022 PSI
Float Switches - Verify Operation	√	√	√	√	√	√	10/7/2022 PSI
Float and Cable	√	√	√	√	√	√	10/7/2022 PSI
Pump Controls - Disconnect and Reset Switches	√	√	√	√	**NS**	√	10/7/2022 PSI- LSE5 Issues with Pump Controls
Sump and Vault Lids	√	√	√	√	√	√	10/7/2022 PSI
Flow Switch and Sump Level Meter	√	√	√	√	√	√	10/7/2022 PSI
Markings	√	√	√	√	√	√	10/7/2022 PSI
Control Cabinets	√	√	√	√	√	√	10/7/2022 PSI
	LSW1	**LSW2**	**LSW3**				
Power Cable Supply (cable holder and bracing)	√	√	√				10/7/2022 PSI
Pumping Accessories - Hoist and Suspension Cable	√	√	√				10/7/2022 PSI
Check Valves - Functional, Signs of Leakage	√	√	√				10/7/2022 PSI
Float Switches - Verify Operation	√	√	√				10/7/2022 PSI
Float and Cable	√	√	√				10/7/2022 PSI
Pump Controls - Disconnect and Reset Switches	√	√	√				10/7/2022 PSI
Sump and Vault Lids	√	√	√				10/7/2022 PSI
Flow Switch and Sump Level Meter	√	√	√				10/7/2022 PSI
Markings	√	√	√				10/7/2022 PSI
Control Cabinets	√	√	√				10/7/2022 PSI

Comments: All sumps were pumped down to the lowest achievable elevation to examine the interior conditions.

TRC is scheduling future inspections and pump repairs with W2O.

FORM LMS-3

ANNUAL INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

July 2024

Date: October 2022 | **Inspected By: D. Stewart / A. Carlton**

INSPECTION TASK	SUMP NUMBER						REMARKS
	LSE1	LSE2	LSE3	LSE4	LSE5	LSE6	
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting	√	√	√	√	√	√	10/7/2022 PSI
Resistance On Pump Motors	√	√	√	√	√	√	10/7/2022 PSI
Change Pump Lubricant In Seal Chamber	√	√	√	√	√	√	10/7/2022 PSI
Safety Control Devices	√	√	√	√	√	√	10/7/2022 PSI
Empty Leakage Chamber	√	√	√	√	√	√	10/7/2022 PSI
Inspect Pump Isolation Valve	√	√	√	√	√	√	10/7/2022 PSI
Open and Close Valve Fully	√	√	√	√	√	√	10/7/2022 PSI
Inspect Valve Stem for Leakage	√	√	√	√	√	√	10/7/2022 PSI
Tighten if Necessary	√	√	√	√	√	√	10/7/2022 PSI
	LSW1	LSW2	LSW3				
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting	√	√	√				10/7/2022 PSI
Resistance On Pump Motors	√	√	√				10/7/2022 PSI
Change Pump Lubricant In Seal Chamber	√	√	√				10/7/2022 PSI
Safety Control Devices	√	√	√				10/7/2022 PSI
Empty Leakage Chamber	√	√					10/7/2022 PSI
Inspect Pump Isolation Valve	√	√	√				10/7/2022 PSI
Open and Close Valve Fully	√	√	√				10/7/2022 PSI
Inspect Valve Stem for Leakage	√	√	√				10/7/2022 PSI
Tighten if Necessary	√	√	√				10/7/2022 PSI

Comments:

***every 8000 hours or two years**

Annual inspection items on hold pending leachate pump investigation.

FORM DP-1
LEACHATE MANAGEMENT SYSTEM
July 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
5/9/2024	Leachate Management System	Leachate Management system's panel UPS was sent back to Falcon for repair under warranty.	TRC (Elise He), received the repaired UPS and installed it into the LMS panel, along with the new bypass switch. The system is operating as normal.
6/21/2024	Leachate Management System	Leachate Management system's panel UPS was presenting alarms and not holding power.	TRC(Ivan Gonzalez) removed UPS unit, setting power in panel to bypass. Unit was sent back to Falcon for repair or replacement under warranty.

Date: 7/17/2024

Inspected By: I. Gonzalez

Signature: 

FORM LMS-1
INSPECTION CHECKLIST
LEACHATE MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL
August 2024

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
8/2/2024	LSW 1	17,631.1	13,655.7	241.7	--	√	√	√	√
8/2/2024	LSW 2	7,149.4	7,146.5	0.0	--	√	√	√	√
8/2/2024	LSW 3	19,134.2	16,037.9	241.5	--	√	√	√	√
8/2/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
8/2/2024	LSE 2	5,437.9	5,393.4	82.0	--	√	√	√	√
8/2/2024	LSE 3	7,560.8	35,458.8	241.8	--	√	√	√	√
8/2/2024	LSE 4	180.4	225.7	0.0	--	√	√	√	√
8/2/2024	LSE 5	4,846.0	2,904.1	241.9	--	√	√	√	√
8/2/2024	LSE 6	8,940.9	24,398.1	241.9	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
8/2/2024	√	√	√	1290.8	25,493,246	5.3	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
8/9/2024	LSW 1	17,730.5	13,695.7	139.4	--	√	√	√	√
8/9/2024	LSW 2	7,196.3	7,146.5	46.9	--	√	√	√	√
8/9/2024	LSW 3	19,175.5	16,162.5	165.9	--	√	√	√	√
8/9/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
8/9/2024	LSE 2	5,459.5	5,425.8	54.0	--	√	√	√	√
8/9/2024	LSE 3	7,560.8	35,602.3	143.5	--	√	√	√	√
8/9/2024	LSE 4	180.4	225.7	0.0	--	√	√	√	√
8/9/2024	LSE 5	4,989.8	2,904.1	143.8	--	√	√	√	√
8/9/2024	LSE 6	8,940.9	24,542.0	143.9	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
8/9/2024	√	√	√	837.4	25,753,572	5.2	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
8/16/2024	LSW 1	17,860.4	13,738.2	172.4	--	√	√	√	√
8/16/2024	LSW 2	7,221.4	7,146.5	25.1	--	√	√	√	√
8/16/2024	LSW 3	19,217.9	16,288.0	167.9	--	√	√	√	√
8/16/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
8/16/2024	LSE 2	5,459.5	5,438.5	12.7	--	√	√	√	√
8/16/2024	LSE 3	7,599.2	35,616.8	52.9	--	√	√	√	√
8/16/2024	LSE 4	180.4	232.5	6.8	--	√	√	√	√
8/16/2024	LSE 5	5,002.3	2,992.7	101.1	--	√	√	√	√
8/16/2024	LSE 6	8,994.9	24,677.1	189.1	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
8/16/2024	√	√	√	728.0	26,289,028	12.3	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
8/20/2024	LSW 1	17,955.8	13,738.2	95.4	--	√	√	√	√
8/20/2024	LSW 2	7,317.0	7,146.5	95.6	--	√	√	√	√
8/20/2024	LSW 3	19,217.9	16,383.5	95.5	--	√	√	√	√
8/20/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
8/20/2024	LSE 2	5,459.5	5,456.2	17.7	--	√	√	√	√
8/20/2024	LSE 3	7,599.2	35,616.8	0.0	--	√	√	√	√
8/20/2024	LSE 4	180.4	232.5	0.0	--	√	√	√	√
8/20/2024	LSE 5	5,002.3	2,992.7	0.0	--	√	√	√	√
8/20/2024	LSE 6	8,994.9	24,772.5	95.4	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
8/20/2024	√	√	√	399.6	26,347,938	2.5	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
8/29/2024	LSW 1	18,172.5	13,738.2	216.7	--	√	√	√	√
8/29/2024	LSW 2	7,533.5	7,146.5	216.5	--	√	√	√	√
8/29/2024	LSW 3	19,217.9	16,600.1	216.6	--	√	√	√	√
8/29/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
8/29/2024	LSE 2	5,477.4	5,473.9	35.6	--	√	√	√	√
8/29/2024	LSE 3	7,599.2	35,616.8	0.0	--	√	√	√	√
8/29/2024	LSE 4	180.4	232.5	0.0	--	√	√	√	√
8/29/2024	LSE 5	5,002.3	2,992.7	0.0	--	√	√	√	√
8/29/2024	LSE 6	8,994.9	24,989.4	216.9	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
8/29/2024	√	√	√	902.3	26,468,476	2.2	√	√	√

Monthly Totals

Inspection Month	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Monthly Sump Runtime (hrs)	Leachate Elevation (ft) Monthly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
August 2024	LSW 1	18,172.5	13,738.2	865.6	14.72	√	√	√	√
August 2024	LSW 2	7,533.5	7,146.5	384.1	14.08	√	√	√	√
August 2024	LSW 3	19,217.9	16,600.1	887.4	18.52	√	√	√	√
August 2024	LSE 1	543.3	1,793.7	0.0	10.10	√	√	√	√
August 2024	LSE 2	5,477.4	5,473.9	202.0	15.11	√	√	√	√
August 2024	LSE 3	7,599.2	35,616.8	438.2	15.59	√	√	√	√
August 2024	LSE 4	180.4	232.5	6.8	14.04	√	√	√	√
August 2024	LSE 5	5,002.3	2,992.7	486.8	9.00	√	√	√	√
August 2024	LSE 6	8,994.9	24,989.4	887.2	4.59	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Monthly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
August 2024	√	√	√	4158.1	26,468,476	5.5	√	√	√

FORM LMS-2

SEMI - ANNUAL INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

August 2024

Date: October 2022 | **Inspected By: D. Withey**

INSPECTION TASK	SUMP NUMBER						REMARKS
	LSE1	LSE2	LSE3	LSE4	LSE5	LSE6	
Power Cable Supply (cable holder and bracing)	√	√	√	√	√	√	09/12/2022 W2O
Pumping Accessories - Hoist and Suspension Cable	√	√	√	√	√	√	09/12/2022 W2O
Check Valves - Functional, Signs of Leakage	√	√	√	NS	√	√	09/12/2022 W2O
Float Switches - Verify Operation	√	√	√	√	√	√	09/12/2022 W2O
Float and Cable	√	√	√	√	√	√	09/12/2022 W2O
Pump Controls - Disconnect and Reset Switches	NS	√	√	NS	NS	√	09/12/2022 W2O
Sump and Vault Lids	√	√	√	√	√	√	09/12/2022 W2O
Flow Switch and Sump Level Meter	√	√	√	√	√	√	09/12/2022 W2O
Markings	√	√	√	√	√	√	09/12/2022 W2O
Control Cabinets	√	√	√	√	√	√	09/12/2022 W2O
	LSW1	LSW2	LSW3				
Power Cable Supply (cable holder and bracing)	√	√	√				09/12/2022 W2O
Pumping Accessories - Hoist and Suspension Cable	√	√	√				09/12/2022 W2O
Check Valves - Functional, Signs of Leakage	√	√	√				09/12/2022 W2O
Float Switches - Verify Operation	√	√	√				09/12/2022 W2O
Float and Cable	√	√	√				09/12/2022 W2O
Pump Controls - Disconnect and Reset Switches	√	√	√				09/12/2022 W2O
Sump and Vault Lids	√	√	√				09/12/2022 W2O
Flow Switch and Sump Level Meter	√	√	√				09/12/2022 W2O
Markings	√	√	√				09/12/2022 W2O
Control Cabinets	√	√	√				09/12/2022 W2O

Comments: All sumps were pumped down to the lowest achievable elevation to examine the interior conditions.

TRC is scheduling future inspections and pump repairs with W2O.

FORM LMS-3							
ANNUAL INSPECTION CHECKLIST							
LEACHATE MANAGEMENT SYSTEM							
BROOKFIELD AVENUE LANDFILL							
August 2024							
Date: October 2022				**Inspected By: D. Whithey**			
INSPECTION TASK	**SUMP NUMBER**						**REMARKS**
	LSE1	**LSE2**	**LSE3**	**LSE4**	**LSE5**	**LSE6**	
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting							09/12/2022 W2O
Resistance On Pump Motors	√	√	**NS**	√	**NS**	√	09/12/2022 W2O
Change Pump Lubricant In Seal Chamber	√	√	√	√	√	√	09/12/2022 W2O
Safety Control Devices	**NS**	√	√	**NS**	√	√	09/12/2022 W2O
Empty Leakage Chamber	√	√	√	√	√	√	09/12/2022 W2O
Inspect Pump Isolation Valve	√	√	√	√	√	√	09/12/2022 W2O
Open and Close Valve Fully	√	√	√	√	√	√	09/12/2022 W2O
Inspect Valve Stem for Leakage	√	√	√	√	√	√	09/12/2022 W2O
Tighten if Necessary	√	√	√	√	√	√	09/12/2022 W2O
	LSW1	**LSW2**	**LSW3**				
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting	√	√	√				09/12/2022 W2O
Resistance On Pump Motors	**NS**	**NS**	**NS**				09/12/2022 W2O
Change Pump Lubricant In Seal Chamber	√	√	√				09/12/2022 W2O
Safety Control Devices	√	√	√				09/12/2022 W2O
Empty Leakage Chamber	√	√	√				09/12/2022 W2O
Inspect Pump Isolation Valve	√	√	√				09/12/2022 W2O
Open and Close Valve Fully	√	√	√				09/12/2022 W2O
Inspect Valve Stem for Leakage	√	√	√				09/12/2022 W2O
Tighten if Necessary	√	√	√				09/12/2022 W2O
Comments:							
***every 8000 hours or two years**							
Annual inspection items on hold pending leachate pump investigation.							

FORM DP-1
LEACHATE MANAGEMENT SYSTEM
August 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
5/9/2024	Leachate Management System	Leachate Management system's panel UPS was sent back to Falcon for repair under warranty.	TRC (Elise He), received the repaired UPS and installed it into the LMS panel, along with the new bypass switch. The system is operating as normal.
6/21/2024	Leachate Management System	Leachate Management system's panel UPS was presenting alarms and not holding power.	TRC(Ivan Gonzalez) removed UPS unit, setting power in panel to bypass. Unit was sent back to Falcon for repair or replacement under warranty.
8/12-08/13	Leachate Management System and Sump Pumps	TRC and W2O inspected the leachate management system.	W2O identified various wiring, electric, and other issues with the LSW and LSE pumps. W2O to provide proposal for repairs.

Date: 8/8/2024

Inspected By: I. Gonzalez

Signature: 

FORM LMS-1
INSPECTION CHECKLIST
LEACHATE MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL
September 2024

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
9/5/2024	LSW 1	18,271.1	13,738.2	98.6	--	√	√	√	√
9/5/2024	LSW 2	7,632.1	7,146.5	98.6	--	√	√	√	√
9/5/2024	LSW 3	19,217.9	16,698.6	98.5	--	√	√	√	√
9/5/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
9/5/2024	LSE 2	5,494.7	5,491.3	34.7	--	√	√	√	√
9/5/2024	LSE 3	7,613.3	35,616.8	14.1	--	√	√	√	√
9/5/2024	LSE 4	180.4	232.5	0.0	--	√	√	√	√
9/5/2024	LSE 5	5,002.3	3,044.2	51.5	--	√	√	√	√
9/5/2024	LSE 6	9,055.6	25,015.3	86.6	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
9/5/2024	√	√	√	482.6	26,613,604	5.0	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
9/12/2024	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
9/12/2024	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
9/12/2024	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
9/12/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
9/12/2024	LSE 2	5,494.7	5,509.0	17.7	--	√	√	√	√
9/12/2024	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
9/12/2024	LSE 4	180.4	232.5	0.0	--	√	√	√	√
9/12/2024	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
9/12/2024	LSE 6	9,232.6	25,087.6	249.3	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
9/12/2024	√	√	√	267.0	26,900,088	17.9	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
9/20/2024	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
9/20/2024	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
9/20/2024	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
9/20/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
9/20/2024	LSE 2	5,525.5	5,523.1	44.9	--	√	√	√	√
9/20/2024	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
9/20/2024	LSE 4	180.4	232.5	0.0	--	√	√	√	√
9/20/2024	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
9/20/2024	LSE 6	9,424.3	25,087.6	191.7	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
9/20/2024	√	√	√	236.6	27,149,528	17.6	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
9/24/2024	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
9/24/2024	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
9/24/2024	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
9/24/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
9/24/2024	LSE 2	5,525.5	5,535.9	12.8	--	√	√	√	√
9/24/2024	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
9/24/2024	LSE 4	180.4	232.5	0.0	--	√	√	√	√
9/24/2024	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
9/24/2024	LSE 6	9,520.6	25,087.6	96.3	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
9/24/2024	√	√	√	109.1	27,204,066	8.3	√	√	√

Monthly Totals

Inspection Month	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Monthly Sump Runtime (hrs)	Leachate Elevation (ft) Monthly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
September 2024	LSW 1	18,172.5	13,738.2	98.6	14.48	√	√	√	√
September 2024	LSW 2	7,533.5	7,146.5	98.6	16.26	√	√	√	√
September 2024	LSW 3	19,217.9	16,600.1	98.5	18.72	√	√	√	√
September 2024	LSE 1	543.3	1,793.7	0.0	25.90	√	√	√	√
September 2024	LSE 2	5,477.4	5,473.9	110.1	15.47	√	√	√	√
September 2024	LSE 3	7,599.2	35,616.8	14.1	15.75	√	√	√	√
September 2024	LSE 4	180.4	232.5	0.0	14.69	√	√	√	√
September 2024	LSE 5	5,002.3	2,992.7	51.5	9.89	√	√	√	√
September 2024	LSE 6	8,994.9	24,989.4	623.9	5.17	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Monthly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
September 2024	√	√	√	1095.3	27,204,066	11.2	√	√	√

FORM LMS-2

SEMI - ANNUAL INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

September 2024

Date: October 2022 | **Inspected By: D. Withey**

INSPECTION TASK	SUMP NUMBER						REMARKS
	LSE1	**LSE2**	**LSE3**	**LSE4**	**LSE5**	**LSE6**	
Power Cable Supply (cable holder and bracing)	√	√	√	√	√	√	09/12/2022 W2O
Pumping Accessories - Hoist and Suspension Cable	√	√	√	√	√	√	09/12/2022 W2O
Check Valves - Functional, Signs of Leakage	√	√	√	**NS**	√	√	09/12/2022 W2O
Float Switches - Verify Operation	√	√	√	√	√	√	09/12/2022 W2O
Float and Cable	√	√	√	√	√	√	09/12/2022 W2O
Pump Controls - Disconnect and Reset Switches	**NS**	√	√	**NS**	**NS**	√	09/12/2022 W2O
Sump and Vault Lids	√	√	√	√	√	√	09/12/2022 W2O
Flow Switch and Sump Level Meter	√	√	√	√	√	√	09/12/2022 W2O
Markings	√	√	√	√	√	√	09/12/2022 W2O
Control Cabinets	√	√	√	√	√	√	09/12/2022 W2O
	LSW1	**LSW2**	**LSW3**				
Power Cable Supply (cable holder and bracing)	√	√	√				09/12/2022 W2O
Pumping Accessories - Hoist and Suspension Cable	√	√	√				09/12/2022 W2O
Check Valves - Functional, Signs of Leakage	√	√	√				09/12/2022 W2O
Float Switches - Verify Operation	√	√	√				09/12/2022 W2O
Float and Cable	√	√	√				09/12/2022 W2O
Pump Controls - Disconnect and Reset Switches	√	√	√				09/12/2022 W2O
Sump and Vault Lids	√	√	√				09/12/2022 W2O
Flow Switch and Sump Level Meter	√	√	√				09/12/2022 W2O
Markings	√	√	√				09/12/2022 W2O
Control Cabinets	√	√	√				09/12/2022 W2O

Comments: All sumps were pumped down to the lowest achievable elevation to examine the interior conditions.

TRC is scheduling future inspections and pump repairs with W2O.

FORM LMS-3							
ANNUAL INSPECTION CHECKLIST							
LEACHATE MANAGEMENT SYSTEM							
BROOKFIELD AVENUE LANDFILL							
September 2024							
Date: October 2022				**Inspected By: D. Whithey**			
INSPECTION TASK	**SUMP NUMBER**						**REMARKS**
	LSE1	**LSE2**	**LSE3**	**LSE4**	**LSE5**	**LSE6**	
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting							09/12/2022 W2O
Resistance On Pump Motors	√	√	**NS**	√	**NS**	√	09/12/2022 W2O
Change Pump Lubricant In Seal Chamber	√	√	√	√	√	√	09/12/2022 W2O
Safety Control Devices	**NS**	√	√	**NS**	√	√	09/12/2022 W2O
Empty Leakage Chamber	√	√	√	√	√	√	09/12/2022 W2O
Inspect Pump Isolation Valve	√	√	√	√	√	√	09/12/2022 W2O
Open and Close Valve Fully	√	√	√	√	√	√	09/12/2022 W2O
Inspect Valve Stem for Leakage	√	√	√	√	√	√	09/12/2022 W2O
Tighten if Necessary	√	√	√	√	√	√	09/12/2022 W2O
	LSW1	**LSW2**	**LSW3**				
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting	√	√	√				09/12/2022 W2O
Resistance On Pump Motors	**NS**	**NS**	**NS**				09/12/2022 W2O
Change Pump Lubricant In Seal Chamber	√	√	√				09/12/2022 W2O
Safety Control Devices	√	√	√				09/12/2022 W2O
Empty Leakage Chamber	√	√	√				09/12/2022 W2O
Inspect Pump Isolation Valve	√	√	√				09/12/2022 W2O
Open and Close Valve Fully	√	√	√				09/12/2022 W2O
Inspect Valve Stem for Leakage	√	√	√				09/12/2022 W2O
Tighten if Necessary	√	√	√				09/12/2022 W2O
Comments:							
***every 8000 hours or two years**							
Annual inspection items on hold pending leachate pump investigation.							

FORM DP-1
LEACHATE MANAGEMENT SYSTEM
September 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
5/9/2024	Leachate Management System	Leachate Management system's panel UPS was sent back to Falcon for repair under warranty.	TRC (Elise He), received the repaired UPS and installed it into the LMS panel, along with the new bypass switch. The system is operating as normal.
6/21/2024	Leachate Management System	Leachate Management system's panel UPS was presenting alarms and not holding power.	TRC(Ivan Gonzalez) removed UPS unit, setting power in panel to bypass. Unit was sent back to Falcon for repair or replacement under warranty.
8/12-08/13	Leachate Management System and Sump Pumps	TRC and W2O inspected the leachate management system.	W2O identified various wiring, electric, and other issues with the LSW and LSE pumps. W2O to provide proposal for repairs.

Date: 9/17/2024

Inspected By: E. He

Signature: Elise He

FORM LMS-1
INSPECTION CHECKLIST
LEACHATE MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL
OCTOBER 2024

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
10/1/2024	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
10/1/2024	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
10/1/2024	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
10/1/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
10/1/2024	LSE 2	5,541.0	5,550.0	29.6	--	√	√	√	√
10/1/2024	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
10/1/2024	LSE 4	180.4	232.5	0.0	--	√	√	√	√
10/1/2024	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
10/1/2024	LSE 6	9,691.7	25,087.6	171.1	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
10/1/2024	√	√	√	200.7	27,322,674	9.8	v	v	v

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
10/10/2024	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
10/10/2024	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
10/10/2024	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
10/10/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
10/10/2024	LSE 2	5,553.2	5,564.2	26.4	--	√	√	√	√
10/10/2024	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
10/10/2024	LSE 4	180.4	232.5	0.0	--	√	√	√	√
10/10/2024	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
10/10/2024	LSE 6	9,904.1	25,087.6	212.4	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
10/10/2024	√	√	√	238.8	27,418,404	6.7	v	v	v

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
10/14/2024	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
10/14/2024	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
10/14/2024	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
10/14/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
10/14/2024	LSE 2	5,567.0	5,576.6	26.2	--	√	√	√	√
10/14/2024	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
10/14/2024	LSE 4	180.4	232.5	0.0	--	√	√	√	√
10/14/2024	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
10/14/2024	LSE 6	10,000.6	25,087.6	96.5	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
10/14/2024	√	√	√	122.7	27,527,722	14.8	v	v	v

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
10/21/2024	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
10/21/2024	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
10/21/2024	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
10/21/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
10/21/2024	LSE 2	5,581.1	5,589.6	27.1	--	√	√	√	√
10/21/2024	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
10/21/2024	LSE 4	180.4	232.5	0.0	--	√	√	√	√
10/21/2024	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
10/21/2024	LSE 6	10,000.7	25,087.6	0.1	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
10/21/2024	√	√	√	27.2	27,629,580	129.4	v	v	v

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
10/28/2024	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
10/28/2024	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
10/28/2024	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
10/28/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
10/28/2024	LSE 2	5,593.8	5,603.4	53.6	--	√	√	√	√
10/28/2024	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
10/28/2024	LSE 4	180.4	232.5	0.0	--	√	√	√	√
10/28/2024	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
10/28/2024	LSE 6	10,000.7	25,087.6	0.1	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
10/28/2024	√	√	√	53.7	27,721,196	60.0	v	v	v

Monthly Totals

Inspection Month	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Monthly Sump Runtime (hrs)	Leachate Elevation (ft) Monthly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
October 2024	LSW 1	18,172.5	13,738.2	0.0	14.21	√	√	√	√
October 2024	LSW 2	7,533.5	7,146.5	0.0	16.26	√	√	√	√
October 2024	LSW 3	19,217.9	16,600.1	0.0	18.73	√	√	√	√
October 2024	LSE 1	543.3	1,793.7	0.0	10.21	√	√	√	√
October 2024	LSE 2	5,477.4	5,473.9	162.9	18.02	√	√	√	√
October 2024	LSE 3	7,599.2	35,616.8	0.0	14.52	√	√	√	√
October 2024	LSE 4	180.4	232.5	0.0	15.14	√	√	√	√
October 2024	LSE 5	5,002.3	2,992.7	0.0	9.79	√	√	√	√
October 2024	LSE 6	8,994.9	24,989.4	480.2	5.50	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Monthly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
October 2024	√	√	√	643.1	27,721,196	13.4	v	v	v

FORM LMS-2

SEMI - ANNUAL INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

OCTOBER 2024

Date: October 2022 | **Inspected By: D. Withey**

INSPECTION TASK	SUMP NUMBER						REMARKS
	LSE1	LSE2	LSE3	LSE4	LSE5	LSE6	
Power Cable Supply (cable holder and bracing)	√	√	√	√	√	√	09/12/2022 W2O
Pumping Accessories - Hoist and Suspension Cable	√	√	√	√	√	√	09/12/2022 W2O
Check Valves - Functional, Signs of Leakage	√	√	√	NS	√	√	09/12/2022 W2O
Float Switches - Verify Operation	√	√	√	√	√	√	09/12/2022 W2O
Float and Cable	√	√	√	√	√	√	09/12/2022 W2O
Pump Controls - Disconnect and Reset Switches	NS	√	√	NS	NS	√	09/12/2022 W2O
Sump and Vault Lids	√	√	√	√	√	√	09/12/2022 W2O
Flow Switch and Sump Level Meter	√	√	√	√	√	√	09/12/2022 W2O
Markings	√	√	√	√	√	√	09/12/2022 W2O
Control Cabinets	√	√	√	√	√	√	09/12/2022 W2O
	LSW1	LSW2	LSW3				
Power Cable Supply (cable holder and bracing)	√	√	√				09/12/2022 W2O
Pumping Accessories - Hoist and Suspension Cable	√	√	√				09/12/2022 W2O
Check Valves - Functional, Signs of Leakage	√	√	√				09/12/2022 W2O
Float Switches - Verify Operation	√	√	√				09/12/2022 W2O
Float and Cable	√	√	√				09/12/2022 W2O
Pump Controls - Disconnect and Reset Switches	√	√	√				09/12/2022 W2O
Sump and Vault Lids	√	√	√				09/12/2022 W2O
Flow Switch and Sump Level Meter	√	√	√				09/12/2022 W2O
Markings	√	√	√				09/12/2022 W2O
Control Cabinets	√	√	√				09/12/2022 W2O

Comments: All sumps were pumped down to the lowest achievable elevation to examine the interior conditions.

TRC is scheduling future inspections and pump repairs with W2O.

FORM LMS-3							
ANNUAL INSPECTION CHECKLIST							
LEACHATE MANAGEMENT SYSTEM							
BROOKFIELD AVENUE LANDFILL							
OCTOBER 2024							
Date: October 2022				**Inspected By: D. Whithey**			
INSPECTION TASK	**SUMP NUMBER**						**REMARKS**
	LSE1	**LSE2**	**LSE3**	**LSE4**	**LSE5**	**LSE6**	
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting							09/12/2022 W2O
Resistance On Pump Motors	√	√	**NS**	√	**NS**	√	09/12/2022 W2O
Change Pump Lubricant In Seal Chamber	√	√	√	√	√	√	09/12/2022 W2O
Safety Control Devices	**NS**	√	√	**NS**	√	√	09/12/2022 W2O
Empty Leakage Chamber	√	√	√	√	√	√	09/12/2022 W2O
Inspect Pump Isolation Valve	√	√	√	√	√	√	09/12/2022 W2O
Open and Close Valve Fully	√	√	√	√	√	√	09/12/2022 W2O
Inspect Valve Stem for Leakage	√	√	√	√	√	√	09/12/2022 W2O
Tighten if Necessary	√	√	√	√	√	√	09/12/2022 W2O
	LSW1	**LSW2**	**LSW3**				
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting	√	√	√				09/12/2022 W2O
Resistance On Pump Motors	**NS**	**NS**	**NS**				09/12/2022 W2O
Change Pump Lubricant In Seal Chamber	√	√	√				09/12/2022 W2O
Safety Control Devices	√	√	√				09/12/2022 W2O
Empty Leakage Chamber	√	√	√				09/12/2022 W2O
Inspect Pump Isolation Valve	√	√	√				09/12/2022 W2O
Open and Close Valve Fully	√	√	√				09/12/2022 W2O
Inspect Valve Stem for Leakage	√	√	√				09/12/2022 W2O
Tighten if Necessary	√	√	√				09/12/2022 W2O
Comments:							
***every 8000 hours or two years**							
Annual inspection items on hold pending leachate pump investigation.							

FORM DP-1
LEACHATE MANAGEMENT SYSTEM
OCTOBER 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
5/9/2024	Leachate Management System	Leachate Management system's panel UPS was sent back to Falcon for repair under warranty.	TRC (Elise He), received the repaired UPS and installed it into the LMS panel, along with the new bypass switch. The system is operating as normal.
6/21/2024	Leachate Management System	Leachate Management system's panel UPS was presenting alarms and not holding power.	TRC(Ivan Gonzalez) removed UPS unit, setting power in panel to bypass. Unit was sent back to Falcon for repair or replacement under warranty.
8/12-08/13	Leachate Management System and Sump Pumps	TRC and W2O inspected the leachate management system.	W2O identified various wiring, electric, and other issues with the LSW and LSE pumps. W2O to provide proposal for repairs.

Date: 10/17/2024

Inspected By: E. He

Signature: Elise He

FORM LMS-1
INSPECTION CHECKLIST
LEACHATE MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL
NOVEMBER 2024

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
11/6/2024	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
11/6/2024	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
11/6/2024	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
11/6/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
11/6/2024	LSE 2	5,621.2	5,615.6	39.6	--	√	√	√	√
11/6/2024	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
11/6/2024	LSE 4	180.4	232.5	0.0	--	√	√	√	√
11/6/2024	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
11/6/2024	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
11/6/2024	√	√	√	39.6	28,019,386	125.5	v	v	v

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
11/26/2024	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
11/26/2024	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
11/26/2024	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
11/26/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
11/26/2024	LSE 2	5,660.7	5,657.1	81.0	--	√	√	√	√
11/26/2024	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
11/26/2024	LSE 4	180.4	232.5	0.0	--	√	√	√	√
11/26/2024	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
11/26/2024	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
11/26/2024	√	√	√	81.0	28,551,512	109.5	v	v	v

Monthly Totals

Inspection Month	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Monthly Sump Runtime (hrs)	Leachate Elevation (ft) Monthly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
November 2024	LSW 1	18,271.1	13,738.2	0.0	14.01	√	√	√	√
November 2024	LSW 2	7,632.1	7,146.5	0.0	12.21	√	√	√	√
November 2024	LSW 3	19,217.9	16,698.6	0.0	17.85	√	√	√	√
November 2024	LSE 1	543.3	1,793.7	0.0	10.11	√	√	√	√
November 2024	LSE 2	5,593.8	5,603.4	120.6	15.74	√	√	√	√
November 2024	LSE 3	7,613.3	35,616.8	0.0	14.70	√	√	√	√
November 2024	LSE 4	180.4	232.5	0.0	14.21	√	√	√	√
November 2024	LSE 5	5,002.3	3,044.2	0.0	9.24	√	√	√	√
November 2024	LSE 6	10,000.7	25,087.6	0.0	4.13	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Monthly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
November 2024	√	√	√	120.6	28,551,512	114.7	v	v	v

FORM LMS-2

SEMI - ANNUAL INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

NOVEMBER 2024

Date: AUGUST 2024 | **Inspected By: D. Withey**

INSPECTION TASK	SUMP NUMBER						REMARKS
	LSE1	LSE2	LSE3	LSE4	LSE5	LSE6	
Power Cable Supply (cable holder and bracing)	√	√	√	√	√	√	08/14/2024 W2O
Pumping Accessories - Hoist and Suspension Cable	√	√	√	√	√	√	08/14/2024 W2O
Check Valves - Functional, Signs of Leakage	√	√	√	**NS**	√	√	08/14/2024 W2O
Float Switches - Verify Operation	√	√	√	√	√	√	08/14/2024 W2O
Float and Cable	√	√	√	√	√	√	08/14/2024 W2O
Pump Controls - Disconnect and Reset Switches	**NS**	√	√	**NS**	**NS**	√	08/14/2024 W2O
Sump and Vault Lids	√	√	√	√	√	√	08/14/2024 W2O
Flow Switch and Sump Level Meter	√	√	√	√	√	√	08/14/2024 W2O
Markings	√	√	√	√	√	√	08/14/2024 W2O
Control Cabinets	√	√	√	√	√	√	08/14/2024 W2O
	LSW1	**LSW2**	**LSW3**				
Power Cable Supply (cable holder and bracing)	√	√	√				08/14/2024 W2O
Pumping Accessories - Hoist and Suspension Cable	√	√	√				08/14/2024 W2O
Check Valves - Functional, Signs of Leakage	√	√	√				08/14/2024 W2O
Float Switches - Verify Operation	√	√	√				08/14/2024 W2O
Float and Cable	√	√	√				08/14/2024 W2O
Pump Controls - Disconnect and Reset Switches	√	√	√				08/14/2024 W2O
Sump and Vault Lids	√	√	√				08/14/2024 W2O
Flow Switch and Sump Level Meter	√	√	√				09/12/2022 W2O
Markings	√	√	√				09/12/2022 W2O
Control Cabinets	√	√	√				09/12/2022 W2O

Comments: All sumps were pumped down to the lowest achievable elevation to examine the interior conditions.

TRC is scheduling future inspections and pump repairs with W2O.

FORM LMS-3							
ANNUAL INSPECTION CHECKLIST							
LEACHATE MANAGEMENT SYSTEM							
BROOKFIELD AVENUE LANDFILL							
NOVEMBER 2024							
Date: August 2024			**Inspected By: D. Whithey**				
INSPECTION TASK	**SUMP NUMBER**						**REMARKS**
	LSE1	**LSE2**	**LSE3**	**LSE4**	**LSE5**	**LSE6**	
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting							08/14/2024 W2O
Resistance On Pump Motors	√	√	**NS**	√	**NS**	√	08/14/2024 W2O
Change Pump Lubricant In Seal Chamber	√	√	√	√	√	√	08/14/2024 W2O
Safety Control Devices	**NS**	√	√	**NS**	√	√	08/14/2024 W2O
Empty Leakage Chamber	√	√	√	√	√	√	08/14/2024 W2O
Inspect Pump Isolation Valve	√	√	√	√	√	√	08/14/2024 W2O
Open and Close Valve Fully	√	√	√	√	√	√	08/14/2024 W2O
Inspect Valve Stem for Leakage	√	√	√	√	√	√	08/14/2024 W2O
Tighten if Necessary	√	√	√	√	√	√	08/14/2024 W2O
	LSW1	**LSW2**	**LSW3**				
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting	√	√	√				08/14/2024 W2O
Resistance On Pump Motors	**NS**	**NS**	**NS**				08/14/2024 W2O
Change Pump Lubricant In Seal Chamber	√	√	√				08/14/2024 W2O
Safety Control Devices	√	√	√				08/14/2024 W2O
Empty Leakage Chamber	√	√	√				08/14/2024 W2O
Inspect Pump Isolation Valve	√	√	√				08/14/2024 W2O
Open and Close Valve Fully	√	√	√				08/14/2024 W2O
Inspect Valve Stem for Leakage	√	√	√				08/14/2024 W2O
Tighten if Necessary	√	√	√				08/14/2024 W2O
Comments:							
***every 8000 hours or two years**							

FORM DP-1
LEACHATE MANAGEMENT SYSTEM
NOVEMBER 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
5/9/2024	Leachate Management System	Leachate Management system's panel UPS was sent back to Falcon for repair under warranty.	TRC (Elise He), received the repaired UPS and installed it into the LMS panel, along with the new bypass switch. The system is operating as normal.
6/21/2024	Leachate Management System	Leachate Management system's panel UPS was presenting alarms and not holding power.	TRC(Ivan Gonzalez) removed UPS unit, setting power in panel to bypass. Unit was sent back to Falcon for repair or replacement under warranty.
8/12-08/13	Leachate Management System and Sump Pumps	TRC and W2O inspected the leachate management system.	W2O identified various wiring, electric, and other issues with the LSW and LSE pumps. W2O to provide proposal for repairs.

Date: 11/15/2024

Inspected By: Ivan Gonzalez

Signature: 

FORM LMS-1
INSPECTION CHECKLIST
LEACHATE MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL
DECEMBER 2024

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
12/5/2024	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
12/5/2024	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
12/5/2024	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
12/5/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
12/5/2024	LSE 2	5,686.6	5,683.1	172.5	--	√	√	√	√
12/5/2024	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
12/5/2024	LSE 4	180.4	232.5	0.0	--	√	√	√	√
12/5/2024	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
12/5/2024	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
12/5/2024	√	√	√	172.5	28,753,458	99.7	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
12/13/2024	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
12/13/2024	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
12/13/2024	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
12/13/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
12/13/2024	LSE 2	5,701.6	5,695.7	27.6	--	√	√	√	√
12/13/2024	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
12/13/2024	LSE 4	180.4	232.5	0.0	--	√	√	√	√
12/13/2024	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
12/13/2024	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
12/13/2024	√	√	√	27.6	28,874,606	73.2	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
12/19/2024	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
12/19/2024	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
12/19/2024	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
12/19/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
12/19/2024	LSE 2	5,717.2	5,708.9	28.8	--	√	√	√	√
12/19/2024	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
12/19/2024	LSE 4	180.4	232.5	0.0	--	√	√	√	√
12/19/2024	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
12/19/2024	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
12/19/2024	√	√	√	28.8	29,010,152	78.4	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
12/23/2024	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
12/23/2024	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
12/23/2024	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
12/23/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
12/23/2024	LSE 2	5,730.4	5,722.6	26.9	--	√	√	√	√
12/23/2024	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
12/23/2024	LSE 4	180.4	232.5	0.0	--	√	√	√	√
12/23/2024	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
12/23/2024	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
12/23/2024	√	√	√	26.9	29,137,464	78.9	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
12/30/2024	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
12/30/2024	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
12/30/2024	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
12/30/2024	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
12/30/2024	LSE 2	5,744.1	5,752.5	43.6	--	√	√	√	√
12/30/2024	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
12/30/2024	LSE 4	180.4	232.5	0.0	--	√	√	√	√
12/30/2024	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
12/30/2024	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
12/30/2024	√	√	√	43.6	29,325,604	71.9	√	√	√

Monthly Totals

Inspection Month	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Monthly Sump Runtime (hrs)	Leachate Elevation (ft) Monthly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
December 2024	LSW 1	18,271.1	13,738.2	0.0	14.23	√	√	√	√
December 2024	LSW 2	7,632.1	7,146.5	0.0	13.98	√	√	√	√
December 2024	LSW 3	19,217.9	16,698.6	0.0	17.93	√	√	√	√
December 2024	LSE 1	543.3	1,793.7	0.0	10.05	√	√	√	√
December 2024	LSE 2	5,730.4	5,722.6	200.1	14.51	√	√	√	√
December 2024	LSE 3	7,613.3	35,616.8	0.0	14.75	√	√	√	√
December 2024	LSE 4	180.4	232.5	0.0	14.05	√	√	√	√
December 2024	LSE 5	5,002.3	3,044.2	0.0	9.12	√	√	√	√
December 2024	LSE 6	10,000.7	25,087.6	0.0	4.52	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Monthly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
December 2024	√	√	√	200.1	28,874,606	96.1	√	√	√

FORM LMS-2

SEMI - ANNUAL INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

DECEMBER 2024

Date: AUGUST 2024 | **Inspected By: D. Withey**

INSPECTION TASK	SUMP NUMBER						REMARKS
	LSE1	LSE2	LSE3	LSE4	LSE5	LSE6	
Power Cable Supply (cable holder and bracing)	√	√	√	√	√	√	08/14/2024 W2O
Pumping Accessories - Hoist and Suspension Cable	√	√	√	√	√	√	08/14/2024 W2O
Check Valves - Functional, Signs of Leakage	√	√	√	NS	√	√	08/14/2024 W2O
Float Switches - Verify Operation	√	√	√	√	√	√	08/14/2024 W2O
Float and Cable	√	√	√	√	√	√	08/14/2024 W2O
Pump Controls - Disconnect and Reset Switches	NS	√	√	NS	NS	√	08/14/2024 W2O
Sump and Vault Lids	√	√	√	√	√	√	08/14/2024 W2O
Flow Switch and Sump Level Meter	√	√	√	√	√	√	08/14/2024 W2O
Markings	√	√	√	√	√	√	08/14/2024 W2O
Control Cabinets	√	√	√	√	√	√	08/14/2024 W2O
	LSW1	LSW2	LSW3				
Power Cable Supply (cable holder and bracing)	√	√	√				08/14/2024 W2O
Pumping Accessories - Hoist and Suspension Cable	√	√	√				08/14/2024 W2O
Check Valves - Functional, Signs of Leakage	√	√	√				08/14/2024 W2O
Float Switches - Verify Operation	√	√	√				08/14/2024 W2O
Float and Cable	√	√	√				08/14/2024 W2O
Pump Controls - Disconnect and Reset Switches	√	√	√				08/14/2024 W2O
Sump and Vault Lids	√	√	√				08/14/2024 W2O
Flow Switch and Sump Level Meter	√	√	√				09/12/2022 W2O
Markings	√	√	√				09/12/2022 W2O
Control Cabinets	√	√	√				09/12/2022 W2O

Comments: All sumps were pumped down to the lowest achievable elevation to examine the interior conditions.

TRC is scheduling future inspections and pump repairs with W2O.

FORM LMS-3

ANNUAL INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

DECEMBER 2024

Date: August 2024 | **Inspected By: D. Whithey**

INSPECTION TASK	SUMP NUMBER						REMARKS
	LSE1	LSE2	LSE3	LSE4	LSE5	LSE6	
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting							08/14/2024 W2O
Resistance On Pump Motors	√	√	NS	√	NS	√	08/14/2024 W2O
Change Pump Lubricant In Seal Chamber	√	√	√	√	√	√	08/14/2024 W2O
Safety Control Devices	NS	√	√	NS	√	√	08/14/2024 W2O
Empty Leakage Chamber	√	√	√	√	√	√	08/14/2024 W2O
Inspect Pump Isolation Valve	√	√	√	√	√	√	08/14/2024 W2O
Open and Close Valve Fully	√	√	√	√	√	√	08/14/2024 W2O
Inspect Valve Stem for Leakage	√	√	√	√	√	√	08/14/2024 W2O
Tighten if Necessary	√	√	√	√	√	√	08/14/2024 W2O
	LSW1	LSW2	LSW3				
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting	√	√	√				08/14/2024 W2O
Resistance On Pump Motors	NS	NS	NS				08/14/2024 W2O
Change Pump Lubricant In Seal Chamber	√	√	√				08/14/2024 W2O
Safety Control Devices	√	√	√				08/14/2024 W2O
Empty Leakage Chamber	√	√	√				08/14/2024 W2O
Inspect Pump Isolation Valve	√	√	√				08/14/2024 W2O
Open and Close Valve Fully	√	√	√				08/14/2024 W2O
Inspect Valve Stem for Leakage	√	√	√				08/14/2024 W2O
Tighten if Necessary	√	√	√				08/14/2024 W2O

Comments:

***every 8000 hours or two years**

FORM DP-1

LANDFILL GAS MANAGEMENT SYSTEM

DECEMBER 2024

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken

Date: 12/18/2024

Inspected By: Ivan Gonzalez

Signature: 

FORM LMS-1
INSPECTION CHECKLIST
LEACHATE MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL
JANUARY 2025

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
1/7/2025	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
1/7/2025	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
1/7/2025	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
1/7/2025	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
1/7/2025	LSE 2	5,775.4	5,767.4	46.2	--	√	√	√	√
1/7/2025	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
1/7/2025	LSE 4	180.4	232.5	0.0	--	√	√	√	√
1/7/2025	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
1/7/2025	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
1/7/2025	√	√	√	46.2	29,565,988	665.5	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
1/16/2025	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
1/16/2025	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
1/16/2025	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
1/16/2025	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
1/16/2025	LSE 2	5,802.5	5,793.9	53.6	--	√	√	√	√
1/16/2025	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
1/16/2025	LSE 4	180.4	232.5	0.0	--	√	√	√	√
1/16/2025	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
1/16/2025	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
1/16/2025	√	√	√	53.6	29,833,698	83.2	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
1/24/2025	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
1/24/2025	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
1/24/2025	LSW 3	19,217.9	16,698.8	0.2	--	√	√	√	√
1/24/2025	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
1/24/2025	LSE 2	5,815.8	5,810.0	29.4	--	√	√	√	√
1/24/2025	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
1/24/2025	LSE 4	180.4	232.5	0.0	--	√	√	√	√
1/24/2025	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
1/24/2025	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
1/24/2025	√	√	√	29.6	29,972,278	78.0	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
1/31/2025	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
1/31/2025	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
1/31/2025	LSW 3	19,217.9	16,698.8	0.0	--	√	√	√	√
1/31/2025	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
1/31/2025	LSE 2	5,830.2	5,835.8	40.2	--	√	√	√	√
1/31/2025	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
1/31/2025	LSE 4	180.4	232.5	0.0	--	√	√	√	√
1/31/2025	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
1/31/2025	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
1/31/2025	√	√	√	40.2	30,176,364	84.6	√	√	√

Monthly Totals

Inspection Month	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Monthly Sump Runtime (hrs)	Leachate Elevation (ft) Monthly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
January 2025	LSW 1	18,271.1	13,738.2	0.0	13.35	√	√	√	√
January 2025	LSW 2	7,632.1	7,146.5	0.0	13.98	√	√	√	√
January 2025	LSW 3	19,217.9	16,698.8	0.0	18.08	√	√	√	√
January 2025	LSE 1	543.3	1,793.7	0.0	10.68	√	√	√	√
January 2025	LSE 2	5,830.2	5,835.8	40.2	15.03	√	√	√	√
January 2025	LSE 3	7,613.3	35,616.8	0.0	15.06	√	√	√	√
January 2025	LSE 4	180.4	232.5	0.0	14.03	√	√	√	√
January 2025	LSE 5	5,002.3	3,044.2	0.0	9.00	√	√	√	√
January 2025	LSE 6	10,000.7	25,087.6	0.0	4.54	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Monthly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
January 2025	√	√	√	40.2	30,176,364	1017.9	√	√	√

FORM LMS-2

SEMI - ANNUAL INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

JANUARY 2025

Date: AUGUST 2024 | **Inspected By: D. Withey**

INSPECTION TASK	SUMP NUMBER						REMARKS
	LSE1	LSE2	LSE3	LSE4	LSE5	LSE6	
Power Cable Supply (cable holder and bracing)	√	√	√	√	√	√	08/14/2024 W2O
Pumping Accessories - Hoist and Suspension Cable	√	√	√	√	√	√	08/14/2024 W2O
Check Valves - Functional, Signs of Leakage	√	√	√	NS	√	√	08/14/2024 W2O
Float Switches - Verify Operation	√	√	√	√	√	√	08/14/2024 W2O
Float and Cable	√	√	√	√	√	√	08/14/2024 W2O
Pump Controls - Disconnect and Reset Switches	NS	√	√	NS	NS	√	08/14/2024 W2O
Sump and Vault Lids	√	√	√	√	√	√	08/14/2024 W2O
Flow Switch and Sump Level Meter	√	√	√	√	√	√	08/14/2024 W2O
Markings	√	√	√	√	√	√	08/14/2024 W2O
Control Cabinets	√	√	√	√	√	√	08/14/2024 W2O
	LSW1	LSW2	LSW3				
Power Cable Supply (cable holder and bracing)	√	√	√				08/14/2024 W2O
Pumping Accessories - Hoist and Suspension Cable	√	√	√				08/14/2024 W2O
Check Valves - Functional, Signs of Leakage	√	√	√				08/14/2024 W2O
Float Switches - Verify Operation	√	√	√				08/14/2024 W2O
Float and Cable	√	√	√				08/14/2024 W2O
Pump Controls - Disconnect and Reset Switches	√	√	√				08/14/2024 W2O
Sump and Vault Lids	√	√	√				08/14/2024 W2O
Flow Switch and Sump Level Meter	√	√	√				09/12/2022 W2O
Markings	√	√	√				09/12/2022 W2O
Control Cabinets	√	√	√				09/12/2022 W2O

Comments: All sumps were pumped down to the lowest achievable elevation to examine the interior conditions.

TRC is scheduling future inspections and pump repairs with W2O.

FORM LMS-3							
ANNUAL INSPECTION CHECKLIST							
LEACHATE MANAGEMENT SYSTEM							
BROOKFIELD AVENUE LANDFILL							
JANUARY 2025							
Date: August 2024				**Inspected By: D. Whithey**			
INSPECTION TASK	**SUMP NUMBER**						**REMARKS**
	LSE1	**LSE2**	**LSE3**	**LSE4**	**LSE5**	**LSE6**	
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting							08/14/2024 W2O
Resistance On Pump Motors	√	√	**NS**	√	**NS**	√	08/14/2024 W2O
Change Pump Lubricant In Seal Chamber	√	√	√	√	√	√	08/14/2024 W2O
Safety Control Devices	**NS**	√	√	**NS**	√	√	08/14/2024 W2O
Empty Leakage Chamber	√	√	√	√	√	√	08/14/2024 W2O
Inspect Pump Isolation Valve	√	√	√	√	√	√	08/14/2024 W2O
Open and Close Valve Fully	√	√	√	√	√	√	08/14/2024 W2O
Inspect Valve Stem for Leakage	√	√	√	√	√	√	08/14/2024 W2O
Tighten if Necessary	√	√	√	√	√	√	08/14/2024 W2O
	LSW1	**LSW2**	**LSW3**				
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting	√	√	√				08/14/2024 W2O
Resistance On Pump Motors	**NS**	**NS**	**NS**				08/14/2024 W2O
Change Pump Lubricant In Seal Chamber	√	√	√				08/14/2024 W2O
Safety Control Devices	√	√	√				08/14/2024 W2O
Empty Leakage Chamber	√	√	√				08/14/2024 W2O
Inspect Pump Isolation Valve	√	√	√				08/14/2024 W2O
Open and Close Valve Fully	√	√	√				08/14/2024 W2O
Inspect Valve Stem for Leakage	√	√	√				08/14/2024 W2O
Tighten if Necessary	√	√	√				08/14/2024 W2O
Comments:							
***every 8000 hours or two years**							

FORM DP-1
LEACHATE MANAGEMENT SYSTEM
JANUARY 2025
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
5/9/2024	Leachate Management System	Leachate Management system's panel UPS was sent back to Falcon for repair under warranty.	TRC (Elise He), received the repaired UPS and installed it into the LMS panel, along with the new bypass switch. The system is operating as normal.
6/21/2024	Leachate Management System	Leachate Management system's panel UPS was presenting alarms and not holding power.	TRC(Ivan Gonzalez) removed UPS unit, setting power in panel to bypass. Unit was sent back to Falcon for repair or replacement under warranty.
8/12-08/13	Leachate Management System and Sump Pumps	TRC and W2O inspected the leachate management system.	W2O identified various wiring, electric, and other issues with the LSW and LSE pumps. W2O to provide proposal for repairs.

Date: 1/17/2025

Inspected By: Claire Winter

Signature: Claire Winter

FORM LMS-1
INSPECTION CHECKLIST
LEACHATE MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL
FEBRUARY 2025

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
2/7/2025	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
2/7/2025	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
2/7/2025	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
2/7/2025	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
2/7/2025	LSE 2	5,845.9	5,853.2	33.1	--	√	√	√	√
2/7/2025	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
2/7/2025	LSE 4	180.4	232.5	0.0	--	√	√	√	√
2/7/2025	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
2/7/2025	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
2/7/2025	√	√	√	33.1	30,354,164	89.5	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
2/11/2025	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
2/11/2025	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
2/11/2025	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
2/11/2025	LSE 1	543.3	1,793.7	0.0	--	√	√	√	√
2/11/2025	LSE 2	5,861.8	5,853.2	15.9	--	√	√	√	√
2/11/2025	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
2/11/2025	LSE 4	180.4	232.5	0.0	--	√	√	√	√
2/11/2025	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
2/11/2025	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
2/11/2025	√	√	√	15.9	30,459,600	31,928.3	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
2/21/2025	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
2/21/2025	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
2/21/2025	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
2/21/2025	LSE 1	543.3	1,905.0	111.3	--	√	√	√	√
2/21/2025	LSE 2	5,896.0	5,882.1	63.1	--	√	√	√	√
2/21/2025	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
2/21/2025	LSE 4	180.4	232.5	0.0	--	√	√	√	√
2/21/2025	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
2/21/2025	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
2/21/2025	√	√	√	174.4	30,819,892	44.5	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
2/25/2025	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
2/25/2025	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
2/25/2025	LSW 3	19,217.9	16,698.8	0.2	--	√	√	√	√
2/25/2025	LSE 1	543.3	1,905.0	0.0	--	√	√	√	√
2/25/2025	LSE 2	5,912.1	5,895.6	29.6	--	√	√	√	√
2/25/2025	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
2/25/2025	LSE 4	180.4	232.5	0.0	--	√	√	√	√
2/25/2025	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
2/25/2025	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
2/25/2025	√	√	√	29.8	31,021,838	112.9	√	√	√

Monthly Totals

Inspection Month	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Monthly Sump Runtime (hrs)	Leachate Elevation (ft) Monthly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
Febuary 2025	LSW 1	18,271.1	13,738.2	0.0	13.6	√	√	√	√
Febuary 2025	LSW 2	7,632.1	7,146.5	0.0	12.9	√	√	√	√
Febuary 2025	LSW 3	19,217.9	16,698.8	0.2	17.5	√	√	√	√
Febuary 2025	LSE 1	543.3	1,905.0	0.0	9.88	√	√	√	√
Febuary 2025	LSE 2	5,912.1	5,895.6	29.6	14.30	√	√	√	√
Febuary 2025	LSE 3	7,613.3	35,616.8	0.0	14.7	√	√	√	√
Febuary 2025	LSE 4	180.4	232.5	0.0	14.05	√	√	√	√
Febuary 2025	LSE 5	5,002.3	3,044.2	0.0	9.05	√	√	√	√
Febuary 2025	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Monthly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
Febuary 2025	√	√	√	29.8	31,021,838	472.9	√	√	√

FORM LMS-2

SEMI - ANNUAL INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

FEBRUARY 2025

Date: AUGUST 2024 | **Inspected By: D. Withey**

INSPECTION TASK	SUMP NUMBER						REMARKS
	LSE1	LSE2	LSE3	LSE4	LSE5	LSE6	
Power Cable Supply (cable holder and bracing)	√	√	√	√	√	√	08/14/2024 W2O
Pumping Accessories - Hoist and Suspension Cable	√	√	√	√	√	√	08/14/2024 W2O
Check Valves - Functional, Signs of Leakage	√	√	√	NS	√	√	08/14/2024 W2O
Float Switches - Verify Operation	√	√	√	√	√	√	08/14/2024 W2O
Float and Cable	√	√	√	√	√	√	08/14/2024 W2O
Pump Controls - Disconnect and Reset Switches	NS	√	√	NS	NS	√	08/14/2024 W2O
Sump and Vault Lids	√	√	√	√	√	√	08/14/2024 W2O
Flow Switch and Sump Level Meter	√	√	√	√	√	√	08/14/2024 W2O
Markings	√	√	√	√	√	√	08/14/2024 W2O
Control Cabinets	√	√	√	√	√	√	08/14/2024 W2O
	LSW1	LSW2	LSW3				
Power Cable Supply (cable holder and bracing)	√	√	√				08/14/2024 W2O
Pumping Accessories - Hoist and Suspension Cable	√	√	√				08/14/2024 W2O
Check Valves - Functional, Signs of Leakage	√	√	√				08/14/2024 W2O
Float Switches - Verify Operation	√	√	√				08/14/2024 W2O
Float and Cable	√	√	√				08/14/2024 W2O
Pump Controls - Disconnect and Reset Switches	√	√	√				08/14/2024 W2O
Sump and Vault Lids	√	√	√				08/14/2024 W2O
Flow Switch and Sump Level Meter	√	√	√				09/12/2022 W2O
Markings	√	√	√				09/12/2022 W2O
Control Cabinets	√	√	√				09/12/2022 W2O

Comments: All sumps were pumped down to the lowest achievable elevation to examine the interior conditions.

TRC is scheduling future inspections and pump repairs with W2O.

FORM LMS-3							
ANNUAL INSPECTION CHECKLIST							
LEACHATE MANAGEMENT SYSTEM							
BROOKFIELD AVENUE LANDFILL							
FEBRUARY 2025							
Date: August 2024				**Inspected By: D. Whithey**			
INSPECTION TASK	**SUMP NUMBER**						**REMARKS**
	LSE1	**LSE2**	**LSE3**	**LSE4**	**LSE5**	**LSE6**	
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting							08/14/2024 W2O
Resistance On Pump Motors	√	√	**NS**	√	**NS**	√	08/14/2024 W2O
Change Pump Lubricant In Seal Chamber	√	√	√	√	√	√	08/14/2024 W2O
Safety Control Devices	**NS**	√	√	**NS**	√	√	08/14/2024 W2O
Empty Leakage Chamber	√	√	√	√	√	√	08/14/2024 W2O
Inspect Pump Isolation Valve	√	√	√	√	√	√	08/14/2024 W2O
Open and Close Valve Fully	√	√	√	√	√	√	08/14/2024 W2O
Inspect Valve Stem for Leakage	√	√	√	√	√	√	08/14/2024 W2O
Tighten if Necessary	√	√	√	√	√	√	08/14/2024 W2O
	LSW1	**LSW2**	**LSW3**				
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting	√	√	√				08/14/2024 W2O
Resistance On Pump Motors	**NS**	**NS**	**NS**				08/14/2024 W2O
Change Pump Lubricant In Seal Chamber	√	√	√				08/14/2024 W2O
Safety Control Devices	√	√	√				08/14/2024 W2O
Empty Leakage Chamber	√	√	√				08/14/2024 W2O
Inspect Pump Isolation Valve	√	√	√				08/14/2024 W2O
Open and Close Valve Fully	√	√	√				08/14/2024 W2O
Inspect Valve Stem for Leakage	√	√	√				08/14/2024 W2O
Tighten if Necessary	√	√	√				08/14/2024 W2O
Comments:							
***every 8000 hours or two years**							

FORM DP-1
LEACHATE MANAGEMENT SYSTEM
FEBRUARY 2025
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
5/9/2024	Leachate Management System	Leachate Management system's panel UPS was sent back to Falcon for repair under warranty.	TRC (Elise He), received the repaired UPS and installed it into the LMS panel, along with the new bypass switch. The system is operating as normal.
6/21/2024	Leachate Management System	Leachate Management system's panel UPS was presenting alarms and not holding power.	TRC(Ivan Gonzalez) removed UPS unit, setting power in panel to bypass. Unit was sent back to Falcon for repair or replacement under warranty.
8/12-08/13	Leachate Management System and Sump Pumps	TRC and W2O inspected the leachate management system.	W2O identified various wiring, electric, and other issues with the LSW and LSE pumps. W2O to provide proposal for repairs.

Date: 2/21/2025

Inspected By: Zara Castillo

Signature: Zara Castillo

FORM LMS-1

INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

MARCH 2025

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
3/3/2025	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
3/3/2025	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
3/3/2025	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
3/3/2025	LSE 1	543.3	1,905.0	0.0	--	√	√	√	√
3/3/2025	LSE 2	5,928.6	5,911.3	32.2	--	√	√	√	√
3/3/2025	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
3/3/2025	LSE 4	180.4	232.5	0.0	--	√	√	√	√
3/3/2025	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
3/3/2025	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
3/3/2025	√	√	√	32.2	31,231,000	108.3	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
3/10/2025	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
3/10/2025	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
3/10/2025	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
3/10/2025	LSE 1	543.3	1,905.0	0.0	--	√	√	√	√
3/10/2025	LSE 2	5,945.0	5,939.0	44.1	--	√	√	√	√
3/10/2025	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
3/10/2025	LSE 4	180.4	232.5	0.0	--	√	√	√	√
3/10/2025	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
3/10/2025	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
3/10/2025	√	√	√	44.1	31,534,782	11,917.9	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
3/17/2025	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
3/17/2025	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
3/17/2025	LSW 3	19,217.9	16,698.6	0.0	--	√	√	√	√
3/17/2025	LSE 1	543.3	1,905.0	0.0	--	√	√	√	√
3/17/2025	LSE 2	5,980.2	5,953.3	49.5	--	√	√	√	√
3/17/2025	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
3/17/2025	LSE 4	180.4	232.5	0.0	--	√	√	√	√
3/17/2025	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
3/17/2025	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
3/17/2025	√	√	√	49.5	31,891,062	222.2	√	√	√

Weekly Inspection

Inspection Date	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Weekly Sump Runtime (hrs)	Leachate Elevation (ft) Weekly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
3/24/2025	LSW 1	18,271.1	13,738.2	0.0	--	√	√	√	√
3/24/2025	LSW 2	7,632.1	7,146.5	0.0	--	√	√	√	√
3/24/2025	LSW 3	19,217.9	16,698.8	0.2	--	√	√	√	√
3/24/2025	LSE 1	543.3	1,905.0	0.0	--	√	√	√	√
3/24/2025	LSE 2	5,997.2	5,981.8	45.5	--	√	√	√	√
3/24/2025	LSE 3	7,613.3	35,616.8	0.0	--	√	√	√	√
3/24/2025	LSE 4	180.4	232.5	0.0	--	√	√	√	√
3/24/2025	LSE 5	5,002.3	3,044.2	0.0	--	√	√	√	√
3/24/2025	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Weekly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
3/24/2025	√	√	√	45.7	32,213,350	117.5	√	√	√

Monthly Totals

Inspection Month	Location	Pump #1 Runtime (hrs)	Pump #2 Runtime (hrs)	Monthly Sump Runtime (hrs)	Leachate Elevation (ft) Monthly	Operable Pump #1	Operable Pump #2	Pipe Blockage / Leachate Flow	Sump Structures
March 2025	LSW 1	18,271.1	13,738.2	0.0	13.6	√	√	√	√
March 2025	LSW 2	7,632.1	7,146.5	0.0	12.9	√	√	√	√
March 2025	LSW 3	19,217.9	16,698.8	0.2	17.5	√	√	√	√
March 2025	LSE 1	543.3	1,905.0	0.0	9.88	√	√	√	√
March 2025	LSE 2	5,997.2	5,981.8	45.5	14.30	√	√	√	√
March 2025	LSE 3	7,613.3	35,616.8	0.0	14.7	√	√	√	√
March 2025	LSE 4	180.4	232.5	0.0	14.05	√	√	√	√
March 2025	LSE 5	5,002.3	3,044.2	0.0	9.05	√	√	√	√
March 2025	LSE 6	10,000.7	25,087.6	0.0	--	√	√	√	√

Inspection Date	Oil Water Separator 1	Oil Water Separator 2	Parshall Flume	Monthly Sump Runtime (hrs)	Totalizer (Gallons)	Totalizer (GPM)	Cabinet Lights	Drain Piping	HOA Switches
March 2025	√	√	√	45.7	32,213,350	434.5	√	√	√

FORM LMS-2

SEMI - ANNUAL INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

MARCH 2025

Date: AUGUST 2024 | **Inspected By: D. Withey**

INSPECTION TASK	SUMP NUMBER						REMARKS
	LSE1	LSE2	LSE3	LSE4	LSE5	LSE6	
Power Cable Supply (cable holder and bracing)	√	√	√	√	√	√	08/14/2024 W2O
Pumping Accessories - Hoist and Suspension Cable	√	√	√	√	√	√	08/14/2024 W2O
Check Valves - Functional, Signs of Leakage	√	√	√	**NS**	√	√	08/14/2024 W2O
Float Switches - Verify Operation	√	√	√	√	√	√	08/14/2024 W2O
Float and Cable	√	√	√	√	√	√	08/14/2024 W2O
Pump Controls - Disconnect and Reset Switches	**NS**	√	√	**NS**	**NS**	√	08/14/2024 W2O
Sump and Vault Lids	√	√	√	√	√	√	08/14/2024 W2O
Flow Switch and Sump Level Meter	√	√	√	√	√	√	08/14/2024 W2O
Markings	√	√	√	√	√	√	08/14/2024 W2O
Control Cabinets	√	√	√	√	√	√	08/14/2024 W2O
	LSW1	**LSW2**	**LSW3**				
Power Cable Supply (cable holder and bracing)	√	√	√				08/14/2024 W2O
Pumping Accessories - Hoist and Suspension Cable	√	√	√				08/14/2024 W2O
Check Valves - Functional, Signs of Leakage	√	√	√				08/14/2024 W2O
Float Switches - Verify Operation	√	√	√				08/14/2024 W2O
Float and Cable	√	√	√				08/14/2024 W2O
Pump Controls - Disconnect and Reset Switches	√	√	√				08/14/2024 W2O
Sump and Vault Lids	√	√	√				08/14/2024 W2O
Flow Switch and Sump Level Meter	√	√	√				09/12/2022 W2O
Markings	√	√	√				09/12/2022 W2O
Control Cabinets	√	√	√				09/12/2022 W2O

Comments: All sumps were pumped down to the lowest achievable elevation to examine the interior conditions.

TRC is scheduling future inspections and pump repairs with W2O.

FORM LMS-3

ANNUAL INSPECTION CHECKLIST

LEACHATE MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

MARCH 2025

Date: August 2024 | **Inspected By: D. Whithey**

INSPECTION TASK	SUMP NUMBER						REMARKS
	LSE1	LSE2	LSE3	LSE4	LSE5	LSE6	
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting							08/14/2024 W2O
Resistance On Pump Motors	√	√	NS	√	NS	√	08/14/2024 W2O
Change Pump Lubricant In Seal Chamber	√	√	√	√	√	√	08/14/2024 W2O
Safety Control Devices	NS	√	√	NS	√	√	08/14/2024 W2O
Empty Leakage Chamber	√	√	√	√	√	√	08/14/2024 W2O
Inspect Pump Isolation Valve	√	√	√	√	√	√	08/14/2024 W2O
Open and Close Valve Fully	√	√	√	√	√	√	08/14/2024 W2O
Inspect Valve Stem for Leakage	√	√	√	√	√	√	08/14/2024 W2O
Tighten if Necessary	√	√	√	√	√	√	08/14/2024 W2O
	LSW1	LSW2	LSW3				
Inspect each leachate collection piping header for sediment buildup via cleanout manholes by camera or jetting	√	√	√				08/14/2024 W2O
Resistance On Pump Motors	NS	NS	NS				08/14/2024 W2O
Change Pump Lubricant In Seal Chamber	√	√	√				08/14/2024 W2O
Safety Control Devices	√	√	√				08/14/2024 W2O
Empty Leakage Chamber	√	√	√				08/14/2024 W2O
Inspect Pump Isolation Valve	√	√	√				08/14/2024 W2O
Open and Close Valve Fully	√	√	√				08/14/2024 W2O
Inspect Valve Stem for Leakage	√	√	√				08/14/2024 W2O
Tighten if Necessary	√	√	√				08/14/2024 W2O

Comments:

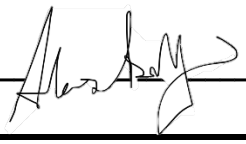
***every 8000 hours or two years**

FORM DP-1
LEACHATE MANAGEMENT SYSTEM
MARCH 2025
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
5/9/2024	Leachate Management System	Leachate Management system's panel UPS was sent back to Falcon for repair under warranty.	TRC (Elise He), received the repaired UPS and installed it into the LMS panel, along with the new bypass switch. The system is operating as normal.
6/21/2024	Leachate Management System	Leachate Management system's panel UPS was presenting alarms and not holding power.	TRC(Ivan Gonzalez) removed UPS unit, setting power in panel to bypass. Unit was sent back to Falcon for repair or replacement under warranty.
8/12-08/13	Leachate Management System and Sump Pumps	TRC and W2O inspected the leachate management system.	W2O identified various wiring, electric, and other issues with the LSW and LSE pumps. W2O to provide proposal for repairs.

Date: 3/18/2025

Inspected By: Abigail Donnely

Signature: 

APPENDIC C

M-1 SELF-MONITORING REPORTS AND ANALYSIS, AND A COPY OF CURRENT IWD PERMIT (CD ENCLOSED WITH PRINTED REPORT)

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Environmental Protection

Rohit Aggarwala
Commissioner

Angela M. De Lillo, P.E.
Deputy Commissioner
Bureau of Wastewater Treatment

96-05 Horace Harding Expressway – 2nd Floor
Corona, NY 11368

July 26, 2023

New York City Parks and Recreation
Environmental Remediation Unit
Brookfield Avenue Landfill Remediation
Olmsted Center, Flushing Meadows Corona Park
117-02 Roosevelt Avenue
Flushing, NY 11368

Re: Issuance of Industrial Wastewater Discharge Permit No. 23-P3149-1

Certified Mail/Return Receipt Requested

Attention: Ms. Kay Zias

Enclosed is your Industrial Wastewater Discharge Permit No. 23-P3149-1, authorizing the discharge of industrial wastewater from your facility located at 575 ARTHUR KILL ROAD, STATEN ISLAND, NY 10308, into the New York City sewerage system. This control mechanism is effective as of August 10, 2023 and expires at midnight on August 9, 2028 and is contingent upon the Industrial User's compliance with any other Federal, State or Local laws applicable to the permitted activity. In order to continue discharging after the expiration date of this Permit, a request for reissuance of this Permit must be emailed a minimum of 120 days prior to its expiration date, to Bwt-permits@dep.nyc.gov. **This Permit shall supersede Permit No. 18-P3149-1 issued to you on August 7, 2018. Please note that your self-monitoring report due dates have not been changed in your new Permit.**

Your Permit contains applicable Federal Categorical Standards and New York City Sewer Use Limits, as well as self-monitoring, reporting and record keeping requirements. Failure to comply with all terms and conditions contained in the Permit and the New York City Sewer Use Regulations (available upon request) may result in issuance of Notices of Summonses (returnable to the New York City Office of Administrative Trials and Hearings) currently carrying civil penalties of up to $10,000 per violation per day and/or other enforcement proceedings.

Substantial changes have been made to the New York City Industrial Wastewater Discharge Permits. It is therefore vital that you read through your Permit carefully and become aware of the new requirements. Please make special note of the extensive changes in discharge limitations and monitoring requirements.

In order to facilitate your periodic self-monitoring and reporting, a standardized four-page Industrial Self-Monitoring Report Form and an Analytical Report Form are enclosed. Additional forms are always available upon request. When completing the forms, your Permit should be referred to for specific monitoring and reporting requirements.

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The SMR must be submitted to:

Sean Hulbert, P.E., Acting Chief
Industrial Resource Management and Permitting Section
Bureau of Wastewater Treatment
New York City Department of Environmental Protection
96-05 Horace Harding Expressway
Corona, New York 11368

Please contact Ms. Kene Umeasor at Bwt-permits@dep.nyc.gov if you have any questions regarding this Permit.

Sincerely,

DocuSigned by:
Sean Hulbert
F0FA5DB140EA4BB...

Sean Hulbert, P.E., Acting Chief
Industrial Resource Management
and Permitting Section

enc: Industrial Wastewater Discharge Permit
Industrial User Self-Monitoring Report Form
Analytical Report Form

DocuSign Envelope ID: 36428BA6-5173-499E-977B-0CD20884FAFD

NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDUSTRIAL WASTEWATER DISCHARGE PERMIT

Permit No.: **23-P3149-1**
Effective Date: **August 10, 2023**
Expiration Date: **August 9, 2028**

In accordance with the provision of Title 24, Chapter 5, Section 24-523 (c) (1) of the New York City Administrative Code (NYCAC)

Industrial User Name: **NEW YORK CITY PARKS AND RECREATION**
ENVIRONMENTAL REMEDIATION UNIT
BROOKFIELD AVENUE LANDFILL REMEDIATION
Facility Address: **575 ARTHUR KILL ROAD**
STATEN ISLAND, NY 10308
Mailing Address: **OLMSTED CENTER, FLUSHING MEADOWS CORONA PARK**
117-02 ROOSEVELT AVENUE
FLUSHING, NEW YORK 11368

is hereby authorized to discharge industrial wastewater from the above identified facility into the New York City sewerage system in accordance with the discharge limitations, monitoring requirements, and other conditions set forth in this Permit.

All discharges authorized herein shall be consistent with the terms and conditions of this Permit. The discharge of any pollutant not identified in this Permit, or any pollutant identified in this Permit more frequently than or at levels in excess of that authorized, shall constitute a violation of the Permit.

The Industrial User shall not discharge any process or regulated wastewater after the expiration date of this Permit. If the Industrial User wishes to continue to discharge thereafter, a request for reissuance of this Permit must be emailed a minimum of 120 days prior to its expiration date, to Bwt-permits@dep.nyc.gov.

By: DocuSigned by: Frances Leung 8AE9809992814A0...
Frances Leung, P.E., Chief
Division of Pollution Prevention and Monitoring
Bureau of Wastewater Treatment

Issued this 26th day of July, 2023

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PART I - SPECIFIC CONDITIONS

SECTION A. DISCHARGE LIMITATIONS

1. Discharge Points

The Industrial User is authorized to discharge leachate generated from the Brookfield Avenue Landfill, subject to the conditions in this Permit, through the discharge point(s) listed below to the New York City sewerage system.

DISCHARGE POINT	DESCRIPTION
M1	A 6" diameter pipe discharging leachate into the sewer, located 54" below the ground in a 24" diameter manhole. The manhole is situated 192" from the facility driveway/walkway and 312" from a fence facing Entrance Road 1.

2. Sewer Use Limits

The discharge from point **M1** shall not exceed the following New York City sewer use limits, including but not limited to:

SEWER USE LIMITS
(15 R.C.N.Y. ch. 19)

POLLUTANT	PERMISSIBLE MAXIMUM CONCENTRATION FOR ANY GIVEN TIME (MG/L)	DAILY MAXIMUM CONCENTRATION (MG/L)
pH	5.0–12.0 Standard Units	—
Cadmium	2.0	0.69
Chromium (Hexavalent)	5.0	—
Copper	5.0	—
Lead	2.0	—
Mercury	0.05	—
Nickel	3.0	—
Zinc	5.0	—
Cyanide (Amenable to Chlorination)	0.2	—
Non-Polar Material	50.0	—

The discharge of leachate with temperature above 150 degrees Fahrenheit and/or closed-

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cup flash point below 140 degrees Fahrenheit (using the test methods specified in 40 C. F. R. 261.21) at any time is prohibited.

The following limits shall also apply:

Pollutant	Permissible Maximum Concentration for any Given Time
Total Suspended Solids (TSS)	350 ppm
Maximum Flow Rate	288,000 GPD
Methyl-Tert-Butyl-Ether (MTBE)	50 ppb
Tetrachloroethylene (Perc)	20 ppb
Total PCB*	1 ppb

Pollutant	Daily Limit (ppb)	Monthly Limit (ppb)
Benzene	134	57
Ethylbenzene	380	142
Naphthalene	47	19
Toluene	74	28
Xylenes (Total)	74	28

* Total PCBs shall equal the sum of all concentrations of the 7 PCB compounds listed on pages I-4 and I-5 of this Permit.

SECTION B. MONITORING REQUIREMENTS

1. Sampling

The Industrial User shall monitor the specified discharge points for the pollutants listed below. All sampling shall take place on days representative of normal operations. Sampling shall be conducted in accordance with 40 C.F.R. § 403.12(g)(3) which states, in pertinent part, that grab samples must be used for pH, cyanide, total phenols, oil and grease, sulfide, and volatile organic compounds. For all other pollutants, 24-hour composite samples must be obtained through flow-proportional composite sampling techniques, unless time-proportional composite sampling or grab sampling is authorized by the [Department]. Where time-proportional composite sampling or grab sampling is authorized by the [Department], the samples must be representative of the discharge. Where the Industrial

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User batch discharges, the company must state how it will take representative samples.

POLLUTANT	SAMPLE LOCATION	FREQUENCY	SAMPLE TYPE
VOLATILE ORGANICS (VOC)			
Benzene	**M1**	Once a month	4 grab samples, taken at least 1 hour apart for 1 day. Each grab sample must be individually preserved and sent to a certified laboratory. The laboratory may then composite the grab samples.
Ethylbenzene	**M1**	" "	" "
Methyl-Tert-Butyl-Ether (MTBE)	**M1**	" "	" "
Tetrachloroethylene (Perc)	**M1**	" "	" "
Toluene	**M1**	" "	" "
Xylenes	**M1**	" "	" "
Carbon tetrachloride	**M1**	" "	" "
Chloroform	**M1**	" "	" "
1,1,1-trichloroethane	**M1**	" "	" "
SEMI-VOLATILE ORGANICS			
Naphthalene	**M1**	Once a month	A one-day composite sample.
1,4-dichlorobenzene	**M1**	" "	" "
Phenol	**M1**	" "	" "
1,2,4-trichlorobenzene	**M1**	" "	" "
PCB-1016[3] (Arochlor 1016)	**M1**	" "	" "
PCB-1242[3] (Arochlor 1242)	**M1**	" "	" "
PCB-1254[3] (Arochlor 1254)	**M1**	" "	" "

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POLLUTANT	SAMPLE LOCATION	FREQUENCY	SAMPLE TYPE
PCB-1221[3] (Arochlor 1221)	**M1**	Once a month	A one-day composite sample.
PCB-1232[3] (Arochlor 1232)	**M1**	" "	" "
PCB-1248[3] (Arochlor 1248)	**M1**	" "	" "
PCB-1260[3] (Arochlor 1260)	**M1**	" "	" "
OTHER TOXIC ORGANICS OF CONCERN[1]			
1) Volatile Organics (VOC)	**M1**	Once a month	4 grab samples, taken at least 1 hour apart for 1 day. Each grab sample must be individually preserved and sent to a certified laboratory. The laboratory may then composite the grab samples. See Part II, Sect. C (1).
2) Semi-Volatile Organics	**M1**	" "	A one-day composite sample. See Part II, Sect. C (1).
OTHER POLLUTANTS, PH, AND FLOW			
Cadmium	**M1**	Once a month	A one-day composite sample.
Chromium (Total)	**M1**	" "	" "
Chromium (Hexavalent)[2]	**M1**	" "	" "
Copper	**M1**	" "	" "
Lead	**M1**	" "	" "
Mercury	**M1**	" "	" "
Molybdenum	**M1**	" "	" "
Nickel	**M1**	" "	" "
Silver	**M1**	" "	" "
Zinc	**M1**	" "	" "

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POLLUTANT	SAMPLE LOCATION	FREQUENCY	SAMPLE TYPE
Carbonaceous Biochemical Oxygen Demand (CBOD)	**M1**	Once a month	A one-day composite sample.
Total Nitrogen	**M1**	" "	" "
Chloride	**M1**	" "	" "
Cyanide (Total)	**M1**	" "	4 grab samples, taken at least 1 hour apart for 1 day. Each grab sample must be individually preserved and sent to a certified laboratory. The laboratory should then composite the 4 grab samples.
Cyanide (Amenable)[4]	**M1**	" "	" "
Total Suspended Solids (TSS)	**M1**	" "	4 grab samples, taken at least 1 hour apart for 1 day. Each grab sample must be individually preserved and sent to a certified laboratory.
Non- Polar Material	**M1**	" "	" "
pH	**M1**	" "	Either by 4 in situ measurements or by 4 grab samples, each taken at least 1 hour apart.

FOOTNOTES TO MONITORING REQUIREMENTS

1. Monitoring for Other Toxic Organics of Concern (OTOC) may not be required. See Part II, Sect. C(1). OTOC are comprised of two subcategories, volatile organic compounds (VOCs) and semi-volatile organic compounds. There are different sampling methods for each subcategory (See Part 1, Sect. B. Monitoring Requirements). These compounds include:

	(1)	acenaphtene	VOC	(7)	1,2-dichloroethane
VOC	(2)	acrolein		(8)	hexachloroethane
VOC	(3)	acrylonitrile	VOC	(9)	1,1-dichloroethane
	(4)	benzidine	VOC	(10)	1,1,2-trichloroethane
VOC	(5)	chlorobenzene	VOC	(11)	1,1,2,2-tetrachloroethane
	(6)	hexachlorobenzene	VOC	(12)	chloroethane

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	(13)	bis (2-chloroethyl) ether
VOC	(14)	2-chloroethylvinyl ether (mixed)
	(15)	2-chloronaphthalene
	(16)	2,4,6-trichlorophenol
	(17)	parachlorometa cresol
	(18)	2-chlorophenol
	(19)	1,2-dichlorobenzene
	(20)	1,3-dichlorobenzene
	(21)	3,3-dichlorobenzidine
VOC	(22)	1,1-dichloroethylene
VOC	(23)	1,2-trans-dichloroethylene
	(24)	2,4-dichlorophenol
VOC	(25)	1,2-dichloropropane
VOC	(26)	1,3-dichloropropylene (1,3-dichloropropene)
	(27)	2,4-dimethylphenol
	(28)	2,4-dinitrotoluene
	(29)	2,6-dinitrotoluene
	(30)	1,2-diphenylhydrazine
	(31)	fluoranthene
	(32)	4-chlorophenyl phenyl ether
	(33)	4-bromophenyl phenyl ether
	(34)	bis (2-chloroisopropyl) ether
	(35)	bis (2-chloroethoxy) methane
VOC	(36)	methylene chloride (dichloromethane)
VOC	(37)	methyl chloride (chloromethane)
VOC	(38)	methyl bromide (bromomethane)
VOC	(39)	bromoform (tribromomethane)
VOC	(40)	dichlorobromomethane
VOC	(41)	chlorodibromomethane
	(42)	hexachlorobutadiene
	(43)	hexachlorocyclopentadiene
	(44)	isophorone
	(45)	nitrobenzene
	(46)	2-nitrophenol
	(47)	4-nitrophenol
	(48)	2,4-dinitrophenol
	(49)	4,6-dinitro-o-cresol
	(50)	n-nitrosodimethylamine
	(51)	n-nitrosodiphenylamine
	(52)	n-nitrosodi-n-propylamine
	(53)	pentachlorophenol
	(54)	bis (2-ethylhexyl) phthalate
	(55)	butyl benzyl phthalate
	(56)	di-n-butyl phthalate
	(57)	di-n-octyl phthalate
	(58)	diethyl phthalate
	(59)	dimethyl phthalate
	(60)	1,2-benzanthracene (benzo(a)anthracene)
	(61)	benzo(a)pyrene (3,4-benzopyrene)
	(62)	3,4-benzofluoranthene (benzo(b)fluoranthene)
	(63)	11,12-benzofluoranthene (benzo(k)fluoranthene)
	(64)	chrysene
	(65)	acenaphthylene
	(66)	anthracene
	(67)	1,12-benzoperylene (benzo(ghi)perylene)
	(68)	fluorene
	(69)	phenanthrene
	(70)	1,2,5,6-dibenzanthracene (dibenzo(a,h)anthracene)
	(71)	indeno (1,2,3-cd) pyrene (2,3-o-phenylene pyrene)
	(72)	pyrene
VOC	(73)	trichloroethylene
VOC	(74)	vinyl chloride (chloroethylene)
	(75)	aldrin
	(76)	dieldrin
	(77)	chlordane (technical mixture and metabolites)
	(78)	4,4-DDT
	(79)	4,4-DDE (p,p-DDX)
	(80)	4,4-DDD (p,p-TDE)
	(81)	alpha-endosulfan
	(82)	beta-endosulfan
	(83)	endosulfan sulfate
	(84)	endrin
	(85)	endrin aldehyde
	(86)	heptachlor
	(87)	heptachlor epoxide (BHC-hexachlorocyclohexane)
	(88)	alpha-BHC
	(89)	beta-BHC
	(90)	gamma-BHC

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(91) delta-BHC
(92) toxaphene
(93) 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)
(94) azinophos-methyl
(95) chlorpyrifos
(96) demeton
(97) halomethanes
(98) manganese (inorganic element)
(99) methoxychlor
(100) pentachlorinated ethane
(101) 2,3,4,6-tetrachlorophenol

2. If the Chromium (Total) level at discharge point **M1**, is less than or equal to 5.0 mg/L, then analyzing for Chromium (Hexavalent) at that point is not required. The Chromium (Total) level can be submitted in lieu of analyzing for Chromium (Hexavalent).

3. The analysis of PCB compounds must be done by EPA Method 608, with a method detection level less than or equal to 65 ppt.

4. If the Cyanide (Total) level at discharge point **M1**, is less than or equal to 0.2 mg/L, then analyzing for Cyanide (Amenable) at that point is not required. The Cyanide (Total) level can be submitted in lieu of analyzing for Cyanide (Amenable).

2. Additional Monitoring Requirements

See Part II, Sect. C for additional monitoring requirements.

SECTION C. REPORTING REQUIREMENTS

1. Periodic Reports Concerning Continued Compliance

The Industrial User shall implement a self-monitoring program, as required in Part I, Sect. B of this Permit. Reports are due on a quarterly basis as follows:

Monitoring Period	Report Due Date
June 1 to August 31	**September 30**
September 1 to November 30	**December 31**
December 1 to February 28	**March 31**
March 1 to May 31	**June 30**

Reports must be received by the Department on or before the due dates specified above.

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2. Additional Reporting Requirements

See Part II, Sect. D for additional reporting requirements.

3. Submission of Reports and Notices

The self-monitoring report and all other reports and notices required by this Permit shall be submitted to the Department at the following address, unless otherwise indicated:

Sean Hulbert, P.E., Acting Chief
Industrial Resource Management and Permitting Section
Bureau of Wastewater Treatment
New York City Department of Environmental Protection
96-05 Horace Harding Expressway
Corona, New York 11368

It is recommended that you send all reports and notices by certified mail in the event that you are required to prove that such reports or notices were submitted in a timely manner.

4. Reporting Format

a. Periodic reports shall be submitted on the Department's Industrial User **Self-Monitoring Report Form**.

b. Analytical results submitted to the Department for any reason, including but not limited to self-monitoring reports, split sampling, and pursuant to Commissioner's Orders, shall be reported by the certified laboratory performing the analysis in a format consistent with the Department's **Analytical Report Form**. The sampling points referenced on the Analytical Report Form must be identified exactly as they are in the Industrial User's Permit.

c. Copies of the Self-Monitoring Report Form and the Analytical Report Form are enclosed with this Permit. Additional copies are also available from the Department upon request.

SECTION D. SPECIAL CONDITIONS

1. The Industrial User must maintain a logbook on daily volume of discharge (in gallons per day). **A copy of the logbook entries for the monitoring period must be submitted in each self-monitoring report.**

2. Storm Water Monitoring Requirement:

   a. The Industrial User is prohibited, at all times, from engaging in industrial activities at its facility that might result in the discharge of contaminated storm water from the facility. Such industrial activities include, but are not limited to,

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outdoor storage of chemicals, drums or containers, outdoor material handling, etc. All such industrial activities constitute a violation of this Permit.

b. If the Industrial User wishes to engage in any such industrial activity at its facility, the Industrial User shall submit a written request to the Industrial Resource Management and Permitting Section (IRMPS) and must obtain a written approval from IRMPS prior to commencing any such industrial activity. Engaging in such industrial activity without receiving prior written approval from IPP constitutes a violation of this Permit.

c. In lieu of sampling the facility's storm water runoff, the Industrial User must make the following certification in its periodic self-monitoring reports:

CERTIFICATION OF NO CONTAMINATED STORM WATER RUNOFF FROM FACILITY

"Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, there was no contaminated storm water runoff from this facility during the reporting period covered by this report. Storm water runoff becomes contaminated when exposed to material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, industrial machinery or operations, or significant materials from past industrial activity that are located in areas of the facility and that are within the drainage area of the runoff. I further certify that this facility is implementing a storm water pollution prevention plan to protect against the release of pollutants to the environment. I certify that I am duly authorized by the establishment to make this statement on its behalf and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

Name (print): _____ Signature: _____

Title: _____ Date:_____ Phone#_____

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PART II - GENERAL CONDITIONS

SECTION A. DEFINITIONS AND STANDARD CONDITIONS

1) Definitions

a. Allowable Runoff - Non-stormwater discharges associated with firefighting activities or as otherwise authorized by the Commissioner pursuant to this chapter.

b. Biochemical Oxygen Demand - The laboratory determination of the quantity of oxygen utilized in the biochemical oxidation of organic matter in a given time and at a specified temperature. It is expressed in parts per million (ppm) or (mg/L) of oxygen used in a period of five days at 20 degrees Celsius.

c. Bypass - The intentional diversion of wastes from any portion of a treatment system.

d. Commissioner - The Commissioner of the New York City Department of Environmental Protection.

e. Composite Sample - A sample composed of two or more discrete samples. The aggregate sample will reflect the average water quality covering the compositing or sample period.

f. Cooling water - The water discharged from any system of condensation, air conditioning, cooling, refrigeration, or other similar temperature reducing sources. It shall contain no polluting substances which would produce BOD or SS in excess of 10 mg/L or toxic substances in concentrations or amounts greater than those specified herein.

g. Daily Maximum - The maximum allowable discharge of a pollutant during a 24-hour period. Where daily maximum limitations are expressed in units of mass, the daily discharge is the total mass of the pollutant discharged over the course of the day. Where daily maximum limitations are expressed in terms of a concentration, the daily discharge is the arithmetic average measurement of the pollutant concentration derived from all measurements taken that day.

h. Department - The New York City Department of Environmental Protection.

i. Grab Sample - A sample which is taken from a wastestream on a one-time basis with no regard to the flow of the wastestream and without consideration of time. A single grab sample should be taken over a period of time not to exceed 15 minutes.

j. Indirect discharge - A discharge from a private sewer to a public sewer, or a discharge to any street, gutter, pipe, channel, pumping station, catch basin, drain, waterway, or other conveyance leading to or connecting with a public sewer, including but not limited

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to the placement or abandonment of any substance which could reasonably enter a public sewer under the force of stormwater or other influence.

k. Industrial User - A source of Indirect Discharge.

l. Instantaneous Maximum Concentration - The maximum concentration allowed in any single grab sample.

m. Interference - A discharge that alone or in conjunction with a discharge or discharges from other sources both:

i) Inhibits or disrupts the POTW, its treatment processes or operations or its sludge processes, use or disposal; and

ii) Causes a violation of any requirement of the POTW's SPDES Permit (including an increase in the magnitude or duration of a violation) or prevents the use or disposal of sewage sludge in compliance with the following statutory provisions and regulations or Permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA) and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act and the Marine Protection, Research and Sanctuaries Act.

n. Maximum Monthly Average - The maximum allowable value for the monthly average.

o. Monthly Average - The average of all samples taken during one calendar month. Thus, if only one sample is taken during a calendar month, the monthly average for that month will be based on only that one sample.

p. Pass Through - A discharge that exits the POTW into waters of the United States in quantities or concentrations that, alone or in conjunction with a discharge or discharges from other sources, cause a violation of any requirement of the POTW's SPDES Permit (including an increase in the magnitude or duration of a violation).

q. Publicly Owned Treatment Works (POTW) - A treatment works as defined by Section 212 of the Clean Water Act that is owned by the State or municipality. This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW treatment plant.

r. Resource Conservation and Recovery Act (RCRA) - A Federal statute regulating the management of hazardous waste from its generation through ultimate disposal. The Act

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contains requirements for waste generators, transporters and owners and operators of treatment, storage and disposal facilities.

s. Sewer Use Regulations - Rules of the City of New York relating to the "Use of the Public Sewers." 15 R.C.N.Y. ch. 19.

t. Shall - mandatory.

u. Slug Discharge - Any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge, which has a reasonable potential to cause interference or pass through, or in any other way violate the POTW's regulations, local limits or permit conditions.

v. Stormwater - Runoff that is generated when precipitation from rain events or snowmelt flows overland and does not percolate into the ground.

w. Toxic Organics - Either the organic compounds listed in the definition of Total Toxic Organics (TTO) in Part I, Sect. A (2), and the Other Toxic Organics of Concern (OTOC) listed in Part I, Sect. B (1); or the Toxic Organics of Concern listed in Part I, Sect. B (1).

x. Upset - An exceptional incident in which there is unintentional and temporary noncompliance with technology based Permit effluent limitations because of factors beyond the reasonable control of the Industrial User, excluding such factors as operational error, improperly designed or inadequate treatment facilities or improper operation and maintenance or lack thereof.

2) Severability

The provisions of this Permit are severable, and if any provision of this Permit or the application of any provision of this Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Permit, shall not be affected thereby.

3) Duty to Comply

The Industrial User must comply with the provisions of the New York City Administrative Code (NYCAC) and the Sewer Use Regulations promulgated pursuant thereto, and all conditions of this Permit. Failure to comply with these requirements may be grounds for administrative action, or enforcement proceedings including civil and/or criminal penalties, injunctive relief and summary abatements.

4) Duty to Mitigate

The Industrial User shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Permit, including, but not limited to, such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

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5) Permit Action

This Permit may be modified, revoked and reissued, or terminated for good cause, including, but not limited to, the following:

a) Incorporation of any new or revised Federal, State, or local pretreatment standards or requirements;

b) Material or substantial alterations or additions to the discharger's operations that were not covered in the effective Permit;

c) A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge;

d) Information indicating that the Permitted discharge poses a threat to the New York City collection and treatment systems, POTW personnel or the receiving waters;

e) Violation of any terms or conditions of this Permit;

f) Obtaining this Permit by misrepresentation or failure to disclose fully all relevant facts;

g) Upon request of the Industrial User, provided such request does not create a violation of any existing applicable requirements, standards, laws, or rules and regulations; or

h) Correction of typographical or other errors in the Permit.

The filing of a request by the Industrial User for a Permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any Permit condition.

6) Property Rights

The issuance of this Permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private or public property or any invasion of personal rights, nor any violation of Federal, State or local laws or regulations.

7) Limitation on Permit Transfer

This wastewater discharge Permit is issued to the named Industrial User for the specific operation(s) described herein. It is not assignable to any other named individual or entity or transferable to any other location without the prior written approval of the Department. Any change in the name of the Industrial User shall be considered to be such an assignment. The sale of 50% or more of the stock of the Industrial User, if the Industrial User is a corporation, or the change of any partners, general or limited, if the Industrial User is a partnership, or the change in ownership, if the Industrial User is a sole proprietorship, shall also be considered an assignment. In the event

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of such a sale, the Industrial User must inform the purchaser of all responsibilities and obligations under this Permit.

8) Duty to Reapply

If the Industrial User wishes to continue to discharge any process or regulated wastewater after the expiration date of this Permit, the Industrial User must request and obtain a new Permit. The request must be submitted at least 120 days before the expiration date to Bwt-permits@dep.nyc.gov.

9) Dilution

The Industrial User shall not increase the use of process water or, in any way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the limitations contained in this Permit.

The Industrial User shall post a Dilution Notice in a conspicuous manner. The Dilution Notice shall state that the New York City Department of Environmental Protection is to be notified of the illegal dilution of any wastewater discharges or any illegal discharges by calling 311, New York City's General Information Number. You must ask for and record your complaint number for proof of compliance with your notification requirements. The Dilution Notice shall include the following definition of illegal dilution: Illegal dilution is an increase in the use of process water, or any other attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with a Pretreatment Standard or Requirement.

10) General Prohibitive Standards

The Industrial User shall comply with all of the general prohibitive discharge standards in the General Pretreatment Regulations, 40 C.F.R. pt. 403 and the Department's Sewer Use Regulations.

The Industrial User shall not discharge or cause to be discharged, directly or indirectly, into any storm sewer, catch basin, or manhole any substance other than stormwater or allowable runoff.

Except as expressly allowed by this Permit, if the Industrial User discharges or causes to be discharged, including any placement, run, leak, or escape into any combined or sanitary sewer, pipe, channel, pumping station, catch basins, drain connecting with any combined or sanitary sewer or any other sewer appurtenances, or green infrastructure, or waterway connecting with any combined or sanitary sewer, or into any private sewer connected with a combined or sanitary sewer any of the following described materials, substances or wastes, except as authorized in writing by the Commissioner or such small quantities through a building drainage system as may be present in normal household wastes, shall be strictly liable, without regard to fault:

a) Construction materials, concrete or concrete contaminated water, ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastic, wood, paunch manure, coffee grounds, fur, wax, power wash waste, building wash waste, fats, oils, grease, or any solids

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or viscous substances capable of causing obstruction to the flow in sewers or other interference with the proper operation of the sewerage system. No amount of the following shall be considered normal household wastes for purposes of this section: wipes that are not flushable, diapers, paper towels, floss, condoms, razors, hypodermic needles, contact lenses, bandages, sanitary pads, tampons, tampon applicators, gauze, cotton balls, swabs, any other personal hygiene products, drinking straws, any other items that are not toilet paper, sanitary waste, or items that have otherwise been authorized in writing by the Commissioner;

b) Snow and ice at locations not authorized in writing by the Commissioner;

c) Steam or wastewater above 150°F;

d) Flammable or explosive liquids, solids or gases, including but not limited to gasoline, benzene and naphtha (notwithstanding anything to the contrary contained in these Regulations, under no circumstances may any such substances be discharged into the sewerage system, even if diluted prior to or after discharge);

e) Oil sludges, waste oil, motor oil, heating oil, diesel and other fuels, dielectric fluid, brake fluid, transmission fluid, hydraulic fluid, or other similar substances;

f) Non-polar material, as defined in 15 RCNY § 19-01, in concentrations greater than 50 mg/L for any given time;

g) Coal tar, its derivatives and waste;

h) Paints and related paint waste products from any source that tend to clog or otherwise interfere with the operation of the sewerage system;

i) Corrosive wastewater having a pH lower than 5.0 or higher than 12.0 or having any other corrosive property likely to cause damage to structures or equipment of the sewerage system or create a hazard to personnel;

j) Toxic substances in such quantities, which may when discharged from a single source or in combination with other sources:

(i) interfere with any sewage treatment process, including sludge digestion;

(ii) limit the City's options for operating its sewerage system or disposing of the sewage sludge, grit or scum generated at wastewater resource recovery facilities;

(iii) be detrimental to the health of human beings, animals, or aquatic life;

(iv) have any negative impact on the receiving waters; or

(v) violate federal or state laws or regulations or the requirements of a discharge permit of a sewage treatment plant issued pursuant to § 402 of the Federal Water Pollution Control

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Act, commonly referred to as the Clean Water Act, as amended, or any other permit issued pursuant to federal or state law.

k) Toxic substances in such quantities which may, when discharged from a single source or in combination with other sources:

(i) violate any federal or state laws, regulations, rules or standards governing such discharge; or

(ii) violate the toxic discharge limits to be set by the Commissioner, contained in a list to be maintained by the Commissioner and which may be published from time to time in the City Record, or

(iii) violate any discharge limit contained in 15 RCNY § 19-04(a) or ordered pursuant to 15 RCNY § 19-04(b).

l) Any liquids or wastes containing pollutants of such quality and/or quantity that become burdensome in the operation and maintenance of a sewage treatment plant;

m) Any noxious or malodorous gas or substance capable of creating a public nuisance;

n) Any wastewater or substance, that in the opinion of the Commissioner, will result in a violation of any applicable Federal, State or local water quality standard concerning discoloration or other undesirable physical changes in the appearance of the receiving waters;

o) Radioactive material either directly or indirectly into the sewerage system, unless all restrictions, prohibitions, and requirements of 24 RCNY Health Code Article 175 are fully complied with

p) Any still bottom or sludge residues resulting from dry cleaning processes including, but not limited to, dirt, lint, soil and any other deposits or residues extracted as a result of any dry cleaning processes. The discharge of filters or filter media used in dry cleaning processes is also prohibited;

q. Antifreeze;

r. Hazardous waste pharmaceuticals, as defined in the Code of Federal Regulations, in 40 C.F.R. Part 266.500.

11) Compliance with Applicable Pretreatment Standards and Requirements

The Industrial User shall comply at all times with any and all applicable local, State and Federal pretreatment standards and requirements, including any such standards or requirements that may become effective during the term of this Permit.

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12) Combined Sewer Overflow (CSO) Prevention

The Industrial User shall hold its process wastewater and non-contact cooling water to the maximum extent practicable during heavy rainfall.

13) Confidentiality

As provided in Section 19-09 of the Sewer Use Regulations, any information submitted to the Department, except for discharge and effluent data, may be claimed by the discharger to be confidential. Any such claim must be asserted at the time of submission of the information and should contain a stamped legend or any other suitable form of notice on each page containing such information, employing language such as trade secret, proprietary or confidential business information. If no claim is asserted at the time of submission, the information may be made available to the public without further notice. If a claim is asserted, it will be treated in accordance with Section 19-09.

Effluent data shall be available to the public without restriction.

14) Duty to Provide Information

The Industrial User shall furnish to the Department within a reasonable time, any information that the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Industrial User shall also furnish to the Department, upon request, copies of records required to be kept by this Permit.

15) Annual Publication by the Department

A list of all Industrial Users who, at any time during the previous twelve (12) months, were in significant noncompliance with applicable pretreatment requirements shall be annually published by the Department in a newspaper of general circulation that provides meaningful public notice within the city of New York, as required by 40 C.F.R. Part 403.8(f)(2)(viii) and Section 19-10(g) of the Sewer Use Regulations.

16) Civil and Criminal Liability

Nothing in this Permit shall be construed to relieve the Industrial User from civil and/or criminal penalties for noncompliance under Section 24-524 (f) of the NYCAC.

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17) Penalties for Violations of Permit Conditions

Section 24-524 (f) of NYCAC provides that any person who fails to comply with any of the provisions of Sections 24-504 through 24-522 and 24-523 of the Code, the Sewer Use Regulations, Order of the Commissioner or Environmental Control Board or a Permit condition shall be liable for a civil penalty of up to $10,000.00 for each violation. In the case of a continuing violation, each day's continuance shall be a separate and distinct offense. In addition to civil penalties, any person who knowingly violates or fails to comply with any of the above-cited provisions shall be guilty of a misdemeanor and subject to a fine of up to $10,000.00 and/or to imprisonment not exceeding thirty days. The Industrial User may also be subject to sanctions under State and/or Federal law.

SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROL SYSTEMS

1) Proper Operation and Maintenance

The Industrial User shall at all times properly operate and maintain all facilities and systems for treatment, monitoring and control (and related appurtenances) that are installed or used by the Industrial User to achieve compliance with the conditions of this Permit. Proper operation and maintenance includes, but is not limited to, effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the Permit.

2) Duty to Halt or Reduce Activity

Upon reduction of efficiency of operation or loss or failure of all or part of the pretreatment facility, the Industrial User shall, to the extent necessary to maintain compliance with its Permit, control production or all discharges or both until operation of the pretreatment facility is restored or an alternative method of pretreatment is provided. This requirement applies, for example, when the primary source of power of the pretreatment facility fails or is reduced. It shall not be a defense for an Industrial User in an enforcement action to state that it would have been necessary to halt or reduce the Permitted activity in order to maintain compliance with the conditions of this Permit.

3) Bypass of Pretreatment Facilities

a) Bypass is prohibited unless

i) it is unavoidable to prevent loss of life, personal injury, or severe property damage, no feasible alternatives exist, and the Industrial User submits notification as required by subparagraph (b) of this paragraph; or

ii) it is for essential maintenance to assure efficient operation, it does not cause pretreatment standards or requirements to be violated, and the Industrial User submits notification as required by subparagraph (b) of this paragraph.

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b) Notification of bypass:

i) Anticipated bypass - If the Industrial User knows in advance of the need for a bypass, it shall submit prior written notice, at least ten days before the date of the bypass, to the Department.

ii) Unanticipated bypass - The Industrial User shall immediately notify the Department by calling 311, New York City's General Information Number, and shall submit a written notice to the Department within 5 days after the bypass. This report shall specify:

(1) a description of the bypass, its cause and duration;
(2) whether the bypass has been corrected; and
(3) the steps being taken or to be taken to reduce, eliminate and prevent a recurrence of the bypass.

When calling 311, you must ask for and record your complaint number for proof of compliance with your notification requirements.

4) Disposal of Hazardous Wastes

All solids, sludges, resins or residues, filter backwash or other pollutants removed in the course of pretreatment or control of wastewater shall be handled and disposed of in accordance with all New York State hazardous wastes requirements and RCRA requirements including, but not limited to, subtitles C and D thereof.

SECTION C. MONITORING AND RECORDS

1) Toxic Organics

The Industrial User may not use the certifications provided below for any organic pollutants for which sampling is required under the Industrial User's applicable Federal Categorical Standards. The Industrial User must sample and analyze its wastewater for all such organic pollutants.

The Industrial User shall satisfy the following Toxic Organics requirements:

a) Indicate in each periodic report concerning continued compliance as required by Part I, Sect. C of this Permit which Toxic Organics, if any, were used or stored during the reporting period, and their amounts.

b) Sample and analyze its wastewater for those Toxic Organics that would reasonably be expected to be present.

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c) In lieu of monitoring for Toxic Organics and upon scribed request, the Department may allow the Industrial User to make one of the following certifications in its periodic self-monitoring reports:

i) "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, no toxic organics were used or stored at my facility during the reporting period covered by this report. I certify that I am duly authorized by the establishment to make this statement on its behalf and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

OR

ii) "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, there was no discharge to a public sewer of toxic organics during the reporting period covered by this report. I also certify that the explanations provided concerning the disposal of toxic organics from the facility are true, accurate and complete. I further certify that this facility is implementing a toxic organics management plan to protect against the release of such compounds to a public sewer. I certify that I am duly authorized by the establishment to make this statement on its behalf and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

If certification **(ii)** is made, the facility must also submit a Toxic Organics Management Plan (TOMP) for approval by the Department. An acceptable TOMP must contain:

i) a list of all toxic organic compounds used or stored at your facility; and

ii) a description of the storage, handling and disposal practices for control of toxic compounds at your facility, including procedures for ensuring that toxic organics do not spill or leak into your wastewater.

2) <u>Sampling and Analysis</u>

a) Samples and measurements taken as required in this Permit shall be representative of the volume and nature of the monitored discharge. Samples shall be taken at the monitoring points specified in this Permit and, unless otherwise specified, before the effluent joins or is diluted by any other wastestream, body of water or substance. Monitoring points shall not be changed without prior written approval of the Department.

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b) All handling and preservation of collected samples and laboratory analyses of samples shall be performed in accordance with 40 C.F.R. pt. 136. If 40 C.F.R. pt. 136 does not cover the pollutant in question, the handling, preservation, and analysis must be performed in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater." All analyses shall be performed using a detection limit less than the lowest applicable regulatory discharge limit.

c) All laboratory analyses must be conducted by a New York State Health Department certified wastewater laboratory. The results must be certified by the laboratory and submitted on the laboratory's letterhead. For each sample, the laboratory report must indicate the date of sampling, time sample was taken, sample location, chain of custody, sampling preservation procedures, analytical techniques used, date of analysis, units of measurement, and the laboratory's sample identification; where the analytical result reported is below the method detection level, the laboratory report must also indicate the method detection level.

3) Flow Measurements

If flow measurements are required by this Permit, the appropriate flow measurement devices and methods consistent with approved scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharge. The devices shall be installed, calibrated and maintained to ensure that the accuracy of the measurements are consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than 10% from true discharge rates throughout the range of expected discharge volumes.

4) Inspection and Entry

The Industrial User shall allow duly authorized representatives of the Department to:

a) Enter upon the Industrial User's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Permit;

b) Have access to and copy, at reasonable times, any records that must be kept by law or regulation and/or under the conditions of this Permit;

c) Inspect, videotape, photograph or otherwise record at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit;

d) Sample or monitor, for the purposes of assuring Permit compliance, any substance or parameters at any location; and

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e) Inspect, videotape, photograph or otherwise record any production, manufacturing, fabricating or storage area where pollutants, regulated or required under this Permit could originate, be stored or be discharged to the public sewer.

The applicant, by accepting any Permit issued, does hereby consent and agree to entry upon the premises as described herein.

5) Retention of Records

a) The Industrial User shall retain records of all monitoring information, including all calibration and maintenance records and original strip chart recordings for all continuous monitoring instrumentation, copies of all reports required by this Permit, and records of all data used to complete the application for this Permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by order of the Commissioner at any time, and shall also be extended during the course of any unresolved litigation regarding the IU or POTW or when requested by the Director (as defined in 40 C.F.R. § 403.3(g)) or the United States Environmental Protection Agency Regional Administrator.

b) All records that pertain to matters that are the subject of or related to special orders or any other enforcement or litigation activities brought by the Department regarding the IU or POTW or when requested by the Director (as defined in 40 C.F.R. § 403.3(g)) or the United States Environmental Protection Agency Regional Administrator shall be retained and preserved by the Industrial User until all enforcement activities have concluded and all periods of limitations with respect to any and all appeals have expired.

6) Record Contents

Records of sampling information shall include:

a) The date, exact place, time and methods of sampling or measurement, and sample preservation techniques or procedures;

b) Who performed the sampling or measurements;

c) The date(s) analyses were performed;

d) Laboratory that performed the analyses;

e) The analytical techniques or methods used;

f) The results of each analysis;

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g) The chain of custody of each sample;

h) Method detection level where analytical result reported is non-detect;

i) Units of measurement for each analytical result; and

j) Laboratory's sample identification for each sample.

7) Falsifying Information

It is unlawful to make any false statement representation or certification in any application, report, plan or other document required by this Permit or to falsify, tamper with or knowingly render any monitoring device or method inaccurate.

SECTION D. ADDITIONAL REPORTING REQUIREMENTS

1) Additional Monitoring

If the Industrial User monitors any pollutant more frequently than required by this Permit, using test procedures prescribed in 40 C.F.R. pt. 136 or otherwise approved by EPA or specified in this Permit, the results of such monitoring shall be submitted to the Department in its next self-monitoring report.

2) Automatic Resampling

If the results of the Industrial User's wastewater discharge sampling indicates a violation, the Industrial User shall:

a) notify the Department within 24 hours of becoming aware of the violation; and

b) repeat the sampling and analysis and submit the results of the second analysis to the Department within 30 days after becoming aware of the violation.

3) Split Sampling Results

If the Industrial User requests and analyzes a split sample(s) during a Department sampling event, the results of such analysis shall not be considered as valid samples for determining compliance unless all handling and preservation of collected samples and laboratory analyses of samples have been performed in accordance with 40 C.F.R. pt. 136, as per Part II, Section (C)(2)(b) of this Permit, and such sample results have been submitted to the Department within 45 days of the date that the Industrial User received the sample(s) from the Department.

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4) Accidental Discharge Notification

In the event of an accidental discharge in violation of any provision of the Sewer Use Regulations, the Industrial User shall immediately notify the Department, at any hour, by calling 311, New York City's General Information Number. You must ask for and record your complaint number for proof of compliance with your notification requirements.

Within five days following an accidental discharge, the Industrial User shall submit to the Department a detailed written report. The report shall specify:

a) the description of the accidental discharge, the cause thereof, and the impact on the Industrial User's compliance status, including the location of discharge, type, concentration and volume of waste;

b) the duration of noncompliance, including exact dates and time of noncompliance, and if the noncompliance continues, the time by which compliance is reasonably expected to occur; and

c) all steps taken to reduce, eliminate and prevent recurrence of such an upset, slug, accidental discharge, or other conditions of noncompliance.

5) Operating Upsets

Any Industrial User that experiences an upset in operations that places the Industrial User in a temporary state of noncompliance with the provisions of either this Permit or the Sewer Use Regulations, shall inform the Department immediately after becoming aware of the upset by calling 311, New York City's General Information Number. You must ask for and record your complaint number for proof of compliance with your notification requirements.

A written follow-up report thereof shall be filed by the Industrial User with the Department within five (5) days. The report shall specify:

a) the description of the upset or slug discharge, the cause(s) thereof and the upset's or slug discharge's impact on the Industrial User's compliance status;

b) the duration of noncompliance, including exact dates and times of noncompliance, and if the noncompliance continues, the time by which compliance is reasonably expected to occur; and

c) all steps taken or to be taken to reduce, eliminate and prevent recurrence of such an upset, slug discharge or other conditions of noncompliance.

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6) Planned Changes

The Industrial User shall give written notice to the Department 90 days prior to any change in the Industrial User's name or address, or any facility expansion, production increase, or process modification that results in new or substantially increased discharges or a change in the nature of the discharge. The Industrial User shall also provide written notice 90 days prior to discontinuing any regulated process. The Industrial User shall notify the Department immediately of any changes at its facility affecting its potential for a slug discharge.

7) Anticipated Noncompliance

The Industrial User shall give a minimum of ten days advance notice to the Department of any planned changes in the Permitted facility or activity that may result in noncompliance with this Permit.

8) Signatory Requirements

All applications, reports or information submitted to the Department shall contain the following certification:

> "I certify under penalty of law that I have personally examined and am familiar with the information contained in this document and all attachments therein. Furthermore, based on my inquiry of those persons immediately responsible for obtaining the information contained in this document, I believe that this information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment."

This certification shall be signed by:

a) a responsible corporate officer if the Industrial User submitting the reports is a corporation. For the purpose of this paragraph, a responsible corporate officer means:

   i) president, secretary, treasurer or vice-president of the corporation in charge of a principal business function or any other person who performs similar policy or decision making functions for the corporation, or

   ii) the manager of one or more manufacturing, production or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit duty of making major capital investment recommendations, and initiate and direct other comprehensive measures to assure long-term environmental compliance with

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environmental laws and regulations; can ensure that the necessary systems are established or actions taken to gather complete and accurate information for control mechanism requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

b) a general partner or proprietor if the Industrial User submitting the report is a partnership or sole proprietorship, respectively.

c) a duly authorized representative of the individual designated in paragraph (a) or (b) of this section if:

i) The authorization is made in writing by the individual described in paragraph (a) or (b);

ii) The authorization specifies either an individual or a position having responsibility for the overall operation of the facility from which the industrial discharge originates, such as the position of plant manager, or a position of equivalent responsibility, or a position having overall responsibility for environmental matters for the company; and

iii) The written authorization is submitted to the Department.

If an authorization under this paragraph is no longer accurate because a different individual or position has responsibility for the overall operation of the facility or overall responsibility for the environmental matters of the company, a new authorization satisfying the requirement of this paragraph must be submitted to the Department prior to or together with any reports to be signed by an authorized representative.

1407 Broadway, Suite 3301
New York, NY 10018
T 212.221.7822
TRCcompanies.com

July 2, 2024

Frances Leung, P.E., Chief
Industrial Inspection and Permitting Section
Bureau of Wastewater Treatment
New York City Department of Environmental Protection
96-05 Horace Harding Expressway
Corona, NY 11368

RE: Q4 Industrial Wastewater Discharge Self-Monitoring Report
New York City Department of Parks and Recreation
Brookfield Landfill/Park
575 Arthur Kill Road, Staten Island, NY 10308
Permit No. 23-P3149-1
TRC Project No. 384968.1000

Dear Ms. Leung:

Enclosed, please find a revised version of the Q4 Industrial Wastewater Discharge Self-Monitoring Report (SMR) for the monitoring period of March 1, 2024, to May 31, 2024, for the New York City Department of Parks and Recreation (NYCDPR) Brookfield Avenue Landfill. The report contains SMR Forms with certifications, Daily Volume of Discharge, Summary tables of M1 sample results, M1 laboratory data packages, and chain of custody forms. The results of the monthly sampling indicate there were no exceedances of any permit compound limits.

Please do not hesitate to contact me at (917) 794-3107 or via email at wlindemuth@trccompanies.com if you have any questions.

Sincerely,
TRC Engineers, Inc.

Wes D. Lindemuth, CHMM, CSP
Senior Project Manager

cc: K. Zias, R. Wilson, NYCDPR
K. Myers, R. Bowden , I. Gonzalez, TRC

Enclosure:

Q4 Industrial Wastewater Discharge Self-Monitoring Report

INDUSTRIAL USER SELF MONITORING REPORT

1.	★ Establishment Information ★			
A.	Name: Brookfield Avenue Landfill			
B.	Address: 575 Arthur Kill Road, Staten Island, NY 10308			
C.	Industrial Category:			
D.	Contact Official: Wes Lindemuth		E.	Phone #: 917-794-3107
F.	Reporting Period		G.	Date sampled
	Start 03/01/2024	End 05/31/2024	Start 03/13/2024	End 05/16/2024

Note: If the only wastewater discharges by your establishment into the public sewer system are sanitary or non-contact cooling water, do not address items in Tables 2, 3, 4, 5 and 6. In this case, check here [ ] and proceed directly to Table 7.

2.	★Flow Information ★	Average	Peak
A.	Total Plant Flow, gal/day	58,000.39	109,892.86
B.	Regulated Flow, gal/day	58,000.39	109,892.86
C.	Method of Flow Measurement: Flow meter (non-resettable) on the discharge line to the on-Site sanitary manhole.		

3.	★ Sample Collection Information ★
A.	Sampling Location: Prior to the gravity discharge from the oil/water seperator into the on-Site sanitary sewer system,
	a sample port installed on the effluent end of the discharge piping collects samples.
B.	Sampling Procedures: Samples are collected in accordance with 40 CFR, 403.12(g)(3) which states that grab samples
	must be used for pH, cyanide, total phenols, oil & grease, sulfide and VOCs.
	For all other pollutants, 24-hours composite samples are obtained through time-proportional composite sampling techniques.
C.	Preservatives Used: HCl, H2SO4, NaOH, HNO3

4.	This establishment's wastewater discharge DOES [ ] / DOES NOT [X] exceed nationwide categorical standard (s) or 15 RCNY 19-04 (a).

5.	★ Production Rate ★
If applicable, provide production rate: Not Applicable	

6.	★ pH Monitoring ★												
(Four Samples Per Day - One Hour Apart - Once a Month)													
A.	Date	03/13/2024		04/15/2024		05/15/2024		/ /		/ /		/ /	
B.	Time/pH	9:05	6.91	10:35	6.60	9:30	8.02						
		10:05	6.93	11:35	6.72	12:00	7.01						
		11:05	6.96	12:35	6.77	13:00	7.53						
		12:05	6.98	13:35	6.74	14:00	8.32						

7.	★ HAZARDOUS WASTES GENERATION ★
This establishment DID [ ] / DID NOT [x] generate any hazardous wastes, during this reporting period. If hazardous wastes were generated,	
A.	Type of Waste:
B.	Amount Generated (in kilograms) :
C.	Method of Disposal :

8.	★ CERTIFICATION ★

A. NON-CONTAMINATED WASTEWATER DISCHARGE CERTIFICATION:

I hereby certify, that during this reporting period, this facility has not discharged any industrial wastewater, chemicals, cleaners or like substances generated from or in relation to any of this establishment's operations other than sanitary or non-contact cooling water. I understand that I must obtain prior written approval from the Industrial Inspections and Permitting Section before I can discharge any such wastewater. I am aware that there are significant civil and criminal sanctions for submitting false information.

_____

Name (Print) Signature

_____

Title Date Phone #

8. ★ CERTIFICATIONS (CONTINUED) ★

B. TOXIC ORGANICS CERTIFICATION:

I. "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, no Toxic Organics are used or stored at my facility. I certify that I am duly authorized by the establishment to make this statement on its behalf, and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

Wes Lindemuth		Wes Lindemuth
Name (Print)		Signature
Senior Project Manager	07/02/2024	917-794-3107
Title	Date	Phone#

OR

II "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, there was no discharge to a public sewer of toxic organics during the reporting period covered by this report. I also certify that the explanations provided concerning the disposal of toxic organics from the facility are true, accurate and complete. I further certify that this facility is implementing a toxic organics management plan to protect against the release of such compounds to a public sewer. I certify that I am duly authorized by the establishment to make this statement on its behalf, and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

Name (Print)		Signature
Title	Date	Phone#

C. AUTHORIZED FIRM REPRESENTATIVE CERTIFICATION:

I hereby certify, under penalty of law, that I have personally examined and am familiar with the information contained in this report and all attachments therein. Furthermore, based on my inquiry of those persons immediately responsible for obtaining the information contained in this report, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I further certify that the reported sampling results are representative of the facility's normal work cycles and expected pollutant discharges.

Wes Lindemuth		Wes Lindemuth
Name (Print)		Signature
Senior Project Manager	07/02/2024	917-794-3107
Title	Date	Phone#

Please sign the following certification if required by the Permit/Directive:

D CYANIDE CERTIFICATION

The Industrial User must sign and submit one of the following certifications in its periodic self-monitoring reports:

a. "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, cyanide is not used or stored at my facility or generated in any of our manufacturing processes and there was no discharge of cyanide to the public sewer. I certify that I am duly authorized by the establishment to make this statement on its behalf, and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

Name (print) Wes Lindemuth Signature Wes Lindemuth

Title Senior Project Manager Date 07/02/2024 Phone Number 917-794-3107

OR

b. "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, there was no discharge to a public sewer of cyanide-bearing waste during the reporting period covered by this report. I also certify that the explanations provided concerning the disposal of cyanide-bearing waste from the facility are true, accurate and complete. I certify that I am duly authorized by the establishment to make this statement on its behalf, and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

Name (print)_____ Signature_____

Title_____ Date_____ Phone Number_____

If certification b. (above) is signed and submitted, explanations concerning the disposal of cyanide-bearing waste from the facility shall be provided.

9.	★ DESCRIPTION OF OPERATION ★
Site is a former landfill which is now operated as a public Park. The discharge is comprised of landfill leachate which is allowed to pass through an oil-water separator prior to discharge.	

10.	★ ATTACHMENTS ★	Yes	No	N/A
A.	All laboratory analyses must be conducted by a New York State Health Department certified wastewater laboratory. The results must be certified by the laboratory and submitted on the laboratory's letterhead. For each sample, the laboratory report must indicate the date of sampling, time sample was taken, sample location, sampling preservation procedures, analytical techniques used, date of analysis, units of measurement, and the laboratory's sample identification; where the analytical result reported is below the method detection level, the laboratory report must also indicate the method detection level.	X		
B.	Chain of custody for all samples.	X		
C.	Explanation of non-compliance and what will be done to rectify it. A compliance schedule is to be included.			X
D.	Amount of spent solvents generated and method of disposal. Explanation of zero discharges to be included.			X
E.	Description of any major modifications or malfunctions in manufacturing or pretreatment operations.			X
F.	Hazardous wastes manifests.			X

DAILY VOLUME OF DISCHARGE

BROOKFIELD LANDFILL LEACHATE SYSTEM
EFFLUENT FLOW METER REPORT

NYC Parks

Date/Time	FLOW GPM *Instantaneous	FLOW TOTAL DAILY GAL *Resets at Midnight	FLOW TOTAL RUNNING GAL *Resets at 100 Million Gallons
3/1/24 23:50	13.82	19901.20	17458112.40
3/2/24 23:50	13.82	19901.20	17478013.60
3/3/24 23:50	13.82	19901.20	17497914.80
3/4/24 23:50	5.21	7496.86	17517816.00
3/5/24 23:50	5.21	7496.86	17525312.86
3/6/24 23:50	5.21	7496.86	17532809.71
3/7/24 23:50	5.21	7496.86	17540306.57
3/8/24 23:50	5.21	7496.86	17547803.43
3/9/24 23:50	5.21	7496.86	17555300.29
3/10/24 23:50	5.21	7496.86	17562797.14
3/11/24 23:50	63.96	92102.50	17570294.00
3/12/24 23:50	63.96	92102.50	17662396.50
3/13/24 23:50	63.96	92102.50	17754499.00
3/14/24 23:50	63.96	92102.50	17846601.50
3/15/24 23:50	63.96	92102.50	17938704.00
3/16/24 23:50	63.96	92102.50	18030806.50
3/17/24 23:50	63.96	92102.50	18122909.00
3/18/24 23:50	63.96	92102.50	18215011.50
3/19/24 23:50	37.78	54397.56	18307114.00
3/20/24 23:50	37.78	54397.56	18361511.56
3/21/24 23:50	37.78	54397.56	18415909.11
3/22/24 23:50	37.78	54397.56	18470306.67
3/23/24 23:50	37.78	54397.56	18524704.22
3/24/24 23:50	37.78	54397.56	18579101.78
3/25/24 23:50	37.78	54397.56	18633499.33
3/26/24 23:50	37.78	54397.56	18687896.89
3/27/24 23:50	37.78	54397.56	18742294.44
3/28/24 23:50	46.81	67409.50	18796692.00
3/29/24 23:50	46.81	67409.50	18864101.50
3/30/24 23:50	46.81	67409.50	18947451.75
3/31/24 23:50	46.81	67409.50	19030802.00
4/1/24 23:50	5.75	8274.29	19066330.00
4/2/24 23:50	5.75	8274.29	19074604.29
4/3/24 23:50	5.75	8274.29	19082878.57
4/4/24 23:50	5.75	8274.29	19091152.86
4/5/24 23:50	5.75	8274.29	19099427.14
4/6/24 23:50	5.75	8274.29	19107701.43
4/7/24 23:50	5.75	8274.29	19115975.71
4/8/24 23:50	76.31	109892.86	19124250.00
4/9/24 23:50	76.31	109892.86	19234142.86
4/10/24 23:50	76.31	109892.86	19344035.71
4/11/24 23:50	76.31	109892.86	19453928.57
4/12/24 23:50	76.31	109892.86	19563821.43
4/13/24 23:50	76.31	109892.86	19673714.29
4/14/24 23:50	76.31	109892.86	19783607.14
4/15/24 23:50	57.88	83350.25	19893500.00
4/16/24 23:50	57.88	83350.25	19976850.25
4/17/24 23:50	57.88	83350.25	20060200.50
4/18/24 23:50	57.88	83350.25	20143550.75
4/19/24 23:50	57.88	83350.25	20226901.00
4/20/24 23:50	57.88	83350.25	20310251.25
4/21/24 23:50	57.88	83350.25	20393601.50
4/22/24 23:50	57.88	83350.25	20476951.75
4/23/24 23:50	42.62	61370.75	20560302.00
4/24/24 23:50	42.62	61370.75	20621672.75
4/25/24 23:50	42.62	61370.75	20683043.50
4/26/24 23:50	42.62	61370.75	20744414.25
4/27/24 23:50	42.62	61370.75	20805785.00
4/28/24 23:50	42.62	61370.75	20867155.75
4/29/24 23:50	42.62	61370.75	20928526.50
4/30/24 23:50	42.62	61370.75	20989897.25

BROOKFIELD LANDFILL LEACHATE SYSTEM
EFFLUENT FLOW METER REPORT

NYC Parks

Date/Time	FLOW GPM *Instantaneous	FLOW TOTAL DAILY GAL *Resets at Midnight	FLOW TOTAL RUNNING GAL *Resets at 100 Million Gallons
5/1/24 23:50	70.94	102158.40	21051268.00
5/2/24 23:50	70.94	102158.40	21153426.40
5/3/24 23:50	70.94	102158.40	21255584.80
5/4/24 23:50	70.94	102158.40	21357743.20
5/5/24 23:50	70.94	102158.40	21459901.60
5/6/24 23:50	41.50	59757.80	21562060.00
5/7/24 23:50	41.50	59757.80	21621817.80
5/8/24 23:50	41.50	59757.80	21681575.60
5/9/24 23:50	41.50	59757.80	21741333.40
5/10/24 23:50	41.50	59757.80	21801091.20
5/11/24 23:50	41.50	59757.80	21860849.00
5/12/24 23:50	41.50	59757.80	21920606.80
5/13/24 23:50	41.50	59757.80	21980364.60
5/14/24 23:50	41.50	59757.80	22040122.40
5/15/24 23:50	41.50	59757.80	22099880.20
5/16/24 23:50	22.29	32092.00	22159638.00
5/17/24 23:50	22.29	32092.00	22191730.00
5/18/24 23:50	22.29	32092.00	22223822.00
5/19/24 23:50	22.29	32092.00	22255914.00
5/20/24 23:50	29.24	42102.00	22288006.00
5/21/24 23:50	29.24	42102.00	22330108.00
5/22/24 23:50	29.24	42102.00	22372210.00
5/23/24 23:50	29.24	42102.00	22414312.00
5/24/24 23:50	29.24	42102.00	22456414.00
5/25/24 23:50	29.24	42102.00	22498516.00
5/26/24 23:50	29.24	42102.00	22540618.00
5/27/24 23:50	29.24	42102.00	22582720.00
5/28/24 23:50	29.24	42102.00	22624822.00
5/29/24 23:50	29.45	42408.00	22666924.00
5/30/24 23:50	29.45	42408.00	22709332.00
5/31/24 23:50	29.45	42408.00	22751740.00

Note:
The 2024 Q4 SMR, 'FLOW TOTAL RUNNING GAL', 'FLOW GPM' and 'FLOW TOTAL DAILY GAL' values were calculated estimations using recorded totalizer values from on-site weekly inspections.

LAB DATA SUMMARY

Table 1
New York City Parks and Recreation
Brookfield Avenue Landfill
Self Monitoring Report Results for Industrial Wastewater Discharge Permit No: 23-P3149-1
March 2024

Sample ID	Sewer Use Limits (15 R.C.N.Y. ch. 19)	M1-COMP-3-14-2024	M1-COMP-(A-D)-03-13-2024	M1-A-03-13-2024	M1-B-03-13-2024	M1-C-03-13-2024	M1-D-03-13-2024
Lab ID		AD43286-002	AD43286-001				
Date		3/14/2024	3/13/2024	3/13/2024	3/13/2024	3/13/2024	3/13/2024
VOCs (ppb)							
1,1,1 -Trichloroethane	NS		1.0 U				
1,2,4-Trichlorobenzene	NS		1.0 U				
Benzene	Daily Limit: 134 Monthly Limit: 57		0.50 U				
Carbon Tetrachloride	NS		1.0 U				
Chloroform	NS		1.0 U				
Ethylbenzene	Daily Limit: 380 Monthly Limit: 142		1.0 U				
Methyl-Tert-Butyl-Ether (MTBE)	50		0.87 U				
Tetrachloroethene (Perc)	20		1.0 U				
Toluene	Daily Limit: 74 Monthly Limit: 28		1.0 U				
Xylenes (Total)	Daily Limit: 74 Monthly Limit: 28		1.0 U				
Semi-Volatile Organics (ppb)							
Naphthalene	Daily Limit: 47 Monthly Limit: 19	0.50 U					
1,4-Dichlorobenzene	NS	2.0 U					
Phenol	NS	2.0 U					
Pesticides/ PBCs (ppb)	1.0 (Total PCBs, 7 PCB compounds)						
Aroclor-1016		0.25 U					
Aroclor-1242		0.25 U					
Aroclor-1254		0.25 U					
Aroclor-1221		0.25 U					
Aroclor-1232		0.25 U					
Aroclor-1248		0.25 U					
Aroclor-1260		0.25 U					
Metals (ppm)							
Cadmium	2	0.0020 U					
Chromium (Total)	5	0.0022					
Chromium (Hexavalent)	5	0.0020 U					
Copper	5	0.0120					
Lead	2	0.0066					
Mercury	0.05	0.00050 U					
Molybdenum	NS	0.0020 U					
Nickel	3	0.010 U					
Silver	NS	0.0020 U					
Zinc	5	0.051 U					
General Chemistry Analysis							
Carbonaceous Biochemical Oxygen Demand (CBOD) (mg/L)	NS	6.5					
Total Nitrogen (mg/L)	NS	2.0 U					
Chloride (mg/L)	NS	630					
Cyanide (Total) (mg/L)	0.2		0.0050 U				
Cyanide (Amenable to Chlorination) (mg/L)	0.2		0.010 U				
Total Suspended Solids (TSS) (mg/L)	350		40.0				
Non-Polar Material (Oil and Grease 1664-A HEM) (mg/L)	50		5.0 U				
pH	5.0-12.0 Standard Units			6.91	6.93	6.96	6.98
TKN (mg/L)	NS	46.7					
Temperature	Deg. C (< 65.5)			11.85	12.25	12.75	12.95

Notes:

< = Less than

NS = No Standard

U = Not Detected

(Blank) = Parameter not required for analysis

Bold = Above Daily Limit

Table 1
New York City Parks and Recreation
Brookfield Avenue Landfill
Self Monitoring Report Results for Industrial Wastewater Discharge Permit No: 23-P3149-1
April 2024

Sample ID	Sewer Use Limits (15 R.C.N.Y. ch. 19)	M1-COMP-20240416	M1-COMP-(A-D)-20240415	M1-A-20240415	M1-B-20240415	M1-C-20240415	M1-D-20240415
Lab ID		AD43897-002	AD43897-001				
Date		4/16/2024	4/15/2024	4/15/2024	4/15/2024	4/15/2024	4/15/2024
VOCs (ppb)							
1,1,1 -Trichloroethane	NS		1.0 U				
1,2,4-Trichlorobenzene	NS		1.0 U				
Benzene	Daily Limit: 134 Monthly Limit: 57		0.50 U				
Carbon Tetrachloride	NS		1.0 U				
Chloroform	NS		1.0 U				
Ethylbenzene	Daily Limit: 380 Monthly Limit: 142		1.0 U				
Methyl-Tert-Butyl-Ether (MTBE)	50		0.87 U				
Tetrachloroethene (Perc)	20		1.0 U				
Toluene	Daily Limit: 74 Monthly Limit: 28		1.0 U				
Xylenes (Total)	Daily Limit: 74 Monthly Limit: 28		1.0 U				
Semi-Volatile Organics (ppb)							
Naphthalene	Daily Limit: 47 Monthly Limit: 19	0.50 U					
1,4-Dichlorobenzene	NS	2.0 U					
Phenol	NS	2.0 U					
Pesticides/ PBCs (ppb)	1.0 (Total PCBs, 7 PCB compounds)						
Aroclor-1016		0.25 U					
Aroclor-1242		0.25 U					
Aroclor-1254		0.25 U					
Aroclor-1221		0.25 U					
Aroclor-1232		0.25 U					
Aroclor-1248		0.25 U					
Aroclor-1260		0.25 U					
Metals (ppm)							
Cadmium	2	0.0020 U					
Chromium (Total)	5	0.0020 U					
Chromium (Hexavalent)	5	0.0020 U					
Copper	5	0.0100 U					
Lead	2	0.0030 U					
Mercury	0.05	0.00050 U					
Molybdenum	NS	0.0020 U					
Nickel	3	0.0100 U					
Silver	NS	0.0020 U					
Zinc	5	0.040 U					
General Chemistry Analysis							
Carbonaceous Biochemical Oxygen Demand (CBOD) (mg/L)	NS	4.4					
Total Nitrogen (mg/L)	NS	2.0 U					
Chloride (mg/L)	NS	920					
Cyanide (Total) (mg/L)	0.2		0.0040 U				
Cyanide (Amenable to Chlorination) (mg/L)	0.2		0.010 U				
Total Suspended Solids (TSS) (mg/L)	350		48.0				
Non-Polar Material (Oil and Grease 1664-A HEM) (mg/L)	50		6.2 U				
pH	5.0-12.0 Standard Units			6.60	6.72	6.77	6.74
TKN (mg/L)	NS	46.3					
Temperature	Deg. C (< 65.5)			13.20	13.49	13.56	13.82

Notes:

< = Less than

NS = No Standard

U = Not Detected

(Blank) = Parameter not required for analysis

Bold = Above Daily Limit

Table 1
New York City Parks and Recreation
Brookfield Avenue Landfill
Self Monitoring Report Results for Industrial Wastewater Discharge Permit No: 23-P3149-1
May 2024

Sample ID	Sewer Use Limits (15 R.C.N.Y. ch. 19)	M1-COMP-5-16-2024	M1-COMP-(A-D)-05-15-2024	M1-A-05-15-2024	M1-B-05-15-2024	M1-C-05-15-2024	M1-D-05-15-2024
Lab ID		AD44557-002	AD44557-001				
Date		5/16/2024	5/15/2024	5/15/2024	5/15/2024	5/15/2024	5/15/2024
VOCs (ppb)							
1,1,1 -Trichloroethane	NS		1.0 U				
1,2,4-Trichlorobenzene	NS		1.0 U				
Benzene	Daily Limit: 134 Monthly Limit: 57		0.50 U				
Carbon Tetrachloride	NS		1.0 U				
Chloroform	NS		1.0 U				
Ethylbenzene	Daily Limit: 380 Monthly Limit: 142		1.0 U				
Methyl-Tert-Butyl-Ether (MTBE)	50		0.87 U				
Tetrachloroethene (Perc)	20		1.0 U				
Toluene	Daily Limit: 74 Monthly Limit: 28		1.0 U				
Xylenes (Total)	Daily Limit: 74 Monthly Limit: 28		1.0 U				
Semi-Volatile Organics (ppb)							
Naphthalene	Daily Limit: 47 Monthly Limit: 19	0.50 U					
1,4-Dichlorobenzene	NS	2.0 U					
Phenol	NS	2.0 U					
Pesticides/ PBCs (ppb)	1.0 (Total PCBs, 7 PCB compounds)						
Aroclor-1016		0.25 U					
Aroclor-1242		0.25 U					
Aroclor-1254		0.25 U					
Aroclor-1221		0.25 U					
Aroclor-1232		0.25 U					
Aroclor-1248		0.25 U					
Aroclor-1260		0.25 U					
Metals (ppm)							
Cadmium	2	0.0020 U					
Chromium (Total)	5	0.0020 U					
Chromium (Hexavalent)	5	0.020 U					
Copper	5	0.010 U					
Lead	2	0.0030 U					
Mercury	0.05	0.00050 U					
Molybdenum	NS	0.0020 U					
Nickel	3	0.010 U					
Silver	NS	0.0020 U					
Zinc	5	0.040 U					
General Chemistry Analysis							
Carbonaceous Biochemical Oxygen Demand (CBOD) (mg/L)	NS	3.8					
Total Nitrogen (mg/L)	NS	2.6					
Chloride (mg/L)	NS	310					
Cyanide (Total) (mg/L)	0.2		0.014 U				
Cyanide (Amenable to Chlorination) (mg/L)	0.2		0.010 U				
Total Suspended Solids (TSS) (mg/L)	350		55				
Non-Polar Material (Oil and Grease 1664-A HEM) (mg/L)	50		5.0 U				
pH	5.0-12.0 Standard Units			8.02	7.01	7.53	8.32
TKN (mg/L)	NS	41.7					
Temperature	Deg. C (< 65.5)			16.04	15.19	17.29	17.86

Notes:

< = Less than

NS = No Standard

U = Not Detected

(Blank) = Parameter not required for analysis

Bold = Above Daily Limit

LABORATORY REPORTS

HC Report of Analysis

Client: TRC Engineering
Project: Brookfield Landfill

HC Project #: 4031423

Sample ID: M1-Comp(A-D)-03-13-2024
Lab#: AD43286-001
Matrix: Aqueous

Collection Date: 3/13/2024
Receipt Date: 3/14/2024

Cyanide (Amenable) SM22 4500-CN-E/G

Analyte	DF	Units	MDL	RL	Result
Cyanide	**1**	**mg/l**	**0.010**	0.010	**0.010 U**

Cyanide (Potable) EPA 335.4

Analyte	DF	Units	MDL	RL	Result
Cyanide	**1**	**mg/l**	**0.0040**	0.010	**0.0050**

SGT-HEM (Non-Polar Material) 1664B

Analyte	DF	Units	RL	Result
SGT-HEM (Non-Polar Material)	1	mg/l	5.0	ND

Total Suspended Solids (SM2540D-15)

Analyte	DF	Units	RL	Result
Total Suspended Solids @ 103-105 C	**1**	**mg/l**	**6.7**	**40**

Volatile Organics (no search) 8260

Analyte	DF	Units	RL	Result
1,1,1-Trichloroethane	1	ug/l	1.0	ND
1,2,4-Trichlorobenzene	1	ug/l	1.0	ND
Benzene	1	ug/l	0.50	ND
Carbon tetrachloride	1	ug/l	1.0	ND
Chloroform	1	ug/l	1.0	ND
Ethylbenzene	1	ug/l	1.0	ND
m&p-Xylenes	1	ug/l	1.0	ND
Methyl-t-butyl ether	1	ug/l	0.87	ND
o-Xylene	1	ug/l	1.0	ND
Tetrachloroethene	1	ug/l	1.0	ND
Toluene	1	ug/l	1.0	ND
Xylenes (Total)	1	ug/l	1.0	ND

Sample ID: M1-Comp-03-14-2024
Lab#: AD43286-002
Matrix: Aqueous

Collection Date: 3/14/2024
Receipt Date: 3/14/2024

Carbonaceous BOD-5 Day (SM5210 B-16)

Analyte	DF	Units	RL	Result
Carbonaceous Bod, 5 Day	**1**	**mg/l**	**1.0**	**6.5**

Chloride (Water) 300.0

Analyte	DF	Units	RL	Result
Chloride	**50**	**mg/l**	**100**	**630**

Cr (Hexavalent) 3500-Cr B11

Analyte	DF	Units	RL	Result
Cr (Hexavalent)	1	mg/l	0.020	ND

Mercury (Water) 7470A

Analyte	DF	Units	RL	Result
Mercury	1	ug/l	0.50	ND

Nitrate-N (Water) 300.0

Analyte	DF	Units	RL	Result
Nitrate	1	mg/l	1.0	ND

Nitrite-N (Aqueous) 300.0

Analyte	DF	Units	RL	Result
Nitrite	1	mg/l	1.0	ND

PCB 8082

Analyte	DF	Units	RL	Result
Aroclor (Total)	1	ug/l	0.25	ND
Aroclor-1016	1	ug/l	0.25	ND
Aroclor-1221	1	ug/l	0.25	ND
Aroclor-1232	1	ug/l	0.25	ND
Aroclor-1242	1	ug/l	0.25	ND
Aroclor-1248	1	ug/l	0.25	ND
Aroclor-1254	1	ug/l	0.25	ND
Aroclor-1260	1	ug/l	0.25	ND

Semivolatile Organics (no search) 8270

Analyte	DF	Units	RL	Result
1,4-Dichlorobenzene	1	ug/l	2.0	ND
Naphthalene	1	ug/l	0.50	ND
Phenol	1	ug/l	2.0	ND

TAL Metals 6020B

Analyte	DF	Units	RL	Result
Cadmium	1	ug/l	2.0	ND
Chromium	**1**	**ug/l**	**2.0**	**2.2**
Copper	**1**	**ug/l**	**10**	**12**
Lead	**1**	**ug/l**	**3.0**	**6.6**
Molybdenum	1	ug/l	2.0	ND
Nickel	1	ug/l	10	ND
Silver	1	ug/l	2.0	ND
Zinc	**1**	**ug/l**	**40**	**51**

Total Kjeldahl Nitrogen EPA 351

Analyte	DF	Units	MDL	RL	Result
Total Kjeldahl Nitrogen	**20**	**mg/l**	**10.0**	20.0	**46.7**

Form1

ORGANICS VOLATILE REPORT

Sample Number: AD43286-001
Client Id: M1-Comp(A-D)-03-13-2024
Data File: 11M121456.D
Analysis Date: 03/18/24 23:00
Date Rec/Extracted: 03/14/24-NA
Column: DB-624 25M 0.200mm ID 1.12um film

Method: EPA 8260D
Matrix: Aqueous
Initial Vol: 5ml
Final Vol: NA
Dilution: 1.00
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
71-55-6	1,1,1-Trichloroethane	1.0	U	79601-23-1	m&p-Xylenes	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1634-04-4	Methyl-t-butyl ether	0.87	U
71-43-2	Benzene	0.50	U	95-47-6	o-Xylene	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U	127-18-4	Tetrachloroethene	1.0	U
67-66-3	Chloroform	1.0	U	108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U	1330-20-7	Xylenes (Total)	1.0	U

Worksheet #: 728675

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AD43286-002
Client Id: M1-Comp-03-14-2024
Data File: 7M135218.D
Analysis Date: 03/20/24 14:27
Date Rec/Extracted: 03/14/24-03/19/24
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270E
Matrix: Aqueous
Initial Vol: 1000ml
Final Vol: 1ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
106-46-7	1,4-Dichlorobenzene	2.0	U	108-95-2	Phenol	2.0	U
91-20-3	Naphthalene	0.50	U				

Worksheet #: 728587

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS PCB REPORT

Sample Number: AD43286-002
Client Id: M1-Comp-03-14-2024
Data File: 5G1105473.D
Analysis Date: 03/18/24 15:51
Date Rec/Extracted: 03/14/24-03/15/24
Column: DB-17/1701P 30M 0.32mm ID 0.25um film

Method: EPA 8082A
Matrix: Aqueous
Initial Vol: 1000ml
Final Vol: 5ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
12674-11-2	Aroclor-1016	0.25	U	12672-29-6	Aroclor-1248	0.25	U
11104-28-2	Aroclor-1221	0.25	U	11097-69-1	Aroclor-1254	0.25	U
11141-16-5	Aroclor-1232	0.25	U	11096-82-5	Aroclor-1260	0.25	U
53469-21-9	Aroclor-1242	0.25	U	1336-36-3	Aroclor (Total)	0.25	U

Worksheet #: 728506

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD43286-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-Comp-03-14-2024	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	3/14/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-43-9	Cadmium	2.0	ND	1	50	100	03/15/24	112249	03152024A	21	MSMS4_7800SWA	
7440-47-3	Chromium	2.0	2.2	1	50	100	03/15/24	112249	03152024A	21	MSMS4_7800SWA	
7440-50-8	Copper	10	12	1	50	100	03/15/24	112249	03152024A	21	MSMS4_7800SWA	
7439-92-1	Lead	3.0	6.6	1	50	100	03/15/24	112249	03152024A	21	MSMS4_7800SWA	
7439-98-7	Molybdenum	2.0	ND	1	50	100	03/15/24	112249	03152024A	21	MSMS4_7800SWA	
7440-02-0	Nickel	10	ND	1	50	100	03/15/24	112249	03152024A	21	MSMS4_7800SWA	
7440-22-4	Silver	2.0	ND	1	50	100	03/15/24	112249	03152024A	21	MSMS4_7800SWA	
7440-66-6	Zinc	40	51	1	50	100	03/15/24	112249	03152024A	21	MSMS4_7800SWA	

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD43286-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-Comp-03-14-2024	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	3/14/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7439-97-6	Mercury	0.50	ND	1	25	25	03/18/24	112249	H30706SW	14	CV	HGCV3A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

VERITECH Wet Chem Form1 Analysis Summary

Lab#: AD43286-001
Matrix Aqueous
Client SampleID: M1-Comp(A-D)-03-13-202

Project Number: 4031423
Received Date: 3/14/2024
Collect Date: 3/13/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
SGT-HEM (Non-Polar Material)	HEM-NPM	1	ND	mg/L	5.0	03/19/24	03/19/24
Total Suspended Solids @ 103-105	TSS-MUR	**1**	**40**	**mg/l**	**6.7**	03/20/24	03/20/24

Lab#: AD43286-002
Matrix Aqueous
Client SampleID: M1-Comp-03-14-2024

Project Number: 4031423
Received Date: 3/14/2024
Collect Date: 3/14/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
Carbonaceous Bod, 5 Day	CBOD-5-MUR	**1**	**6.5**	**MG/L**	**1.0**	03/15/24	03/20/24
Chloride	CHLORIDE-ICW	**50**	**630**	**mg/L**	**100**	03/15/24	03/15/24
Cr (Hexavalent)	CR6-WATER	1	ND	mg/l	0.020	03/22/24	03/22/24
Nitrite	NO2-ICW	1	ND	mg/L	1.0	03/14/24	03/14/24
Nitrate	NO3-ICW	1	ND	mg/L	1.0	03/14/24	03/14/24

Chain of Custody Forms

4031423 0015

Hampton-Clarke, Inc. (WBE/DBE/SBE)

175 US Highway 46, STE D and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787
Service Center: 137-C Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056

Hampton-Clarke WBE/DBE/SBE 800-426-9992

A Women-Owned, Disadvantaged, Small Business Enterprise

NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | KY #90124 | DE HSCA Approved

CHAIN OF CUSTODY RECORD

Project# (Lab Use Only): 4031423

Page _____ of _____

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Data Deliv.
When Available:	Summary	NJ Hazsite
1 Business Day (100%) *	Results + QC (Waste)	Excel Reg. NJ / NY / PA
2 Business Days (75%) *	Reduced:	EnviroData
3 Business Days (50%) *	[ ] NJ [ ] NY	EQuIS:
4 Business Days (35%) *	[ ] PA [ ] Other___	[ ] 4-File [ ] EZ
5 Business Days (25%)	NJ Full / NY ASP CatB	[ ] NYDEC
8 Business Days (Stand.)	NY ASP CatA	[ ] Region 2 or 5
Other: _____		Other: _____

* Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

1a) Customer: TRC
Address: 1430 Broadway, suite 3301
New York, NY 10018
1b) Email/Cell/Fax/Ph: Ivan.gonzalez@trccompanies.com
1c) Send Invoice to: APinvoiceApproval@trccompanies.com
1d) Send Report to: Ivan.gonzalez@trccompanies.com

Project Information

2a) Project: Brookfield Avenue Landfill
2b) Project Mgr: Kirsten Myers
2c) Project Location (City/State): Staten Island, NY
2d) Quote/PO # (If Applicable): 144549

FOR LAB USE ONLY

Batch # AD43286

===> Check If Contingent ===>

Matrix Codes
DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis (specify methods & parameter lists)

<=== Check If Contingent <===

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	VOCs	cyanide (total)	cyanide (amenable)	Total Inorganic Solids	NON Polar material	PCBs	SVOCs	cadmium, chromium, copper, lead, mercury, silver	methylmercury	nickel, zinc, Chromium (Hexavalent)	cis-1,2-dichloroethene, Chloride, TKN	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
001	MI-A-03-13-2024	AQ	03/13/24			X	X	X	X	X	X							7			2	5				
↓	MI-B-03-13-2024	↓	↓			↓	↓	↓	↓	↓	↓							2			2	5				
	MI-C-03-13-2024						↓	↓	↓	↓	↓							1			2	5				
↓	MI-D-03-13-2024	↓	↓			↓	↓	↓	↓	↓	↓							2			2	5				
002	MI-COMP-03-14-2024		03/14/24		X							X	X	X	X	X	X	7					1	1		

10) Relinquished by:	Accepted by:	Date	Time
Ivan Gonzalez	Ashley Chandler	3/14/24	2:00
Ashley Chandler		3/14/24	4:30

11) Sampler (print name): Ivan Gonzalez Date: 03/14/24 03/13/24

Additional Notes: Please composite samples MI-A-03-13-2024, MI-B-03-13-2024, MI-C-03-13-2024, MI-D-03-13-2024 into one sample with sample ID: MI-COMP(A-D)-03-13-2024

Comments, Notes, Special Requirements, HAZARDS

Indicate if low-level methods required to meet current groundwater standards (SPLP for soil):
- [ ] BN or BNA (8270E SIM)
- [ ] VOC (8260D SIM or 8011)
- [ ] SPLP (BN, BNA, Metals)
- [ ] 1,4 Dioxane

For NJ LSRP projects, indicate which standards need to be met:
- [ ] NJDEP GWQS
- [ ] NJDEP SRS
- [ ] NJDEP SPLP
- [ ] Other (specify):

Check if applicable:
- [ ] Project-Specific Reporting Limits
- [ ] High Contaminant Concentrations
- [ ] NJ LSRP Project (also check boxes above/right)

Cooler Temperature: 3.1 2.5

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

Internal use: sampling plan (check box) HC [ ] or client [ ] FSP#

Sample Summary

Client: Hampton-Clarke Veritech
Project/Site: 4031423 9016

Job ID: 460-300789-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-300789-1	AD43286-001	Water	03/13/24 08:05	03/21/24 09:27
460-300789-2	AD43286-002	Water	03/14/24 08:00	03/21/24 09:27

Detection Summary

Client: Hampton-Clarke Veritech
Project/Site: 4031423 9016

Job ID: 460-300789-1

Client Sample ID: AD43286-001 — Lab Sample ID: 460-300789-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	0.0050	J	0.010	0.0040	mg/L	1		335.4	Total/NA

Client Sample ID: AD43286-002 — Lab Sample ID: 460-300789-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	46.7		20.0	10.0	mg/L	20		351.2	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Hampton-Clarke Veritech
Project/Site: 4031423 9016

Job ID: 460-300789-1

Method	Method Description	Protocol	Laboratory
335.4	Cyanide, Total	EPA	EET EDI
351.2	Nitrogen, Total Kjeldahl	EPA	ELLE
4500-CN G-2016	Cyanide, Amenable	SM	EET EDI
351.2	Nitrogen, Total Kjeldahl	EPA	ELLE
Distill/CN	Distillation, Cyanide	None	EET EDI

Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Client Sample ID: AD43286-001
Lab Sample ID: 460-300789-1

Date Collected: 03/13/24 08:05
Matrix: Water
Date Received: 03/21/24 09:27

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA 335.4)	**0.0050**	**J**	0.010	0.0040	mg/L		03/27/24 08:35	03/27/24 14:24	1
Cyanide, Amenable (SM 4500-CN G-2016)	0.010	U	0.010	0.010	mg/L			03/27/24 17:00	1

Client Sample ID: AD43286-002
Lab Sample ID: 460-300789-2

Date Collected: 03/14/24 08:00
Matrix: Water
Date Received: 03/21/24 09:27

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen (EPA 351.2	**46.7**		20.0	10.0	mg/L		03/29/24 12:40	04/01/24 16:22	20

HC Report of Analysis

Client: TRC Engineering
Project: Brookfield Ave Landfill

HC Project #: 4041611

Sample ID: M1-COMP(A-D)-20240415
Lab#: AD43897-001
Matrix: Aqueous

Collection Date: 4/15/2024
Receipt Date: 4/16/2024

Cyanide (Amenable) SM22 4500-CN-E/G

Analyte	DF	Units	MDL	RL	Result
Cyanide	**1**	**mg/l**	**0.010**	0.010	**0.010 U**

Cyanide (Potable) EPA 335.4

Analyte	DF	Units	MDL	RL	Result
Cyanide	**1**	**mg/l**	**0.0040**	0.010	**0.0040 U**

SGT-HEM (Non-Polar Material) 1664B

Analyte	DF	Units	RL	Result
SGT-HEM (Non-Polar Material)	1	mg/l	6.2	ND

Total Suspended Solids (SM2540D-15)

Analyte	DF	Units	RL	Result
Total Suspended Solids @ 103-105 C	**1**	**mg/l**	**4.0**	**48**

Volatile Organics (no search) 8260

Analyte	DF	Units	RL	Result
1,1,1-Trichloroethane	1	ug/l	1.0	ND
1,2,4-Trichlorobenzene	1	ug/l	1.0	ND
Benzene	1	ug/l	0.50	ND
Carbon tetrachloride	1	ug/l	1.0	ND
Chloroform	1	ug/l	1.0	ND
Ethylbenzene	1	ug/l	1.0	ND
m&p-Xylenes	1	ug/l	1.0	ND
Methyl-t-butyl ether	1	ug/l	0.87	ND
o-Xylene	1	ug/l	1.0	ND
Tetrachloroethene	1	ug/l	1.0	ND
Toluene	1	ug/l	1.0	ND
Xylenes (Total)	1	ug/l	1.0	ND

Sample ID: M1-COMP-20240416 **Collection Date:** 4/16/2024
Lab#: AD43897-002 **Receipt Date:** 4/16/2024
Matrix: Aqueous

Carbonaceous BOD-5 Day (SM5210 B-16)

Analyte	DF	Units	RL	Result
Carbonaceous Bod, 5 Day	**1**	**mg/l**	**1.0**	**4.4**

Chloride (Water) 300.0

Analyte	DF	Units	RL	Result
Chloride	**50**	**mg/l**	**100**	**920**

Cr (Hexavalent) 3500-Cr B11

Analyte	DF	Units	RL	Result
Cr (Hexavalent)	1	mg/l	0.020	ND

Mercury (Water) 7470A

Analyte	DF	Units	RL	Result
Mercury	1	ug/l	0.50	ND

Nitrate-N (Water) 300.0

Analyte	DF	Units	RL	Result
Nitrate	1	mg/l	1.0	ND

Nitrite-N (Aqueous) 300.0

Analyte	DF	Units	RL	Result
Nitrite	1	mg/l	1.0	ND

PCB 8082

Analyte	DF	Units	RL	Result
Aroclor (Total)	1	ug/l	0.25	ND
Aroclor-1016	1	ug/l	0.25	ND
Aroclor-1221	1	ug/l	0.25	ND
Aroclor-1232	1	ug/l	0.25	ND
Aroclor-1242	1	ug/l	0.25	ND
Aroclor-1248	1	ug/l	0.25	ND
Aroclor-1254	1	ug/l	0.25	ND
Aroclor-1260	1	ug/l	0.25	ND

Semivolatile Organics (no search) 8270

Analyte	DF	Units	RL	Result
1,4-Dichlorobenzene	1	ug/l	2.0	ND
Naphthalene	1	ug/l	0.50	ND
Phenol	1	ug/l	2.0	ND

TAL Metals 6020B

Analyte	DF	Units	RL	Result
Cadmium	1	ug/l	2.0	ND
Chromium	1	ug/l	2.0	ND
Copper	1	ug/l	10	ND
Lead	1	ug/l	3.0	ND
Molybdenum	1	ug/l	2.0	ND
Nickel	1	ug/l	10	ND
Silver	1	ug/l	2.0	ND
Zinc	1	ug/l	40	ND

Total Kjeldahl Nitrogen EPA 351

Analyte	DF	Units	MDL	RL	Result
Total Kjeldahl Nitrogen	**50**	**mg/l**	**5.0**	10.0	**46.3**

Form1

ORGANICS VOLATILE REPORT

Sample Number: AD43897-001
Client Id: M1-COMP(A-D)-20240415
Data File: 8M5689096.D
Analysis Date: 04/16/24 16:20
Date Rec/Extracted: 04/16/24-NA
Column: DB-624 25M 0.200mm ID 1.12um film

Method: EPA 8260D
Matrix: Aqueous
Initial Vol: 5ml
Final Vol: NA
Dilution: 1.00
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
71-55-6	1,1,1-Trichloroethane	1.0	U	79601-23-1	m&p-Xylenes	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1634-04-4	Methyl-t-butyl ether	0.87	U
71-43-2	Benzene	0.50	U	95-47-6	o-Xylene	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U	127-18-4	Tetrachloroethene	1.0	U
67-66-3	Chloroform	1.0	U	108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U	1330-20-7	Xylenes (Total)	1.0	U

Worksheet #: 733135

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used

Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AD43897-002
Client Id: M1-COMP-20240416
Data File: 10M101627.D
Analysis Date: 04/19/24 12:54
Date Rec/Extracted: 04/16/24-04/18/24
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270E
Matrix: Aqueous
Initial Vol: 1000ml
Final Vol: 1ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
106-46-7	1,4-Dichlorobenzene	2.0	U	108-95-2	Phenol	2.0	U
91-20-3	Naphthalene	0.50	U				

Worksheet #: 733162

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS PCB REPORT

Sample Number: AD43897-002
Client Id: M1-COMP-20240416
Data File: 2G189629.D
Analysis Date: 04/24/24 08:59
Date Rec/Extracted: 04/16/24-04/23/24
Column: DB-17/1701P 30M 0.32mm ID 0.25um film

Method: EPA 8082A
Matrix: Aqueous
Initial Vol: 1000ml
Final Vol: 5ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
12674-11-2	Aroclor-1016	0.25	U	12672-29-6	Aroclor-1248	0.25	U
11104-28-2	Aroclor-1221	0.25	U	11097-69-1	Aroclor-1254	0.25	U
11141-16-5	Aroclor-1232	0.25	U	11096-82-5	Aroclor-1260	0.25	U
53469-21-9	Aroclor-1242	0.25	U	1336-36-3	Aroclor (Total)	0.25	U

Worksheet #: 733228

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD43897-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-COMP-20240416	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	4/16/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-43-9	Cadmium	2.0	ND	1	50	100	04/18/24	112370	04182024B	21		MSMS4_7800SWA
7440-47-3	Chromium	2.0	ND	1	50	100	04/18/24	112370	04182024B	21		MSMS4_7800SWA
7440-50-8	Copper	10	ND	1	50	100	04/19/24	112370	04192024B	22		MSMS4_7800SWA
7439-92-1	Lead	3.0	ND	1	50	100	04/18/24	112370	04182024B	21		MSMS4_7800SWA
7439-98-7	Molybdenum	2.0	ND	1	50	100	04/18/24	112370	04182024B	21		MSMS4_7800SWA
7440-02-0	Nickel	10	ND	1	50	100	04/18/24	112370	04182024B	21		MSMS4_7800SWA
7440-22-4	Silver	2.0	ND	1	50	100	04/18/24	112370	04182024B	21		MSMS4_7800SWA
7440-66-6	Zinc	40	ND	1	50	100	04/18/24	112370	04182024B	21		MSMS4_7800SWA

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD43897-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-COMP-20240416	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	4/16/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7439-97-6	Mercury	0.50	ND	1	25	25	04/22/24	112370	30837SWB	13	CV	HGCV3A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

VERITECH Wet Chem Form1 Analysis Summary

Lab#: AD43897-001
Matrix Aqueous
Client SampleID: M1-COMP(A-D)-20240415
Project Number: 4041611
Received Date: 4/16/2024
Collect Date: 4/15/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
SGT-HEM (Non-Polar Material)	HEM-NPM	1	ND	mg/L	6.2	04/18/24	04/19/24
Total Suspended Solids @ 103-105	TSS-MUR	**1**	**48**	**mg/l**	**4.0**	04/17/24	04/18/24

Lab#: AD43897-002
Matrix Aqueous
Client SampleID: M1-COMP-20240416
Project Number: 4041611
Received Date: 4/16/2024
Collect Date: 4/16/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
Carbonaceous Bod, 5 Day	CBOD-5-MUR	**1**	**4.4**	**MG/L**	**1.0**	04/17/24	04/22/24
Chloride	CHLORIDE-ICW	**50**	**920**	**mg/L**	**100**	04/16/24	04/16/24
Cr (Hexavalent)	CR6-WATER	1	ND	mg/l	0.020	04/19/24	04/19/24
Nitrite	NO2-ICW	1	ND	mg/L	1.0	04/16/24	04/16/24
Nitrate	NO3-ICW	1	ND	mg/L	1.0	04/16/24	04/16/24

Chain of Custody Forms

4041611 0016

Hampton-Clarke, Inc. (WBE/DBE/SBE)

175 US Highway 46, STE D and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787
Service Center: 137-C Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056

Hampton-Clarke WBE/DBE/SBE 800-426-9992
A Women-Owned, Disadvantaged, Small Business Enterprise

NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | KY #90124 | DE HSCA Approved

CHAIN OF CUSTODY RECORD

Project# (Lab Use Only): 404611

Page _____ of _____

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Data Deliv.
When Available:	Summary	NJ Hazsite
1 Business Day (100%) *	Results + QC (Waste)	Excel Reg. NJ / NY / PA
2 Business Days (75%) *	Reduced:	EnviroData
3 Business Days (50%) *	[ ] NJ [ ] NY	EQuIS:
4 Business Days (35%) *	[ ] PA [ ] Other___	[ ] 4-File [ ] EZ
5 Business Days (25%)	NJ Full / NY ASP CatB	[ ] NYDEC
8 Business Days (Stand.)	NY ASP CatA	[ ] Region 2 or 5
Other: _____		Other: _____

* Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

1a) Customer: TRC
Address: 1407 Broadway, Suite 330
NEW YORK, NY 10018
1b) Email/Cell/Fax/Ph: ivan.gonzalez@trccompanies.com
1c) Send Invoice to: APinvoice.approval@trccompanies.com
1d) Send Report to: ivan.gonzalez@trccompanies.com

Project Information

2a) Project: Brookfield Avenue Landfill
2b) Project Mgr: Kirsten Myers
2c) Project Location (City/State): Staten Island, NY
2d) Quote/PO # (If Applicable): 194549

FOR LAB USE ONLY

Batch # M243897

===> Check If Contingent ===>

Matrix Codes
DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis *(specify methods & parameter lists)*

<=== Check If Contingent <===

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	VOCs	Cyanide (total)	Cyanide (amenable)	Total Suspended Solids	Non-polar material	PCB's	SVOCs	Cadium, Chromium, Lead, Mercury, Silver	Molybdenum	Nickel, Zinc, Chromium (total)	COD, total nitrogen, Chloride, TKN	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
001	M1-A-20240415	GW	4/15/24	1035		X	X	X	X	X	X							1			2	5				
	M1-B-20240415	↓	↓	1135		X	↓	↓	↓	↓	↓							1			2	5				
	M1-C-20240415	↓	↓	1235		X	↓	↓	↓	↓	↓							1			2	5				
↓	M1-D-20240415	↓	↓	1335		X	↓	↓	↓	↓	↓							1			2	5				
002	M1-COMP-20240416		4/16/24	1015	X													7					1	1		

10) Relinquished by:	Accepted by:	Date	Time
		04/16/24	10:45
		4/16/24	11:55

11) Sampler (print name): Ivan Gonzalez + Elise He Date: 04/16/24

Additional Notes Please composite samples M1-A, M1-B, M1-C, M1-D into one sample, with sample I.D. M1-Comp(A-D) – 20240415

Comments, Notes, Special Requirements, HAZARDS

Indicate if low-level methods required to meet current groundwater standards (SPLP for soil):
- [ ] BN or BNA (8270E SIM)
- [ ] VOC (8260D SIM or 8011)
- [ ] SPLP (BN, BNA, Metals)
- [ ] 1,4 Dioxane

Check if applicable:
- [ ] Project-Specific Reporting Limits
- [ ] High Contaminant Concentrations
- [ ] NJ LSRP Project (also check boxes above/right)

For NJ LSRP projects, indicate which standards need to be met:
- [ ] NJDEP GWQS
- [ ] NJDEP SRS
- [ ] NJDEP SPLP
- [ ] Other (specify):

Cooler Temperature: 2.8, 3.0

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

Internal use: sampling plan (check box) HC [ ] or client [ ] FSP#

Sample Summary

Client: Hampton-Clarke Veritech
Project/Site: 4041611 9047

Job ID: 460-302226-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-302226-1	AD43897-001	Water	04/15/24 10:35	04/17/24 14:37
460-302226-2	AD43897-002	Water	04/15/24 10:15	04/17/24 14:37

Detection Summary

Client: Hampton-Clarke Veritech
Project/Site: 4041611 9047

Job ID: 460-302226-1

Client Sample ID: AD43897-001 — Lab Sample ID: 460-302226-1

No Detections.

Client Sample ID: AD43897-002 — Lab Sample ID: 460-302226-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrogen, Kjeldahl	46.3		10.0	5.0	mg/L	50		351.2-1993 R2.0	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Hampton-Clarke Veritech
Project/Site: 4041611 9047

Job ID: 460-302226-1

Method	Method Description	Protocol	Laboratory
335.4	Cyanide, Total	EPA	EET EDI
351.2-1993 R2.0	Nitrogen, Total Nitrogen	MCAWW	EET SAV
4500-CN G-2016	Cyanide, Amenable	SM	EET EDI
Digestion	Digestion, Hot Block	EPA	EET SAV
Distill/CN	Distillation, Cyanide	None	EET EDI

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Client Sample ID: AD43897-001
Lab Sample ID: 460-302226-1

Date Collected: 04/15/24 10:35
Matrix: Water
Date Received: 04/17/24 14:37

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA 335.4)	0.0040	U F1	0.010	0.0040	mg/L		04/28/24 16:12	04/28/24 17:36	1
Cyanide, Amenable (SM 4500-CN G-2016)	0.010	U	0.010	0.010	mg/L			04/28/24 17:00	1

Client Sample ID: AD43897-002
Lab Sample ID: 460-302226-2

Date Collected: 04/15/24 10:15
Matrix: Water
Date Received: 04/17/24 14:37

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl (MCAWW 351.2-1993 R2.0)	**46.3**		10.0	5.0	mg/L		04/22/24 12:31	04/23/24 12:32	50

HC Report of Analysis

Client: TRC Engineering
Project: Brookfield Ave Landfill

HC Project #: 4051627

Sample ID: M1-Comp(A-D)-05-15-2024
Lab#: AD44557-001
Matrix: Aqueous

Collection Date: 5/15/2024
Receipt Date: 5/16/2024

Cyanide (Amenable) SM22 4500-CN-E/G

Analyte	DF	Units	MDL	RL	Result
Cyanide	1	mg/l	0.010	0.010	0.010 U

Cyanide (Potable) EPA 335.4

Analyte	DF	Units	MDL	RL	Result
Cyanide	1	mg/l	0.0040	0.010	0.0040 U

SGT-HEM (Non-Polar Material) 1664B

Analyte	DF	Units	RL	Result
SGT-HEM (Non-Polar Material)	1	mg/l	5.0	ND

Total Suspended Solids (SM2540D-15)

Analyte	DF	Units	RL	Result
Total Suspended Solids @ 103-105 C	1	mg/l	5.0	55

Volatile Organics (no search) 8260

Analyte	DF	Units	RL	Result
1,1,1-Trichloroethane	1	ug/l	1.0	ND
1,2,4-Trichlorobenzene	1	ug/l	1.0	ND
Benzene	1	ug/l	0.50	ND
Carbon tetrachloride	1	ug/l	1.0	ND
Chloroform	1	ug/l	1.0	ND
Ethylbenzene	1	ug/l	1.0	ND
m&p-Xylenes	1	ug/l	1.0	ND
Methyl-t-butyl ether	1	ug/l	0.87	ND
o-Xylene	1	ug/l	1.0	ND
Tetrachloroethene	1	ug/l	1.0	ND
Toluene	1	ug/l	1.0	ND
Xylenes (Total)	1	ug/l	1.0	ND

Sample ID: M1-Comp-05-16-2024
Lab#: AD44557-002
Matrix: Aqueous

Collection Date: 5/16/2024
Receipt Date: 5/16/2024

Carbonaceous BOD-5 Day (SM5210 B-16)

Analyte	DF	Units	RL	Result
Carbonaceous Bod, 5 Day	1	mg/l	1.0	3.8

Chloride (Water) 300.0

Analyte	DF	Units	RL	Result
Chloride	50	mg/l	100	310

Cr (Hexavalent) 3500-Cr B11

Analyte	DF	Units	RL	Result
Cr (Hexavalent)	1	mg/l	0.020	ND

Mercury (Water) 7470A

Analyte	DF	Units	RL	Result
Mercury	1	ug/l	0.50	ND

Nitrate-N (Water) 300.0

Analyte	DF	Units	RL	Result
Nitrate	1	mg/l	1.0	1.6

Nitrite-N (Aqueous) 300.0

Analyte	DF	Units	RL	Result
Nitrite	1	mg/l	1.0	ND

PCB 8082

Analyte	DF	Units	RL	Result
Aroclor (Total)	1	ug/l	0.25	ND
Aroclor-1016	1	ug/l	0.25	ND
Aroclor-1221	1	ug/l	0.25	ND
Aroclor-1232	1	ug/l	0.25	ND
Aroclor-1242	1	ug/l	0.25	ND
Aroclor-1248	1	ug/l	0.25	ND
Aroclor-1254	1	ug/l	0.25	ND
Aroclor-1260	1	ug/l	0.25	ND

Semivolatile Organics (no search) 8270

Analyte	DF	Units	RL	Result
1,4-Dichlorobenzene	1	ug/l	2.0	ND
Naphthalene	1	ug/l	0.50	ND
Phenol	1	ug/l	2.0	ND

TAL Metals 6020B

Analyte	DF	Units	RL	Result
Cadmium	1	ug/l	2.0	ND
Chromium	1	ug/l	2.0	ND
Copper	1	ug/l	10	ND
Lead	1	ug/l	3.0	ND
Molybdenum	1	ug/l	2.0	ND
Nickel	1	ug/l	10	ND
Silver	1	ug/l	2.0	ND
Zinc	1	ug/l	40	ND

Total Kjeldahl Nitrogen EPA 351

Analyte	DF	Units	MDL	RL	Result
Total Kjeldahl Nitrogen	10	mg/l	5.0	10.0	41.7

Form1

ORGANICS VOLATILE REPORT

Sample Number: AD44557-001
Client Id: M1-Comp(A-D)-05-15-2024
Data File: 2M199166.D
Analysis Date: 05/16/24 19:10
Date Rec/Extracted: 05/16/24-NA
Column: DB-624 25M 0.200mm ID 1.12um film

Method: EPA 8260D
Matrix: Aqueous
Initial Vol: 5ml
Final Vol: NA
Dilution: 1.00
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
71-55-6	1,1,1-Trichloroethane	1.0	U	79601-23-1	m&p-Xylenes	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1634-04-4	Methyl-t-butyl ether	0.87	U
71-43-2	Benzene	0.50	U	95-47-6	o-Xylene	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U	127-18-4	Tetrachloroethene	1.0	U
67-66-3	Chloroform	1.0	U	108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U	1330-20-7	Xylenes (Total)	1.0	U

Worksheet #: 737683

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AD44557-002
Client Id: M1-Comp-05-16-2024
Data File: 10M102120.D
Analysis Date: 05/24/24 15:15
Date Rec/Extracted: 05/16/24-05/23/24
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270E
Matrix: Aqueous
Initial Vol: 1000ml
Final Vol: 1ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
106-46-7	1,4-Dichlorobenzene	2.0	U	108-95-2	Phenol	2.0	U
91-20-3	Naphthalene	0.50	U				

Worksheet #: 737747

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration usea
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS PCB REPORT

Sample Number: AD44557-002
Client Id: M1-Comp-05-16-2024
Data File: 2G190898.D
Analysis Date: 05/20/24 23:05
Date Rec/Extracted: 05/16/24-05/20/24
Column: DB-17/1701P 30M 0.32mm ID 0.25um film

Method: EPA 8082A
Matrix: Aqueous
Initial Vol: 1000ml
Final Vol: 5ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
12674-11-2	Aroclor-1016	0.25	U	12672-29-6	Aroclor-1248	0.25	U
11104-28-2	Aroclor-1221	0.25	U	11097-69-1	Aroclor-1254	0.25	U
11141-16-5	Aroclor-1232	0.25	U	11096-82-5	Aroclor-1260	0.25	U
53469-21-9	Aroclor-1242	0.25	U	1336-36-3	Aroclor (Total)	0.25	U

Worksheet #: 737188

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD44557-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-Comp-05-16-2024	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	5/16/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-43-9	Cadmium	2.0	ND	1	50	100	05/20/24	112494	05202024A	21	MSMS4_7800SWA	
7440-47-3	Chromium	2.0	ND	1	50	100	05/20/24	112494	05202024A	21	MSMS4_7800SWA	
7440-50-8	Copper	10	ND	1	50	100	05/20/24	112494	05202024A	21	MSMS4_7800SWA	
7439-92-1	Lead	3.0	ND	1	50	100	05/20/24	112494	05202024A	21	MSMS4_7800SWA	
7439-98-7	Molybdenum	2.0	ND	1	50	100	05/20/24	112494	05202024A	21	MSMS4_7800SWA	
7440-02-0	Nickel	10	ND	1	50	100	05/20/24	112494	05202024A	21	MSMS4_7800SWA	
7440-22-4	Silver	2.0	ND	1	50	100	05/20/24	112494	05202024A	21	MSMS4_7800SWA	
7440-66-6	Zinc	40	ND	1	50	100	05/20/24	112494	05202024A	21	MSMS4_7800SWA	

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD44557-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-Comp-05-16-2024	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	5/16/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7439-97-6	Mercury	0.50	ND	1	25	25	05/28/24	112494	30959SWB	13	CV	HGCV4A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

VERITECH Wet Chem Form1 Analysis Summary

Lab#: AD44557-001
Matrix Aqueous
Client SampleID: M1-Comp(A-D)-05-15-202

Project Number: 4051627
Received Date: 5/16/2024
Collect Date: 5/15/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
SGT-HEM (Non-Polar Material)	HEM-NPM	1	ND	MG/L	5.0	05/23/24	05/24/24
Total Suspended Solids @ 103-105	TSS-MUR	1	55	mg/l	5.0	05/17/24	05/20/24

Lab#: AD44557-002
Matrix Aqueous
Client SampleID: M1-Comp-05-16-2024

Project Number: 4051627
Received Date: 5/16/2024
Collect Date: 5/16/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
Carbonaceous Bod, 5 Day	CBOD-5-MUR	1	3.8	MG/L	1.0	05/16/24	05/21/24
Chloride	CHLORIDE-ICW	50	310	mg/L	100	05/17/24	05/17/24
Cr (Hexavalent)	CR6-WATER	1	ND	mg/l	0.020	05/22/24	05/22/24
Nitrite	NO2-ICW	1	ND	mg/L	1.0	05/16/24	05/16/24
Nitrate	NO3-ICW	1	1.6	mg/L	1.0	05/16/24	05/16/24

Chain of Custody Forms

4051627 0015

4051627

Hampton-Clarke, Inc. (WBE/DBE/SBE)

175 US Highway 46, STE D and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787
Service Center: 137-C Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056

Hampton-Clarke WBE/DBE/SBE 800-426-9992
A Women-Owned, Disadvantaged, Small Business Enterprise

NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | KY #90124 | DE HSCA Approved

CHAIN OF CUSTODY RECORD

Project# (Lab Use Only): 30621144
Page 1 of 1

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Data Deliv.
When Available:	Summary	NJ Hazsite
1 Business Day (100%) *	Results + QC (Waste)	Excel Reg. NJ / NY / PA
2 Business Days (75%) *	Reduced:	EnviroData
3 Business Days (50%) *	[ ] NJ [ ] NY	EQuIS:
4 Business Days (35%) *	[ ] PA [ ] Other	[ ] 4-File [ ] EZ
5 Business Days (25%)	NJ Full / NY ASP CatB	[ ] NYDEC
8 Business Days (Stand.)	NY ASP CatA	[ ] Region 2 or 5
Other:		Other:

* Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

1a) Customer: TRC Engineers Inc.
Address: 1407 Broadway, Suite 3301 NY, NY 10018
1b) Email/Cell/Fax/Ph: Ivan.gonzalez@TRCcompanies.com
1c) Send Invoice to: APInvoice.approval@TRCcompanies.com
1d) Send Report to: Ivan.Gonzalez@TRCcompanies.com

Project Information

2a) Project: Brownfield Avenue Landfill Barn
2b) Project Mgr: Kirsten Myers
2c) Project Location (City/State): Staten Island, NY
2d) Quote/PO # (If Applicable): [redacted] 194549

FOR LAB USE ONLY ↓

Batch # AD44557

===> Check If Contingent ===>

Matrix Codes
DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis *(specify methods & parameter lists)*

<=== Check If Contingent <===

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	VOCs (8260)	Cyanide (total)	Cyanide (amenable)	Total suspended solids	Non-Polar Material	PCBs	SVOCs	Cadmium, chromium, copper (hexavalent), lead, mercury, silver, molybdenum, nickel, zinc	Chromium (total)	COD, total Kjeldahl nitrogen	Chloride, TDHS	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
001	MI-A-05-15-2024	GW	05-15-24	0930		X	X	X	X	X	X							1			2	5				
	MI-B-05-15-2024			1200		X	X	X	X	X	X							1			2	5				
	MI-C-05-15-2024			1300		X	X	X	X	X	X							1			2	5				
	MI-D-05-15-2024		↓	1400		X	X	X	X	X	X							1			2	5				
002	MI-Comp-05-16-2024	↓	5-16-24	8:30	X							X	X	X	X	X	X	7					1	1		

10) Relinquished by:	Accepted by:	Date	Time
[signature]	[signature]	05/16/24	1:52
[signature]	[signature]	5/16/24	3:05

Comments, Notes, Special Requirements, HAZARDS

Indicate if low-level methods required to meet current groundwater standards (SPLP for soil):
- [ ] BN or BNA (8270E SIM)
- [ ] VOC (8260D SIM or 8011)
- [ ] SPLP (BN, BNA, Metals)
- [ ] 1,4 Dioxane

For NJ LSRP projects, indicate which standards need to be met:
- [ ] NJDEP GWQS
- [ ] NJDEP SRS
- [ ] NJDEP SPLP
- [ ] Other (specify):

Check if applicable:
- [ ] Project-Specific Reporting Limits
- [ ] High Contaminant Concentrations
- [ ] NJ LSRP Project (also check boxes above/right)

Cooler Temperature: 2.9 3.0 2.7

11) Sampler (print name): Ivan Gonzalez + Zara Castillo Date: 05/16/24

Additional Notes: Please composite samples MI-A, MI-B, MI-C, MI-D 05-15-24 into one sample, with sample ID: MI-Comp(A-D)-05-15-24

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

Internal use: sampling plan (check box) HC [ ] or client [ ] FSP#

Sample Summary

Client: Hampton-Clarke Veritech
Project/Site: 4051627 9127

Job ID: 460-304201-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-304201-1	AD44557-001	Water	05/15/24 14:00	05/17/24 12:23
460-304201-2	AD44557-002	Water	05/16/24 08:30	05/17/24 12:23

Detection Summary

Client: Hampton-Clarke Veritech
Project/Site: 4051627 9127

Job ID: 460-304201-1

Client Sample ID: AD44557-001 — Lab Sample ID: 460-304201-1

No Detections.

Client Sample ID: AD44557-002 — Lab Sample ID: 460-304201-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	41.7	*-	10.0	5.0	mg/L	10		351.2	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Hampton-Clarke Veritech
Project/Site: 4051627 9127

Job ID: 460-304201-1

Method	Method Description	Protocol	Laboratory
335.4	Cyanide, Total	EPA	EET EDI
351.2	Nitrogen, Total Kjeldahl	EPA	ELLE
4500-CN G-2016	Cyanide, Amenable	SM	EET EDI
351.2	Nitrogen, Total Kjeldahl	EPA	ELLE
Distill/CN	Distillation, Cyanide	None	EET EDI

Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Client Sample ID: AD44557-001
Lab Sample ID: 460-304201-1

Date Collected: 05/15/24 14:00
Matrix: Water
Date Received: 05/17/24 12:23

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA 335.4)	0.0040	U	0.010	0.0040	mg/L		05/28/24 09:38	05/28/24 15:21	1
Cyanide, Amenable (SM 4500-CN G-2016)	0.010	U	0.010	0.010	mg/L			05/28/24 16:59	1

Client Sample ID: AD44557-002
Lab Sample ID: 460-304201-2

Date Collected: 05/16/24 08:30
Matrix: Water
Date Received: 05/17/24 12:23

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen (EPA 351.2	41.7	*-	10.0	5.0	mg/L		05/30/24 16:27	06/03/24 12:48	10

1407 Broadway, Suite 3301
New York, NY 10018
T 212.221.7822
TRCcompanies.com

October 3, 2024

Frances Leung, P.E., Chief
Industrial Inspection and Permitting Section
Bureau of Wastewater Treatment
New York City Department of Environmental Protection
96-05 Horace Harding Expressway
Corona, NY 11368

RE: Q1 Industrial Wastewater Discharge Self-Monitoring Report
New York City Department of Parks and Recreation
Brookfield Landfill/Park
575 Arthur Kill Road, Staten Island, NY 10308
Permit No. 23-P3149-1
TRC Project No. 384968.1000

Dear Ms. Leung:

Enclosed, please find a revised version of the Q1 Industrial Wastewater Discharge Self-Monitoring Report (SMR) for the monitoring period of June 1, 2024, to August 31, 2024, for the New York City Department of Parks and Recreation (NYCDPR) Brookfield Avenue Landfill. The report contains SMR Forms with certifications, Daily Volume of Discharge, Summary tables of M1 sample results, M1 laboratory data packages, and chain of custody forms. The results of the monthly sampling indicate there were no exceedances of any permit compound limits.

Please do not hesitate to contact me at (917) 794-3107 or via email at wlindemuth@trccompanies.com if you have any questions.

Sincerely,
TRC Engineers, Inc.

Wes D. Lindemuth, CHMM, CSP
Senior Project Manager

cc: K. Zias, R. Wilson, NYCDPR
K. Myers, R. Bowden , I. Gonzalez, TRC

Enclosure:

Q1 Industrial Wastewater Discharge Self-Monitoring Report

INDUSTRIAL USER SELF MONITORING REPORT

1.	★ Establishment Information ★			
A.	Name: Brookfield Avenue Landfill			
B.	Address: 575 Arthur Kill Road, Staten Island, NY 10308			
C.	Industrial Category:			
D.	Contact Official: Wes Lindemuth		E.	Phone #: 917-794-3107
F.	Reporting Period		G.	Date sampled
	Start 06/1/2024	End 08/31/2024	Start 06/18/2024	End 08/09/2024

Note: If the only wastewater discharges by your establishment into the public sewer system are sanitary or non-contact cooling water, do not address items in Tables 2, 3, 4, 5 and 6. In this case, check here [ ] and proceed directly to Table 7.

2.	★Flow Information ★	Average	Peak
A.	Total Plant Flow, gal/day	41,337.32	76,493.71
B.	Regulated Flow, gal/day	41,337.32	76,493.71
C.	Method of Flow Measurement: Flow meter (non-resettable) on the discharge line to the on-Site sanitary manhole.		

3.	★ Sample Collection Information ★
A.	Sampling Location: Prior to the gravity discharge from the oil/water seperator into the on-Site sanitary sewer system,
	a sample port installed on the effluent end of the discharge piping collects samples.
B.	Sampling Procedures: Samples are collected in accordance with 40 CFR, 403.12(g)(3) which states that grab samples
	must be used for pH, cyanide, total phenols, oil & grease, sulfide and VOCs.
	For all other pollutants, 24-hours composite samples are obtained through time-proportional composite sampling techniques.
C.	Preservatives Used: HCl, H2SO4, NaOH, HNO3

4.	This establishment's wastewater discharge DOES [ ] / DOES NOT [X] exceed nationwide categorical standard (s) or 15 RCNY 19-04 (a).

5.	★ Production Rate ★
If applicable, provide production rate: Not Applicable	

6.	★ pH Monitoring ★												
(Four Samples Per Day - One Hour Apart - Once a Month)													
A.	Date	06/18/2024		07/16/2024		08/08/2024		/ /		/ /		/ /	
B.	Time/pH	8:45	7.79	8:25	6.81	8:15	6.72						
		9:45	8.42	9:25	6.89	9:15	6.74						
		10:45	8.26	10:25	6.95	10:15	6.77						
		11:45	8.39	11:25	6.90	11:15	6.79						

7.	★ HAZARDOUS WASTES GENERATION ★
This establishment DID [ ] / DID NOT [x] generate any hazardous wastes, during this reporting period. If hazardous wastes were generated,	
A.	Type of Waste:
B.	Amount Generated (in kilograms) :
C.	Method of Disposal :

8.	★ CERTIFICATION ★

A. NON-CONTAMINATED WASTEWATER DISCHARGE CERTIFICATION:

I hereby certify, that during this reporting period, this facility has not discharged any industrial wastewater, chemicals, cleaners or like substances generated from or in relation to any of this establishment's operations other than sanitary or non-contact cooling water. I understand that I must obtain prior written approval from the Industrial Inspections and Permitting Section before I can discharge any such wastewater. I am aware that there are significant civil and criminal sanctions for submitting false information.

Name (Print) Signature

Title Date Phone #

8. ★ CERTIFICATIONS (CONTINUED) ★

B. TOXIC ORGANICS CERTIFICATION:

I. "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, no Toxic Organics are used or stored at my facility. I certify that I am duly authorized by the establishment to make this statement on its behalf, and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

Wes Lindemuth		Wes Lindemuth
Name (Print)		Signature
Senior Project Manager	10/04/2024	917-794-3107
Title	Date	Phone#

OR

II "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, there was no discharge to a public sewer of toxic organics during the reporting period covered by this report. I also certify that the explanations provided concerning the disposal of toxic organics from the facility are true, accurate and complete. I further certify that this facility is implementing a toxic organics management plan to protect against the release of such compounds to a public sewer. I certify that I am duly authorized by the establishment to make this statement on its behalf, and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

Name (Print)		Signature
Title	Date	Phone#

C. AUTHORIZED FIRM REPRESENTATIVE CERTIFICATION:

I hereby certify, under penalty of law, that I have personally examined and am familiar with the information contained in this report and all attachments therein. Furthermore, based on my inquiry of those persons immediately responsible for obtaining the information contained in this report, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I further certify that the reported sampling results are representative of the facility's normal work cycles and expected pollutant discharges.

Wes Lindemuth		Wes Lindemuth
Name (Print)		Signature
Senior Project Manager	10/04/2024	917-794-3107
Title	Date	Phone#

Please sign the following certification if required by the Permit/Directive:

D CYANIDE CERTIFICATION

The Industrial User must sign and submit one of the following certifications in its periodic self-monitoring reports:

a. "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, cyanide is not used or stored at my facility or generated in any of our manufacturing processes and there was no discharge of cyanide to the public sewer. I certify that I am duly authorized by the establishment to make this statement on its behalf, and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

Name (print) Wes Lindemuth Signature Wes Lindemuth

Title Senior Project Manager Date 10/04/2024 Phone Number 917-794-3107

OR

b. "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, there was no discharge to a public sewer of cyanide-bearing waste during the reporting period covered by this report. I also certify that the explanations provided concerning the disposal of cyanide-bearing waste from the facility are true, accurate and complete. I certify that I am duly authorized by the establishment to make this statement on its behalf, and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

Name (print)_____ Signature_____

Title_____ Date_____ Phone Number_____

If certification b. (above) is signed and submitted, explanations concerning the disposal of cyanide-bearing waste from the facility shall be provided.

9.	★ DESCRIPTION OF OPERATION ★
Site is a former landfill which is now operated as a public Park. The discharge is comprised of landfill leachate which is allowed to pass through an oil-water separator prior to discharge.	

10.	★ ATTACHMENTS ★	Yes	No	N/A
A.	All laboratory analyses must be conducted by a New York State Health Department certified wastewater laboratory. The results must be certified by the laboratory and submitted on the laboratory's letterhead. For each sample, the laboratory report must indicate the date of sampling, time sample was taken, sample location, sampling preservation procedures, analytical techniques used, date of analysis, units of measurement, and the laboratory's sample identification; where the analytical result reported is below the method detection level, the laboratory report must also indicate the method detection level.	X		
B.	Chain of custody for all samples.	X		
C.	Explanation of non-compliance and what will be done to rectify it. A compliance schedule is to be included.			X
D.	Amount of spent solvents generated and method of disposal. Explanation of zero discharges to be included.			X
E.	Description of any major modifications or malfunctions in manufacturing or pretreatment operations.			X
F.	Hazardous wastes manifests.			X

DAILY VOLUME OF DISCHARGE

BROOKFIELD LANDFILL LEACHATE SYSTEM
EFFLUENT FLOW METER REPORT

NYC Parks

Date/Time	FLOW GPM *Instantaneous	FLOW TOTAL DAILY GAL *Resets at Midnight	FLOW TOTAL RUNNING GAL *Resets at 100 Million Gallons
6/1/24 23:50	29.45	42408.00	22794148.00
6/2/24 23:50	29.45	42408.00	22836556.00
6/3/24 23:50	29.45	42408.00	22878964.00
6/4/24 23:50	32.85	47307.56	22926271.56
6/5/24 23:50	32.85	47307.56	22973579.11
6/6/24 23:50	32.85	47307.56	23020886.67
6/7/24 23:50	32.85	47307.56	23068194.22
6/8/24 23:50	32.85	47307.56	23115501.78
6/9/24 23:50	32.85	47307.56	23162809.33
6/10/24 23:50	32.85	47307.56	23210116.89
6/11/24 23:50	32.85	47307.56	23257424.44
6/12/24 23:50	32.85	47307.56	23304732.00
6/13/24 23:50	50.58	72833.78	23377565.78
6/14/24 23:50	50.58	72833.78	23450399.56
6/15/24 23:50	50.58	72833.78	23523233.33
6/16/24 23:50	50.58	72833.78	23596067.11
6/17/24 23:50	50.58	72833.78	23668900.89
6/18/24 23:50	50.58	72833.78	23741734.67
6/19/24 23:50	50.58	72833.78	23814568.44
6/20/24 23:50	50.58	72833.78	23887402.22
6/21/24 23:50	50.58	72833.78	23960236.00
6/22/24 23:50	28.71	41345.60	24001581.60
6/23/24 23:50	28.71	41345.60	24042927.20
6/24/24 23:50	28.71	41345.60	24084272.80
6/25/24 23:50	28.71	41345.60	24125618.40
6/26/24 23:50	28.71	41345.60	24166964.00
6/27/24 23:50	27.84	40088.86	24207052.86
6/28/24 23:50	27.84	40088.86	24247141.71
6/29/24 23:50	27.84	40088.86	24287230.57
6/30/24 23:50	27.84	40088.86	24327319.43
7/1/24 23:50	27.84	40088.86	24367408.29
7/2/24 23:50	27.84	40088.86	24407497.14
7/3/24 23:50	27.84	40088.86	24447586.00
7/4/24 23:50	21.64	31168.00	24478754.00
7/5/24 23:50	21.64	31168.00	24509922.00
7/6/24 23:50	21.64	31168.00	24541090.00
7/7/24 23:50	21.64	31168.00	24572258.00
7/8/24 23:50	21.64	31168.00	24603426.00
7/9/24 23:50	25.37	36526.00	24639952.00
7/10/24 23:50	25.37	36526.00	24676478.00
7/11/24 23:50	25.37	36526.00	24713004.00
7/12/24 23:50	25.37	36526.00	24749530.00
7/13/24 23:50	25.37	36526.00	24786056.00
7/14/24 23:50	25.37	36526.00	24822582.00
7/15/24 23:50	25.37	36526.00	24859108.00
7/16/24 23:50	19.56	28170.75	24887278.75
7/17/24 23:50	19.56	28170.75	24915449.50
7/18/24 23:50	19.56	28170.75	24943620.25
7/19/24 23:50	19.56	28170.75	24971791.00
7/20/24 23:50	19.56	28170.75	24999961.75
7/21/24 23:50	19.56	28170.75	25028132.50
7/22/24 23:50	19.56	28170.75	25056303.25
7/23/24 23:50	19.56	28170.75	25084474.00
7/24/24 23:50	28.39	40877.20	25125351.20
7/25/24 23:50	28.39	40877.20	25166228.40
7/26/24 23:50	28.39	40877.20	25207105.60
7/27/24 23:50	28.39	40877.20	25247982.80
7/28/24 23:50	28.39	40877.20	25288860.00
7/29/24 23:50	28.39	40877.20	25329737.20
7/30/24 23:50	28.39	40877.20	25370614.40
7/31/24 23:50	28.39	40877.20	25411491.60

BROOKFIELD LANDFILL LEACHATE SYSTEM
EFFLUENT FLOW METER REPORT

NYC Parks

Date/Time	FLOW GPM *Instantaneous	FLOW TOTAL DAILY GAL *Resets at Midnight	FLOW TOTAL RUNNING GAL *Resets at 100 Million Gallons
8/1/24 23:50	28.39	40877.20	25452368.80
8/2/24 23:50	28.39	40877.20	25493246.00
8/3/24 23:50	25.83	37189.43	25530435.43
8/4/24 23:50	25.83	37189.43	25567624.86
8/5/24 23:50	25.83	37189.43	25604814.29
8/6/24 23:50	25.83	37189.43	25642003.71
8/7/24 23:50	25.83	37189.43	25679193.14
8/8/24 23:50	25.83	37189.43	25716382.57
8/9/24 23:50	25.83	37189.43	25753572.00
8/10/24 23:50	53.12	76493.71	25830065.71
8/11/24 23:50	53.12	76493.71	25906559.43
8/12/24 23:50	53.12	76493.71	25983053.14
8/13/24 23:50	53.12	76493.71	26059546.86
8/14/24 23:50	53.12	76493.71	26136040.57
8/15/24 23:50	53.12	76493.71	26212534.29
8/16/24 23:50	53.12	76493.71	26289028.00
8/17/24 23:50	10.23	14727.50	26303755.50
8/18/24 23:50	10.23	14727.50	26318483.00
8/19/24 23:50	10.23	14727.50	26333210.50
8/20/24 23:50	10.23	14727.50	26347938.00
8/21/24 23:50	9.30	13393.11	26361331.11
8/22/24 23:50	9.30	13393.11	26374724.22
8/23/24 23:50	9.30	13393.11	26388117.33
8/24/24 23:50	9.30	13393.11	26401510.44
8/25/24 23:50	9.30	13393.11	26414903.56
8/26/24 23:50	9.30	13393.11	26428296.67
8/27/24 23:50	9.30	13393.11	26441689.78
8/28/24 23:50	9.30	13393.11	26455082.89
8/29/24 23:50	9.30	13393.11	26468476.00
8/30/24 23:50	29.96	43148.50	26511624.50
8/31/24 23:50	29.96	43148.50	26554773.00

Note:
The 2025 Q1 SMR, 'FLOW TOTAL RUNNING GAL', 'FLOW GPM', and 'FLOW TOTAL DAILY FAL' values were calculated estimations using recorded totalizer values from on-site weekly inspections.

LAB DATA SUMMARY

Table 1
New York City Parks and Recreation
Brookfield Avenue Landfill
Self Monitoring Report Results for Industrial Wastewater Discharge Permit No: 23-P3149-1
September 2024

Sample ID	Sewer Use Limits (15 R.C.N.Y. ch. 19)	M1-COMP-09-18-2024	M1-A-D-09-18-2024 COMP	M1-A-09-18-2024	M1-B-09-18-2024	M1-C-09-18-2024	M1-D-09-18-2024
Lab ID		AD46998-002	AD46998-001				
Date		9/18/2024	9/18/2024	9/18/2024	9/18/2024	9/18/2024	9/18/2024
VOCs (ppb)							
1,1,1 -Trichloroethane	NS		1.0 U				
1,2,4-Trichlorobenzene	NS		1.0 U				
Benzene	Daily Limit: 134 Monthly Limit: 57		0.50 U				
Carbon Tetrachloride	NS		1.0 U				
Chloroform	NS		1.0 U				
Ethylbenzene	Daily Limit: 380 Monthly Limit: 142		1.0 U				
Methyl-Tert-Butyl-Ether (MTBE)	50		0.53 U				
Tetrachloroethene (Perc)	20		1.0 U				
Toluene	Daily Limit: 74 Monthly Limit: 28		1.0 U				
Xylenes (Total)	Daily Limit: 74 Monthly Limit: 28		1.0 U				
Semi-Volatile Organics (ppb)							
Naphthalene	Daily Limit: 47 Monthly Limit: 19	0.50 U					
1,4-Dichlorobenzene	NS	2.0 U					
Phenol	NS	2.0 U					
Pesticides/ PBCs (ppb)	1.0 (Total PCBs, 7 PCB compounds)						
Aroclor-1016		0.25 U					
Aroclor-1242		0.25 U					
Aroclor-1254		0.25 U					
Aroclor-1221		0.25 U					
Aroclor-1232		0.25 U					
Aroclor-1248		0.25 U					
Aroclor-1260		0.25 U					
Metals (ppm)							
Cadmium	2	0.0020 U					
Chromium (Total)	5	0.0020 U					
Chromium (Hexavalent)	5	0.020 U					
Copper	5	0.012					
Lead	2	0.0030 U					
Mercury	0.05	0.00050 U					
Molybdenum	NS	0.0020 U					
Nickel	3	0.016					
Silver	NS	0.0020 U					
Zinc	5	0.040 U					
General Chemistry Analysis							
Carbonaceous Biochemical Oxygen Demand (CBOD) (mg/L)	NS	4.0					
Total Nitrogen (mg/L)	NS	2.0 U					
Chloride (mg/L)	NS	270					
Cyanide (Total) (mg/L)	0.2		0.0040 U				
Cyanide (Amenable to Chlorination) (mg/L)	0.2		0.010 U				
Total Suspended Solids (TSS) (mg/L)	350		35				
Non-Polar Material (Oil and Grease 1664-A HEM) (mg/L)	50		5.0 U				
pH	5.0-12.0 Standard Units			7.20	7.15	7.30	7.19
TKN (mg/L)	NS	48.3					
Temperature	Deg. C (< 65.5)			20.82	20.79	20.86	20.89

Notes:

< = Less than

NS = No Standard

U = Not Detected

(Blank) = Parameter not required for analysis

Bold = Above Daily Limit

Table 1
New York City Parks and Recreation
Brookfield Avenue Landfill
Self Monitoring Report Results for Industrial Wastewater Discharge Permit No: 23-P3149-1
October 2024

Sample ID	Sewer Use Limits (15 R.C.N.Y. ch. 19)	M1-COMP-10-18-2024	M1-COMP-(A-D)-10-17-2024	M1-A-10-17-2024	M1-B-10-17-2024	M1-C-10-17-2024	M1-D-10-17-2024
Lab ID		AD47630-002	AD47630-001				
Date		10/18/2024	10/17/2024	10/17/2024	10/17/2024	10/17/2024	10/17/2024
VOCs (ppb)							
1,1,1 -Trichloroethane	NS		1.0 U				
1,2,4-Trichlorobenzene	NS		1.0 U				
Benzene	Daily Limit: 134 Monthly Limit: 57		0.50 U				
Carbon Tetrachloride	NS		1.0 U				
Chloroform	NS		1.0 U				
Ethylbenzene	Daily Limit: 380 Monthly Limit: 142		1.0 U				
Methyl-Tert-Butyl-Ether (MTBE)	50		0.53 U				
Tetrachloroethene (Perc)	20		1.0 U				
Toluene	Daily Limit: 74 Monthly Limit: 28		1.0 U				
Xylenes (Total)	Daily Limit: 74 Monthly Limit: 28		1.0 U				
Semi-Volatile Organics (ppb)							
Naphthalene	Daily Limit: 47 Monthly Limit: 19	0.50 U					
1,4-Dichlorobenzene	NS	2.0 U					
Phenol	NS	2.0 U					
Pesticides/ PBCs (ppb)	1.0 (Total PCBs, 7 PCB compounds)						
Aroclor-1016		0.25 U					
Aroclor-1242		0.25 U					
Aroclor-1254		0.25 U					
Aroclor-1221		0.25 U					
Aroclor-1232		0.25 U					
Aroclor-1248		0.25 U					
Aroclor-1260		0.25 U					
Metals (ppm)							
Cadmium	2	0.0020 U					
Chromium (Total)	5	0.0110					
Chromium (Hexavalent)	5	0.0026 U					
Copper	5	0.0100 U					
Lead	2	0.0035					
Mercury	0.05	0.00050 U					
Molybdenum	NS	0.0020 U					
Nickel	3	0.0100 U					
Silver	NS	0.0020 U					
Zinc	5	0.051 U					
General Chemistry Analysis							
Carbonaceous Biochemical Oxygen Demand (CBOD) (mg/L)	NS	13.0					
Total Nitrogen (mg/L)	NS	2.0 U					
Chloride (mg/L)	NS	410					
Cyanide (Total) (mg/L)	0.2		0.0040 U				
Cyanide (Amenable to Chlorination) (mg/L)	0.2		0.010 U				
Total Suspended Solids (TSS) (mg/L)	350		39.0				
Non-Polar Material (Oil and Grease 1664-A HEM) (mg/L)	50		5.0 U				
pH	5.0-12.0 Standard Units			6.66	6.62	6.84	6.80
TKN (mg/L)	NS	51.3					
Temperature	Deg. C (< 65.5)			18.84	19.18	19.62	19.64

Notes:

< = Less than

NS = No Standard

U = Not Detected

(Blank) = Parameter not required for analysis

Bold = Above Daily Limit

Table 1
New York City Parks and Recreation
Brookfield Avenue Landfill
Self Monitoring Report Results for Industrial Wastewater Discharge Permit No: 23-P3149-1
November 2024

Sample ID	Sewer Use Limits (15 R.C.N.Y. ch. 19)	M1-COMP-11-15-2024	M1-COMP-(A-D)-11-14-2024	M1-A-11-14-2024	M1-B-11-14-2024	M1-C-11-14-2024	M1-D-11-14-2024
Lab ID		AD48186-002	AD48186-001				
Date		11/15/2024	11/14/2024	11/14/2024	11/14/2024	11/14/2024	11/14/2024
VOCs (ppb)							
1,1,1 -Trichloroethane	NS		1.0 U				
1,2,4-Trichlorobenzene	NS		1.0 U				
Benzene	Daily Limit: 134 Monthly Limit: 57		0.50 U				
Carbon Tetrachloride	NS		1.0 U				
Chloroform	NS		5.0 U				
Ethylbenzene	Daily Limit: 380 Monthly Limit: 142		1.0 U				
Methyl-Tert-Butyl-Ether (MTBE)	50		0.53 U				
Tetrachloroethene (Perc)	20		1.0 U				
Toluene	Daily Limit: 74 Monthly Limit: 28		1.0 U				
Xylenes (Total)	Daily Limit: 74 Monthly Limit: 28		1.0 U				
Semi-Volatile Organics (ppb)							
Naphthalene	Daily Limit: 47 Monthly Limit: 19	2.00 U					
1,4-Dichlorobenzene	NS	2.0 U					
Phenol	NS	2.0 U					
Pesticides/ PBCs (ppb)	1.0 (Total PCBs, 7 PCB compounds)						
Aroclor-1016		0.25 U					
Aroclor-1242		0.25 U					
Aroclor-1254		0.25 U					
Aroclor-1221		0.25 U					
Aroclor-1232		0.25 U					
Aroclor-1248		0.25 U					
Aroclor-1260		0.25 U					
Metals (ppm)							
Cadmium	2	0.0020 U					
Chromium (Total)	5	0.0020 U					
Chromium (Hexavalent)	5	0.0022 U					
Copper	5	0.0120					
Lead	2	0.0030 U					
Mercury	0.05	0.00050 U					
Molybdenum	NS	0.0020 U					
Nickel	3	0.0100 U					
Silver	NS	0.0020 U					
Zinc	5	0.040 U					
General Chemistry Analysis							
Carbonaceous Biochemical Oxygen Demand (CBOD) (mg/L)	NS	3.1					
Total Nitrogen (mg/L)	NS	2.0 H					
Chloride (mg/L)	NS	420					
Cyanide (Total) (mg/L)	0.2		0.0040 U				
Cyanide (Amenable to Chlorination) (mg/L)	0.2		0.010 U				
Total Suspended Solids (TSS) (mg/L)	350		28.0				
Non-Polar Material (Oil and Grease 1664-A HEM) (mg/L)	50		6.0 U				
pH	5.0-12.0 Standard Units			6.72	6.60	6.84	6.89
TKN (mg/L)	NS	63.9					
Temperature	Deg. C (< 65.5)			13.58	14.26	14.34	14.34

Notes:

< = Less than

NS = No Standard

U = Not Detected

(Blank) = Parameter not required for analysis

Bold = Above Daily Limit

H = Sample was prepped or analyzed beyond the specified holding time.

LABORATORY REPORTS

HC Report of Analysis

Client: TRC Engineering
HC Project #: 4061906
Project: Brookfield Ave Landfill

Sample ID: M1-COMP (A-D)-06-18-2024
Lab#: AD45258-001
Matrix: Aqueous
Collection Date: 6/18/2024
Receipt Date: 6/19/2024

Cyanide (Amenable) SM22 4500-CN-E/G

Analyte	DF	Units	RL	Result
Cyanide	1	mg/l	0.010	0.010 U

Cyanide (Potable) EPA 335.4

Analyte	DF	Units	RL	Result
Cyanide	1	mg/l	0.0040	0.0040 U

SGT-HEM (Non-Polar Material) 1664B

Analyte	DF	Units	RL	Result
SGT-HEM (Non-Polar Material)	1	mg/l	5.0	ND

Total Suspended Solids (SM2540D-15)

Analyte	DF	Units	RL	Result
Total Suspended Solids @ 103-105 C	1	mg/l	10	290

Volatile Organics (no search) 8260

Analyte	DF	Units	RL	Result
1,1,1-Trichloroethane	1	ug/l	1.0	ND
1,2,4-Trichlorobenzene	1	ug/l	1.0	ND
Benzene	1	ug/l	0.50	ND
Carbon tetrachloride	1	ug/l	1.0	ND
Chloroform	1	ug/l	1.0	ND
Ethylbenzene	1	ug/l	1.0	ND
m&p-Xylenes	1	ug/l	1.0	ND
Methyl-t-butyl ether	1	ug/l	0.87	ND
o-Xylene	1	ug/l	1.0	ND
Tetrachloroethene	1	ug/l	1.0	ND
Toluene	1	ug/l	1.0	ND
Xylenes (Total)	1	ug/l	1.0	ND

Sample ID: M1-COMP-06-19-2024
Lab#: AD45258-002
Matrix: Aqueous

Collection Date: 6/19/2024
Receipt Date: 6/19/2024

Carbonaceous BOD-5 Day (SM5210 B-16)

Analyte	DF	Units	RL	Result
Carbonaceous Bod, 5 Day	**1**	**mg/l**	**1.0**	**5.7**

Chloride (Water) 300.0

Analyte	DF	Units	RL	Result
Chloride	**50**	**mg/l**	**100**	**570**

Cr (Hexavalent) 3500-Cr B11

Analyte	DF	Units	RL	Result
Cr (Hexavalent)	1	mg/l	0.020	ND

Mercury (Water) 7470A

Analyte	DF	Units	RL	Result
Mercury	1	ug/l	0.50	ND

Nitrate-N (Water) 300.0

Analyte	DF	Units	RL	Result
Nitrate	1	mg/l	1.0	ND

Nitrite-N (Aqueous) 300.0

Analyte	DF	Units	RL	Result
Nitrite	1	mg/l	1.0	ND

PCB 8082

Analyte	DF	Units	RL	Result
Aroclor (Total)	1	ug/l	0.25	ND
Aroclor-1016	1	ug/l	0.25	ND
Aroclor-1221	1	ug/l	0.25	ND
Aroclor-1232	1	ug/l	0.25	ND
Aroclor-1242	1	ug/l	0.25	ND
Aroclor-1248	1	ug/l	0.25	ND
Aroclor-1254	1	ug/l	0.25	ND
Aroclor-1260	1	ug/l	0.25	ND

Semivolatile Organics (no search) 8270

Analyte	DF	Units	RL	Result
1,4-Dichlorobenzene	1	ug/l	2.0	ND
Naphthalene	1	ug/l	0.50	ND
Phenol	1	ug/l	2.0	ND

TAL Metals 6020B

Analyte	DF	Units	RL	Result
Cadmium	1	ug/l	2.0	ND
Chromium	**1**	**ug/l**	**2.0**	**2.3**
Copper	1	ug/l	10	ND
Lead	1	ug/l	3.0	ND
Molybdenum	1	ug/l	2.0	ND
Nickel	1	ug/l	10	ND
Silver	1	ug/l	2.0	ND
Zinc	1	ug/l	40	ND

Total Kjeldahl Nitrogen EPA 351

Analyte	DF	Units	RL	Result
Total Kjeldahl Nitrogen	**50**	**mg/l**	**5.0**	**61.3**

Form1

ORGANICS VOLATILE REPORT

Sample Number: AD45258-001
Client Id: M1-COMP (A-D)-06-18-202
Data File: 1M188693.D
Analysis Date: 06/19/24 16:46
Date Rec/Extracted: 06/19/24-NA
Column: DB-624 25M 0.200mm ID 1.12um film

Method: EPA 8260D
Matrix: Aqueous
Initial Vol: 5ml
Final Vol: NA
Dilution: 1.00
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
71-55-6	1,1,1-Trichloroethane	1.0	U	79601-23-1	m&p-Xylenes	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1634-04-4	Methyl-t-butyl ether	0.87	U
71-43-2	Benzene	0.50	U	95-47-6	o-Xylene	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U	127-18-4	Tetrachloroethene	1.0	U
67-66-3	Chloroform	1.0	U	108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U	1330-20-7	Xylenes (Total)	1.0	U

Worksheet #: 742511

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration usea

Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AD45258-002
Client Id: M1-COMP-06-19-2024
Data File: 9M128119.D
Analysis Date: 06/24/24 10:52
Date Rec/Extracted: 06/19/24-06/21/24
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270E
Matrix: Aqueous
Initial Vol: 1000ml
Final Vol: 1ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
106-46-7	1,4-Dichlorobenzene	2.0	U	108-95-2	Phenol	2.0	U
91-20-3	Naphthalene	0.50	U				

Worksheet #: 742631

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS PCB REPORT

Sample Number: AD45258-002
Client Id: M1-COMP-06-19-2024
Data File: 2G192167.D
Analysis Date: 06/20/24 17:12
Date Rec/Extracted: 06/19/24-06/20/24
Column: DB-17/1701P 30M 0.32mm ID 0.25um film

Method: EPA 8082A
Matrix: Aqueous
Initial Vol: 500ml
Final Vol: 2.5ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
12674-11-2	Aroclor-1016	0.25	U	12672-29-6	Aroclor-1248	0.25	U
11104-28-2	Aroclor-1221	0.25	U	11097-69-1	Aroclor-1254	0.25	U
11141-16-5	Aroclor-1232	0.25	U	11096-82-5	Aroclor-1260	0.25	U
53469-21-9	Aroclor-1242	0.25	U	1336-36-3	Aroclor (Total)	0.25	U

Worksheet #: 742598

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD45258-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-COMP-06-19-2024	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	6/19/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-43-9	Cadmium	2.0	ND	1	50	100	06/20/24	116177	06202024A	41	MSMS4_7800SWA	
7440-47-3	Chromium	2.0	2.3	1	50	100	06/21/24	116177	06212024B	42	MSMS4_7800SWA	
7440-50-8	Copper	10	ND	1	50	100	06/21/24	116177	06212024B	42	MSMS4_7800SWA	
7439-92-1	Lead	3.0	ND	1	50	100	06/20/24	116177	06202024A	41	MSMS4_7800SWA	
7439-98-7	Molybdenum	2.0	ND	1	50	100	06/20/24	116177	06202024A	41	MSMS4_7800SWA	
7440-02-0	Nickel	10	ND	1	50	100	06/21/24	116177	06212024B	42	MSMS4_7800SWA	
7440-22-4	Silver	2.0	ND	1	50	100	06/20/24	116177	06202024A	41	MSMS4_7800SWA	
7440-66-6	Zinc	40	ND	1	50	100	06/21/24	116177	06212024B	42	MSMS4_7800SWA	

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD45258-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-COMP-06-19-2024	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	6/19/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7439-97-6	Mercury	0.50	ND	1	25	25	06/24/24	116177	H31072SW	17	CV	HGCV4A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

VERITECH Wet Chem Form1 Analysis Summary

Lab#: AD45258-001
Matrix Aqueous
Client SampleID: M1-COMP (A-D)-06-18-20

Project Number: 4061906
Received Date: 6/19/2024
Collect Date: 6/18/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
SGT-HEM (Non-Polar Material)	HEM-NPM	1	ND	mg/L	5.0	06/21/24	06/21/24
Total Suspended Solids @ 103-105	TSS-MUR	**1**	**290**	**mg/l**	**10**	06/20/24	06/21/24

Lab#: AD45258-002
Matrix Aqueous
Client SampleID: M1-COMP-06-19-2024

Project Number: 4061906
Received Date: 6/19/2024
Collect Date: 6/19/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
Carbonaceous Bod, 5 Day	CBOD-5-MUR	**1**	**5.7**	**mg/L**	**1.0**	06/19/24	06/24/24
Chloride	CHLORIDE-ICW	**50**	**570**	**mg/L**	**100**	06/20/24	06/20/24
Cr (Hexavalent)	CR6-WATER	1	ND	mg/l	0.020	06/22/24	06/22/24
Nitrite	NO2-ICW	1	ND	mg/L	1.0	06/19/24	06/20/24
Nitrate	NO3-ICW	1	ND	mg/L	1.0	06/19/24	06/20/24

Chain of Custody Forms

4061906 0016

Hampton-Clarke, Inc. (WBE/DBE/SBE)

175 US Highway 46, STE D and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787

Service Center: 137-C Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056

Hampton-Clarke WBE/DBE/SBE 800-426-9992

A Women-Owned, Disadvantaged, Small Business Enterprise

NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | KY #90124 | DE HSCA Approved

CHAIN OF CUSTODY RECORD

Project# (Lab Use Only): 406196

Page _____ of _____

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Data Deliv.
When Available:	Summary	NJ Hazsite
1 Business Day (100%) *	Results + QC (Waste)	Excel Reg. NJ / NY / PA
2 Business Days (75%) *	Reduced:	EnviroData
3 Business Days (50%) *	[ ] NJ [ ] NY	EQuIS:
4 Business Days (35%) *	[ ] PA [ ] Other___	[ ] 4-File [ ] EZ
5 Business Days (25%)	NJ Full / NY ASP CatB	[ ] NYDEC
8 Business Days (Stand.)	NY ASP CatA	[ ] Region 2 or 5
Other: _____		Other: _____

* Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

1a) Customer: TRC Engineers Inc.
Address: 1430 Broadway, Suite 3301 NYC, NY 10018
1b) Email/Cell/Fax/Ph: IVAN.GONZALEZ@TRCcompanies.com
1c) Send Invoice to: AP Invoice approval@TRCcompanies.com
1d) Send Report to: IVAN.GONZALEZ@TRCcompanies.com

Project Information

2a) Project: Brookfield Avenue Landfill Park
2b) Project Mgr: Kirsten Myers
2c) Project Location (City/State): Staten Island, NY
2d) Quote/PO # (If Applicable): 194549

FOR LAB USE ONLY

Batch #: 403238

===> Check If Contingent ===>

<=== Check If Contingent <===

Matrix Codes
DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	7) Analysis: VOCs (8260)	Cyanide (total)	Cyanide (amenable)	Total Suspended Solids	Non Polar Material	PCBs	SVOCs	Cadmium, Chromium (hexavalent/total), Copper, Lead, Mercury, Silver, Molybdenum, Nickel, Zinc, COD	Total Nitrogen, Chloride, Tetra	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
001	M1-A-06-18-2024	GW	06/18	8:45		X	X	X	X	X	X					1			2	5				
	M1-B-06-18-2024			9:45		X										1			2	5				
	M1-C-06-18-2024			10:45		X										1			2	5				
	M1-D-06-18-2024			11:45		X										1			2	5				
002	M1-comp-06-19-2024		06/19	8:45	X							X	X	X	X	X	Y	7					1		

10) Relinquished by:	Accepted by:	Date	Time
		06/19/24	11:05
		6/19/24	12:10

11) Sampler (print name): Ivan Gonzalez + Zara Castillo Date: 06/19/24

Additional Notes: Composite samples M1-A, M1-B, M1-C, M1-D into one sample with sample I.D. M1-comp(A-D)-06-18-2024

Comments, Notes, Special Requirements, HAZARDS

Indicate if low-level methods required to meet current groundwater standards (SPLP for soil):
- [ ] BN or BNA (8270E SIM)
- [ ] VOC (8260D SIM or 8011)
- [ ] SPLP (BN, BNA, Metals)
- [ ] 1,4 Dioxane

For NJ LSRP projects, indicate which standards need to be met:
- [ ] NJDEP GWQS
- [ ] NJDEP SRS
- [ ] NJDEP SPLP
- [ ] Other (specify):

Check if applicable:
- [ ] Project-Specific Reporting Limits
- [ ] High Contaminant Concentrations
- [ ] NJ LSRP Project (also check boxes above/right)

Cooler Temperature: 2.9, 2.6

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

Internal use: sampling plan (check box) HC [ ] or client [ ] FSP#

Sample Summary

Client: Hampton-Clarke Veritech
Project/Site: 4061906 9178

Job ID: 460-306607-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-306607-1	AD45258-001	Water	06/18/24 11:45	06/26/24 09:42
460-306607-2	AD45258-002	Water	06/18/24 08:45	06/26/24 09:42

Detection Summary

Client: Hampton-Clarke Veritech
Project/Site: 4061906 9178

Job ID: 460-306607-1

Client Sample ID: AD45258-001 — Lab Sample ID: 460-306607-1

No Detections.

Client Sample ID: AD45258-002 — Lab Sample ID: 460-306607-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrogen, Kjeldahl	61.3		10.0	5.0	mg/L	50		351.2-1993 R2.0	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Hampton-Clarke Veritech
Project/Site: 4061906 9178

Job ID: 460-306607-1

Method	Method Description	Protocol	Laboratory
335.4	Cyanide, Total	EPA	EET EDI
351.2-1993 R2.0	Nitrogen, Total Nitrogen	MCAWW	EET SAV
4500-CN G-2016	Cyanide, Amenable	SM	EET EDI
Digestion	Digestion, Hot Block	EPA	EET SAV
Distill/CN	Distillation, Cyanide	None	EET EDI

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Client Sample ID: AD45258-001
Lab Sample ID: 460-306607-1

Date Collected: 06/18/24 11:45
Matrix: Water
Date Received: 06/26/24 09:42

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA 335.4)	0.0040	U	0.010	0.0040	mg/L		07/01/24 08:47	07/01/24 13:35	1
Cyanide, Amenable (SM 4500-CN G-2016)	0.010	U	0.010	0.010	mg/L			07/02/24 07:05	1

Client Sample ID: AD45258-002
Lab Sample ID: 460-306607-2

Date Collected: 06/18/24 08:45
Matrix: Water
Date Received: 06/26/24 09:42

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl (MCAWW 351.2-1993 R2.0)	**61.3**		10.0	5.0	mg/L		07/05/24 10:49	07/08/24 13:25	50

HC Report of Analysis

Client: TRC Engineering
Project: Brookfield Ave Landfill

HC Project #: 4071717

Sample ID: M1-COMP(A-D)-07162024
Lab#: AD45821-001
Matrix: Aqueous

Collection Date: 7/16/2024
Receipt Date: 7/17/2024

Cyanide (Amenable) SM22 4500-CN-E/G

Analyte	DF	Units	MDL	RL	Result
Cyanide	1	mg/l	0.010	0.010	0.010 U

Cyanide (Potable) EPA 335.4

Analyte	DF	Units	MDL	RL	Result
Cyanide	1	mg/l	0.0040	0.010	0.0076

SGT-HEM (Non-Polar Material) 1664B

Analyte	DF	Units	RL	Result
SGT-HEM (Non-Polar Material)	1	mg/l	5.0	ND

Total Suspended Solids (SM2540D-15)

Analyte	DF	Units	RL	Result
Total Suspended Solids @ 103-105 C	1	mg/l	4.0	15

Volatile Organics (no search) 8260

Analyte	DF	Units	RL	Result
1,1,1-Trichloroethane	1	mg/l	0.0010	ND
1,2,4-Trichlorobenzene	1	mg/l	0.0010	ND
Benzene	1	mg/l	0.00050	ND
Carbon tetrachloride	1	mg/l	0.0010	ND
Chloroform	1	mg/l	0.0010	ND
Ethylbenzene	1	mg/l	0.0010	ND
m&p-Xylenes	1	mg/l	0.0010	ND
Methyl-t-butyl ether	1	mg/l	0.00053	ND
o-Xylene	1	mg/l	0.0010	ND
Tetrachloroethene	1	mg/l	0.0010	ND
Toluene	1	mg/l	0.0010	ND
Xylenes (Total)	1	mg/l	0.0010	ND

Sample ID: M1-COMP-07172024 **Collection Date:** 7/17/2024
Lab#: AD45821-002 **Receipt Date:** 7/17/2024
Matrix: Aqueous

Carbonaceous BOD-5 Day (SM5210 B-16)

Analyte	DF	Units	RL	Result
Carbonaceous Bod, 5 Day	**1**	**mg/l**	**1.0**	**4.4**

Chloride (Water) 300.0

Analyte	DF	Units	RL	Result
Chloride	**50**	**mg/l**	**100**	**390**

Cr (Hexavalent) 3500-Cr B11

Analyte	DF	Units	RL	Result
Cr (Hexavalent)	1	mg/l	0.020	ND

Mercury (Water) 7470A

Analyte	DF	Units	RL	Result
Mercury	1	ug/l	0.50	ND

Nitrate-N (Water) 300.0

Analyte	DF	Units	RL	Result
Nitrate	1	mg/l	1.0	ND

Nitrite-N (Aqueous) 300.0

Analyte	DF	Units	RL	Result
Nitrite	1	mg/l	1.0	ND

PCB 8082

Analyte	DF	Units	RL	Result
Aroclor (Total)	1	ug/l	0.25	ND
Aroclor-1016	1	ug/l	0.25	ND
Aroclor-1221	1	ug/l	0.25	ND
Aroclor-1232	1	ug/l	0.25	ND
Aroclor-1242	1	ug/l	0.25	ND
Aroclor-1248	1	ug/l	0.25	ND
Aroclor-1254	1	ug/l	0.25	ND
Aroclor-1260	1	ug/l	0.25	ND

Semivolatile Organics (no search) 8270

Analyte	DF	Units	RL	Result
1,4-Dichlorobenzene	1	ug/l	1.2	ND
Naphthalene	1	ug/l	0.29	ND
Phenol	1	ug/l	1.2	ND

TAL Metals 6020B

Analyte	DF	Units	RL	Result
Cadmium	1	ug/l	2.0	ND
Chromium	1	ug/l	2.0	ND
Copper	1	ug/l	10	ND
Lead	1	ug/l	3.0	ND
Molybdenum	1	ug/l	2.0	ND
Nickel	1	ug/l	10	ND
Silver	1	ug/l	2.0	ND
Zinc	1	ug/l	40	ND

Total Kjeldahl Nitrogen EPA 351

Analyte	DF	Units	MDL	RL	Result
Total Kjeldahl Nitrogen	**10**	**mg/l**	**5.0**	10.0	**42.3**

Form1

ORGANICS VOLATILE REPORT

Sample Number: AD45821-001
Client Id: M1-COMP(A-D)-07162024
Data File: 2M202232.D
Analysis Date: 07/23/24 01:54
Date Rec/Extracted: 07/17/24-NA
Column: DB-624 25M 0.200mm ID 1.12um film

Method: EPA 8260D
Matrix: Aqueous
Initial Vol: 5ml
Final Vol: NA
Dilution: 1.00
Solids: 0

Units: mg/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
71-55-6	1,1,1-Trichloroethane	0.0010	U	79601-23-1	m&p-Xylenes	0.0010	U
120-82-1	1,2,4-Trichlorobenzene	0.0010	U	1634-04-4	Methyl-t-butyl ether	0.00053	U
71-43-2	Benzene	0.00050	U	95-47-6	o-Xylene	0.0010	U
56-23-5	Carbon Tetrachloride	0.0010	U	127-18-4	Tetrachloroethene	0.0010	U
67-66-3	Chloroform	0.0010	U	108-88-3	Toluene	0.0010	U
100-41-4	Ethylbenzene	0.0010	U	1330-20-7	Xylenes (Total)	0.0010	U

Worksheet #: 745988

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AD45821-002
Client Id: M1-COMP-07172024
Data File: 9M128610.D
Analysis Date: 07/24/24 14:49
Date Rec/Extracted: 07/17/24-07/23/24
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270E
Matrix: Aqueous
Initial Vol: 850ml
Final Vol: 0.5ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
106-46-7	1,4-Dichlorobenzene	1.2	U	108-95-2	Phenol	1.2	U
91-20-3	Naphthalene	0.29	U				

Worksheet #: 746019

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS PCB REPORT

Sample Number: AD45821-002
Client Id: M1-COMP-07172024
Data File: 5G1107333.D
Analysis Date: 07/24/24 13:01
Date Rec/Extracted: 07/17/24-07/22/24
Column: DB-17/1701P 30M 0.32mm ID 0.25um film

Method: EPA 8082A
Matrix: Aqueous
Initial Vol: 500ml
Final Vol: 2.5ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
12674-11-2	Aroclor-1016	0.25	U	12672-29-6	Aroclor-1248	0.25	U
11104-28-2	Aroclor-1221	0.25	U	11097-69-1	Aroclor-1254	0.25	U
11141-16-5	Aroclor-1232	0.25	U	11096-82-5	Aroclor-1260	0.25	U
53469-21-9	Aroclor-1242	0.25	U	1336-36-3	Aroclor (Total)	0.25	U

Worksheet #: 745464

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD45821-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-COMP-07172024	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	7/18/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-43-9	Cadmium	2.0	ND	1	50	100	07/19/24	116256	07192024A	35	MS	MS4_7800SWA
7440-47-3	Chromium	2.0	ND	1	50	100	07/19/24	116256	07192024A	35	MS	MS4_7800SWA
7440-50-8	Copper	10	ND	1	50	100	07/19/24	116256	07192024A	35	MS	MS4_7800SWA
7439-92-1	Lead	3.0	ND	1	50	100	07/19/24	116256	07192024A	35	MS	MS4_7800SWA
7439-98-7	Molybdenum	2.0	ND	1	50	100	07/19/24	116256	07192024A	35	MS	MS4_7800SWA
7440-02-0	Nickel	10	ND	1	50	100	07/19/24	116256	07192024A	35	MS	MS4_7800SWA
7440-22-4	Silver	2.0	ND	1	50	100	07/19/24	116256	07192024A	35	MS	MS4_7800SWA
7440-66-6	Zinc	40	ND	1	50	100	07/19/24	116256	07192024A	35	MS	MS4_7800SWA

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD45821-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-COMP-07172024	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	7/18/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7439-97-6	Mercury	0.50	ND	1	25	25	07/23/24	116256	31151SWB	18	CV	HGCV3A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

VERITECH Wet Chem Form1 Analysis Summary

Lab#: AD45821-001
Matrix Aqueous
Client SampleID: M1-COMP(A-D)-07162024

Project Number: 4071717
Received Date: 7/17/2024
Collect Date: 7/16/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
SGT-HEM (Non-Polar Material)	HEM-NPM	1	ND	mg/L	5.0	07/22/24	07/22/24
Total Suspended Solids @ 103-105	TSS-MUR	**1**	**15**	**mg/l**	**4.0**	07/19/24	07/22/24

Lab#: AD45821-002
Matrix Aqueous
Client SampleID: M1-COMP-07172024

Project Number: 4071717
Received Date: 7/17/2024
Collect Date: 7/17/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
Carbonaceous Bod, 5 Day	CBOD-5-MUR	**1**	**4.4**	**MG/L**	**1.0**	07/17/24	07/22/24
Chloride	CHLORIDE-ICW	**50**	**390**	**mg/L**	**100**	07/19/24	07/19/24
Cr (Hexavalent)	CR6-WATER	1	ND	mg/l	0.020	07/27/24	07/27/24
Nitrite	NO2-ICW	1	ND	mg/L	1.0	07/17/24	07/17/24
Nitrate	NO3-ICW	1	ND	mg/L	1.0	07/17/24	07/17/24

Chain of Custody Forms

4071717 0016

Hampton-Clarke, Inc. (WBE/DBE/SBE)

175 US Highway 46, STE D and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787
Service Center: 137-C Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056

Hampton-Clarke WBE/DBE/SBE 800-426-9992
A Women-Owned, Disadvantaged, Small Business Enterprise

NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | KY #90124 | DE HSCA Approved

CHAIN OF CUSTODY RECORD

Project# (Lab Use Only): 4071717

Page _____ of _____

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Data Deliv.
When Available:	~~Summary~~	NJ Hazsite
1 Business Day (100%) *	Results + QC (Waste)	Excel Reg. NJ / NY / PA
2 Business Days (75%) *	Reduced:	EnviroData
3 Business Days (50%) *	[ ] NJ [ ] NY	EQuIS:
4 Business Days (35%) *	[ ] PA [ ] Other___	[ ] 4-File [ ] EZ
5 Business Days (25%)	NJ Full / NY ASP CatB	[ ] NYDEC
8 Business Days (Stand.)	NY ASP CatA	[ ] Region 2 or 5
Other: _____		Other: _____

* Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

1a) Customer: TRC Engineers Inc.
Address: 1407 Broadway, Suite 5301 NYC, NY 10018
1b) Email/Cell/Fax/Ph: Ivan. gonzalez@trccompanies.com
1c) Send Invoice to: AP Invoice. approval@trccompanies.com
1d) Send Report to: Ivan. gonzalez@trccompanies.com

Project Information

2a) Project: Brookfield Avenue Landfill park
2b) Project Mgr: Kirsten Myers
2c) Project Location (City/State): Staten Island NY
2d) Quote/PO # (If Applicable): 194549

FOR LAB USE ONLY

Batch # AD45821

===> Check If Contingent ===>

Matrix Codes
DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis *(specify methods & parameter lists)*

<=== Check If Contingent <===

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	VOCs 8260	Cyanide (total)	Cyanide (amenable)	TSHA hazardous solids	Non polar material	PCBs	SVOCs	Cadmium, chromium (hex/total), copper (hex/total), lead, mercury, silver	Molybdenum, nickel, zinc, cobalt	Boron, manganese, chloride, TKN	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
001	M1-A-07162024	GW	07/16	8:25		X	X	X	X	X	X						1			2	5				
	M1-B-07162024			9:25		X											1			2	5				
	M1-C-07162024			10:25		X											1			2	5				
	M1-D-07162024			11:25		X*											1			2	5				
002	M1-comp-07162024 (E6)		07/17	8:15	X							X	X	X	X	X	X	7					1	1		

10) Relinquished by:	Accepted by:	Date	Time
		07/17/24	12:53
		7/17/24	2:45

11) Sampler (print name): Date: 07/17/24

Additional Notes: Composite samples, M1-A through D into one sample with the Sample ID "M1-comp(1-D)-07162024"

Comments, Notes, Special Requirements, HAZARDS

Indicate if low-level methods required to meet current groundwater standards (SPLP for soil):
- [ ] BN or BNA (8270E SIM)
- [ ] VOC (8260D SIM or 8011)
- [ ] SPLP (BN, BNA, Metals)
- [ ] 1,4 Dioxane

Check if applicable:
- [ ] Project-Specific Reporting Limits
- [ ] High Contaminant Concentrations
- [ ] NJ LSRP Project (also check boxes above/right)

For NJ LSRP projects, indicate which standards need to be met:
- [ ] NJDEP GWQS
- [ ] NJDEP SRS
- [ ] NJDEP SPLP
- [ ] Other (specify):

Cooler Temperature: 2.6 3.0

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

Internal use: sampling plan (check box) HC [ ] or client [ ] FSP#

Sample Summary

Client: Hampton-Clarke Veritech
Project/Site: 4071717 9204

Job ID: 460-308119-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-308119-1	AD45821-001	Water	07/16/24 08:25	07/22/24 10:30
460-308119-2	AD45821-002	Water	07/17/24 08:15	07/22/24 10:30

Detection Summary

Client: Hampton-Clarke Veritech
Project/Site: 4071717 9204

Job ID: 460-308119-1

Client Sample ID: AD45821-001 — Lab Sample ID: 460-308119-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyanide, Total	0.0076	J	0.010	0.0040	mg/L	1		335.4	Total/NA

Client Sample ID: AD45821-002 — Lab Sample ID: 460-308119-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	42.3		10.0	5.0	mg/L	10		351.2	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Hampton-Clarke Veritech
Project/Site: 4071717 9204

Job ID: 460-308119-1

Method	Method Description	Protocol	Laboratory
335.4	Cyanide, Total	EPA	EET EDI
351.2	Nitrogen, Total Kjeldahl	EPA	ELLE
4500-CN G-2016	Cyanide, Amenable	SM	EET EDI
351.2	Nitrogen, Total Kjeldahl	EPA	ELLE
Distill/CN	Distillation, Cyanide	None	EET EDI

Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Client Sample ID: AD45821-001
Lab Sample ID: 460-308119-1

Date Collected: 07/16/24 08:25
Matrix: Water
Date Received: 07/22/24 10:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA 335.4)	**0.0076**	**J**	0.010	0.0040	mg/L		07/28/24 13:10	07/28/24 17:38	1
Cyanide, Amenable (SM 4500-CN G-2016)	0.010	U	0.010	0.010	mg/L			07/28/24 21:38	1

Client Sample ID: AD45821-002
Lab Sample ID: 460-308119-2

Date Collected: 07/17/24 08:15
Matrix: Water
Date Received: 07/22/24 10:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen (EPA 351.2	**42.3**		10.0	5.0	mg/L		07/30/24 15:39	07/31/24 13:59	10

HC Report of Analysis

Client: TRC Engineering
Project: Brookfield Ave Landfill

HC Project #: 4080921

Sample ID: MI-COMP (A-D)-08-08-2024
Lab#: AD46290-001
Matrix: Aqueous

Collection Date: 8/8/2024
Receipt Date: 8/9/2024

Cyanide (Amenable) SM22 4500-CN-E/G

Analyte	DF	Units	MDL	RL	Result
Cyanide	1	mg/l	0.010	0.010	0.010 U

Cyanide (Potable) EPA 335.4

Analyte	DF	Units	MDL	RL	Result
Cyanide	1	mg/l	0.0040	0.010	0.0040 U

SGT-HEM (Non-Polar Material) 1664B

Analyte	DF	Units	RL	Result
SGT-HEM (Non-Polar Material)	1	mg/l	5.6	8.4

Total Suspended Solids (SM2540D-15)

Analyte	DF	Units	RL	Result
Total Suspended Solids @ 103-105 C	1	mg/l	4.0	44

Volatile Organics (no search) 8260

Analyte	DF	Units	RL	Result
1,1,1-Trichloroethane	1	ug/l	1.0	ND
1,2,4-Trichlorobenzene	1	ug/l	1.0	ND
Benzene	1	ug/l	0.50	ND
Carbon tetrachloride	1	ug/l	1.0	ND
Chloroform	1	ug/l	1.0	ND
Ethylbenzene	1	ug/l	1.0	ND
m&p-Xylenes	1	ug/l	1.0	ND
Methyl-t-butyl ether	1	ug/l	0.53	ND
o-Xylene	1	ug/l	1.0	ND
Tetrachloroethene	1	ug/l	1.0	ND
Toluene	1	ug/l	1.0	ND
Xylenes (Total)	1	ug/l	1.0	ND

Sample ID: MI-COMP-08-09-2024
Lab#: AD46290-002
Matrix: Aqueous

Collection Date: 8/9/2024
Receipt Date: 8/9/2024

Carbonaceous BOD-5 Day (SM5210 B-16)

Analyte	DF	Units	RL	Result
Carbonaceous Bod, 5 Day	**1**	**mg/l**	**1.0**	**4.3**

Chloride (Water) 300.0

Analyte	DF	Units	RL	Result
Chloride	**50**	**mg/l**	**100**	**400**

Cr (Hexavalent) 3500-Cr B11

Analyte	DF	Units	RL	Result
Cr (Hexavalent)	1	mg/l	0.020	ND

Mercury (Water) 7470A

Analyte	DF	Units	RL	Result
Mercury	1	ug/l	0.50	ND

Nitrate-N (Water) 300.0

Analyte	DF	Units	RL	Result
Nitrate	1	mg/l	1.0	ND

Nitrite-N (Aqueous) 300.0

Analyte	DF	Units	RL	Result
Nitrite	1	mg/l	1.0	ND

PCB 8082

Analyte	DF	Units	RL	Result
Aroclor (Total)	1	ug/l	0.25	ND
Aroclor-1016	1	ug/l	0.25	ND
Aroclor-1221	1	ug/l	0.25	ND
Aroclor-1232	1	ug/l	0.25	ND
Aroclor-1242	1	ug/l	0.25	ND
Aroclor-1248	1	ug/l	0.25	ND
Aroclor-1254	1	ug/l	0.25	ND
Aroclor-1260	1	ug/l	0.25	ND

Semivolatile Organics (no search) 8270

Analyte	DF	Units	RL	Result
1,4-Dichlorobenzene	1	ug/l	1.2	ND
Naphthalene	1	ug/l	0.30	ND
Phenol	1	ug/l	1.2	ND

TAL Metals 6020B

Analyte	DF	Units	RL	Result
Cadmium	1	ug/l	2.0	ND
Chromium	**1**	**ug/l**	**2.0**	**2.1**
Copper	**1**	**ug/l**	**10**	**16**
Lead	1	ug/l	3.0	ND
Molybdenum	1	ug/l	2.0	ND
Nickel	1	ug/l	10	ND
Silver	1	ug/l	2.0	ND
Zinc	**1**	**ug/l**	**40**	**66**

Total Kjeldahl Nitrogen EPA 351

Analyte	DF	Units	MDL	RL	Result
Total Kjeldahl Nitrogen	**100**	**mg/l**	**10.0**	20.0	**36.3**

Form1

ORGANICS VOLATILE REPORT

Sample Number: AD46290-001
Client Id: MI-COMP (A-D)-08-08-2024
Data File: 1M190785.D
Analysis Date: 08/09/24 21:31
Date Rec/Extracted: 08/09/24-NA
Column: DB-624 25M 0.200mm ID 1.12um film

Method: EPA 8260D
Matrix: Aqueous
Initial Vol: 5ml
Final Vol: NA
Dilution: 1.00
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
71-55-6	1,1,1-Trichloroethane	1.0	U	79601-23-1	m&p-Xylenes	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1634-04-4	Methyl-t-butyl ether	0.53	U
71-43-2	Benzene	0.50	U	95-47-6	o-Xylene	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U	127-18-4	Tetrachloroethene	1.0	U
67-66-3	Chloroform	1.0	U	108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U	1330-20-7	Xylenes (Total)	1.0	U

Worksheet #: 749321

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AD46290-002
Client Id: MI-COMP-08-09-2024
Data File: 9M128832.D
Analysis Date: 08/15/24 15:52
Date Rec/Extracted: 08/09/24-08/15/24
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270E
Matrix: Aqueous
Initial Vol: 825ml
Final Vol: 0.5ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
106-46-7	1,4-Dichlorobenzene	1.2	U	108-95-2	Phenol	1.2	U
91-20-3	Naphthalene	0.30	U				

Worksheet #: 749372

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration usea
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS PCB REPORT

Sample Number: AD46290-002
Client Id: MI-COMP-08-09-2024
Data File: 5G1107746.D
Analysis Date: 08/14/24 11:13
Date Rec/Extracted: 08/09/24-08/13/24
Column: DB-17/1701P 30M 0.32mm ID 0.25um film

Method: EPA 8082A
Matrix: Aqueous
Initial Vol: 1000ml
Final Vol: 5ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
12674-11-2	Aroclor-1016	0.25	U	12672-29-6	Aroclor-1248	0.25	U
11104-28-2	Aroclor-1221	0.25	U	11097-69-1	Aroclor-1254	0.25	U
11141-16-5	Aroclor-1232	0.25	U	11096-82-5	Aroclor-1260	0.25	U
53469-21-9	Aroclor-1242	0.25	U	1336-36-3	Aroclor (Total)	0.25	U

Worksheet #: 749469

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD46290-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	MI-COMP-08-09-2024	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	8/9/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-43-9	Cadmium	2.0	ND	1	50	100	08/12/24	116325	08122024A	32	MS	MS4_7800SWA
7440-47-3	Chromium	2.0	2.1	1	50	100	08/13/24	116325	08132024A	32	MS	MS4_7800SWA
7440-50-8	Copper	10	16	1	50	100	08/13/24	116325	08132024A	32	MS	MS4_7800SWA
7439-92-1	Lead	3.0	ND	1	50	100	08/12/24	116325	08122024A	32	MS	MS4_7800SWA
7439-98-7	Molybdenum	2.0	ND	1	50	100	08/12/24	116325	08122024A	32	MS	MS4_7800SWA
7440-02-0	Nickel	10	ND	1	50	100	08/13/24	116325	08132024A	32	MS	MS4_7800SWA
7440-22-4	Silver	2.0	ND	1	50	100	08/12/24	116325	08122024A	32	MS	MS4_7800SWA
7440-66-6	Zinc	40	66	1	50	100	08/13/24	116325	08132024A	32	MS	MS4_7800SWA

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD46290-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	MI-COMP-08-09-2024	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	8/9/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7439-97-6	Mercury	0.50	ND	1	25	25	08/14/24	116325	H31220SW	19	CV	HGCV3A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

VERITECH Wet Chem Form1 Analysis Summary

Lab#: AD46290-001
Matrix Aqueous
Client SampleID: MI-COMP (A-D)-08-08-202

Project Number: 4080921
Received Date: 8/9/2024
Collect Date: 8/8/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
SGT-HEM (Non-Polar Material)	HEM-NPM	**1**	**8.4**	**mg/L**	**5.6**	08/12/24	08/13/24
Total Suspended Solids @ 103-105	TSS-MUR	**1**	**44**	**mg/l**	**4.0**	08/13/24	08/13/24

Lab#: AD46290-002
Matrix Aqueous
Client SampleID: MI-COMP-08-09-2024

Project Number: 4080921
Received Date: 8/9/2024
Collect Date: 8/9/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
Carbonaceous Bod, 5 Day	CBOD-5-MUR	**1**	**4.3**	**mg/L**	**1.0**	08/09/24	08/14/24
Chloride	CHLORIDE-ICW	**50**	**400**	**mg/L**	**100**	08/13/24	08/13/24
Cr (Hexavalent)	CR6-WATER	1	ND	mg/l	0.020	08/21/24	08/21/24
Nitrite	NO2-ICW	1	ND	mg/L	1.0	08/09/24	08/09/24
Nitrate	NO3-ICW	1	ND	mg/L	1.0	08/09/24	08/09/24

Chain of Custody Forms

4080921 0016

Hampton-Clarke, Inc. (WBE/DBE/SBE)

175 US Highway 46, STE D and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787
Service Center: 137-C Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056

Hampton-Clarke WBE/DBE/SBE 800-426-9992
A Women-Owned, Disadvantaged, Small Business Enterprise

NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | KY #90124 | DE HSCA Approved

CHAIN OF CUSTODY RECORD

Project# (Lab Use Only): 4080921

Page _____ of _____

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Data Deliv.
When Available:	Summary	NJ Hazsite
1 Business Day (100%) *	Results + QC (Waste)	Excel Reg. NJ / NY / PA
2 Business Days (75%) *	Reduced:	EnviroData
3 Business Days (50%) *	[ ] NJ [ ] NY	EQuIS:
4 Business Days (35%) *	[ ] PA [ ] Other	[ ] 4-File [ ] EZ
5 Business Days (25%)	NJ Full / NY ASP CatB	[ ] NYDEC
8 Business Days (Stand.)	NY ASP CatA	[ ] Region 2 or 5
Other:		Other:

* Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

1a) Customer: TRC Engineers INC
Address: 1430 Broadway, Suite 3301 NY, NY 10018
1b) Email/Cell/Fax/Ph: Ivan.gonzalez@TRCcompanies.com
1c) Send Invoice to: APinvoice.approval@TRCcompanies.com
1d) Send Report to: Ivan.gonzalez@TRCcompanies.com

Project Information

2a) Project: Broadfield Avenue landfill park
2b) Project Mgr: Kirsten Myers
2c) Project Location (City/State): Staten Island, NY
2d) Quote/PO # (If Applicable): 194549

FOR LAB USE ONLY ↓

Batch # AD46290

===> Check If Contingent ===>

Matrix Codes
DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis *(specify methods & parameter lists)*

<=== Check If Contingent <===

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type Composite (C)	Sample Type Grab (G)	VOCs (8260)	Cyanide (Total) total & reactive soil/sludge	non-polar material	PCBs	SVOCs (acenaphthene, acenaphthylene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene)	Lead, mercury,	Silver, molybdenum, nickel, zinc	Chromium (total)	CBOD, total nitrate	Chloride, TKNS	8) # of Bottles None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
001	M1-A-08-08-2024	GW	08/08/24	9:15		X	X	X	X									1			2	5				
	M1-B-08-08-2024	"	"	9:45		X	"	"	"									1			2	5				
	M1-C-08-08-2024	"	"	10:15		X	"	"	"									1			2	5				
	M1-BD-08-08-2024	"	"	11:15		X	"	"	"									1			2	5				
002	M1-COMP-08-08-2024	"	08/08/24	8:15	X					X	→							7						1	1	

10) Relinquished by:	Accepted by:	Date	Time
[signature]	[signature]	8/09/24	13:00
	[signature]	8/9/24	14:00

Comments, Notes, Special Requirements, HAZARDS

Indicate if low-level methods required to meet current groundwater standards (SPLP for soil):
- [ ] BN or BNA (8270E SIM)
- [ ] VOC (8260D SIM or 8011)
- [ ] SPLP (BN, BNA, Metals)
- [ ] 1,4 Dioxane

Check if applicable:
- [ ] Project-Specific Reporting Limits
- [ ] High Contaminant Concentrations
- [ ] NJ LSRP Project (also check boxes above/right)

For NJ LSRP projects, indicate which standards need to be met:
- [ ] NJDEP GWQS
- [ ] NJDEP SRS
- [ ] NJDEP SPLP
- [ ] Other (specify):

Cooler Temperature: 2.8/3.0

11) Sampler (print name): Ivan Gonzalez + Abha Mehta Date: 08/09/24

Additional Notes: ~~Mr~~ Please composite M1-A through D into one sample with sample ID: M1-COMP(A-D)-08-08-24

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

Internal use: sampling plan (check box) HC [ ] or client [ ] FSP#

Sample Summary

Client: Hampton-Clarke Veritech
Project/Site: 4080921 9244/9249

Job ID: 460-309433-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-309433-1	AD46290-001	Water	08/08/24 11:15	08/13/24 11:30

Detection Summary

Client: Hampton-Clarke Veritech
Project/Site: 4080921 9244/9249

Job ID: 460-309433-1

Client Sample ID: AD46290-001

Lab Sample ID: 460-309433-1

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Hampton-Clarke Veritech
Project/Site: 4080921 9244/9249

Job ID: 460-309433-1

Method	Method Description	Protocol	Laboratory
335.4	Cyanide, Total	EPA	EET EDI
4500-CN G-2016	Cyanide, Amenable	SM	EET EDI
Distill/CN	Distillation, Cyanide	None	EET EDI

Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

Client Sample ID: AD46290-001
Date Collected: 08/08/24 11:15
Date Received: 08/13/24 11:30

Lab Sample ID: 460-309433-1
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA 335.4)	0.0040	U	0.010	0.0040	mg/L		08/21/24 10:59	08/21/24 15:13	1
Cyanide, Amenable (SM 4500-CN G-2016)	0.010	U	0.010	0.010	mg/L			08/21/24 16:46	1

Sample Summary

Client: Hampton-Clarke Veritech
Project/Site: 4080921 9245

Job ID: 460-309387-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-309387-1	AD46290-002	Water	08/09/24 08:15	08/12/24 11:40

Detection Summary

Client: Hampton-Clarke Veritech
Project/Site: 4080921 9245

Job ID: 460-309387-1

Client Sample ID: AD46290-002

Lab Sample ID: 460-309387-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrogen, Kjeldahl	36.3		20.0	10.0	mg/L	100		351.2-1993 R2.0	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Hampton-Clarke Veritech
Project/Site: 4080921 9245

Job ID: 460-309387-1

Method	Method Description	Protocol	Laboratory
351.2-1993 R2.0	Nitrogen, Total Nitrogen	MCAWW	EET SAV
Digestion	Digestion, Hot Block	EPA	EET SAV

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

Laboratory References:

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Client: Hampton-Clarke Veritech
Project/Site: 4080921 9245

Job ID: 460-309387-1

Client Sample ID: AD46290-002

Date Collected: 08/09/24 08:15
Date Received: 08/12/24 11:40

Lab Sample ID: 460-309387-1

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl (MCAWW 351.2-1993 R2.0)	36.3		20.0	10.0	mg/L		08/15/24 11:08	08/16/24 13:46	100

1407 Broadway, Suite 3301
New York, NY 10018

t 212.221.7822

January 10, 2025

Frances Leung, P.E., Chief
Industrial Inspection and Permitting Section
Bureau of Wastewater Treatment
New York City Department of Environmental Protection
96-05 Horace Harding Expressway
Corona, NY 11368

RE: Q2 Industrial Wastewater Discharge Self-Monitoring Report
New York City Department of Parks and Recreation
Brookfield Landfill/Park
575 Arthur Kill Road, Staten Island, NY 10308
Permit No. 23-P3149-1
TRC Project No. 625454.0000

Dear Ms. Leung:

Enclosed, please find a revised version of the Q2 Industrial Wastewater Discharge Self-Monitoring Report (SMR) for the monitoring period of September 1, 2024, to November 30, 2024, for the New York City Department of Parks and Recreation (NYCDPR) Brookfield Avenue Landfill. The report contains SMR Forms with certifications, Daily Volume of Discharge, Summary tables of M1 sample results, M1 laboratory data packages, and chain of custody forms. The results of the monthly sampling indicate there were no exceedances of any permit compound limits.

Please do not hesitate to contact me at (917) 794-3107 or via email at wlindemuth@trccompanies.com if you have any questions.

Sincerely,
TRC Engineers, Inc.

Wes D. Lindemuth, CHMM, CSP
Senior Project Manager

cc: K. Zias, R. Wilson, NYCDPR
K. Myers, R. Bowden , I. Gonzalez, TRC

Enclosure:

Q2 Industrial Wastewater Discharge Self-Monitoring Report

INDUSTRIAL USER SELF MONITORING REPORT

1.	★ Establishment Information ★			
A.	Name: Brookfield Avenue Landfill			
B.	Address: 575 Arthur Kill Road, Staten Island, NY 10308			
C.	Industrial Category:			
D.	Contact Official: Wes Lindemuth		E.	Phone #: 917-794-3107
F.	Reporting Period		G.	Date sampled
	Start 09/1/2024	End 11/30/2024	Start 09/18/2024	End 11/15/2024

Note: If the only wastewater discharges by your establishment into the public sewer system are sanitary or non-contact cooling water, do not address items in Tables 2, 3, 4, 5 and 6. In this case, check here [ ] and proceed directly to Table 7.

2.	★Flow Information ★	Average	Peak
A.	Total Plant Flow, gal/day	23,112.84	43,148.84
B.	Regulated Flow, gal/day	23,112.84	43,148.84
C.	Method of Flow Measurement: Flow meter (non-resettable) on the discharge line to the on-Site sanitary manhole.		

3.	★ Sample Collection Information ★
A.	Sampling Location: Prior to the gravity discharge from the oil/water seperator into the on-Site sanitary sewer system,
	a sample port installed on the effluent end of the discharge piping collects samples.
B.	Sampling Procedures: Samples are collected in accordance with 40 CFR, 403.12(g)(3) which states that grab samples
	must be used for pH, cyanide, total phenols, oil & grease, sulfide and VOCs.
	For all other pollutants, 24-hours composite samples are obtained through time-proportional composite sampling techniques.
C.	Preservatives Used: HCl, H2SO4, NaOH, HNO3

4.	This establishment's wastewater discharge DOES [ ] / DOES NOT [X] exceed nationwide categorical standard (s) or 15 RCNY 19-04 (a).

5.	★ Production Rate ★
If applicable, provide production rate: Not Applicable	

6.	★ pH Monitoring ★												
(Four Samples Per Day - One Hour Apart - Once a Month)													
A.	Date	09/18/2024		10/17/2024		11/14/2024		/ /		/ /		/ /	
B.	Time/pH	7:30	7.20	9:40	6.66	10:20	6.72						
		8:30	7.15	10:40	6.62	11:20	6.60						
		9:30	7.30	11:40	6.84	12:20	6.84						
		10:30	7.19	12:40	6.80	13:20	6.89						

7.	★ HAZARDOUS WASTES GENERATION ★
This establishment DID [ ] / DID NOT [x] generate any hazardous wastes, during this reporting period. If hazardous wastes were generated,	
A.	Type of Waste:
B.	Amount Generated (in kilograms) :
C.	Method of Disposal :

8.	★ CERTIFICATION ★
A.	NON-CONTAMINATED WASTEWATER DISCHARGE CERTIFICATION:

I hereby certify, that during this reporting period, this facility has not discharged any industrial wastewater, chemicals, cleaners or like substances generated from or in relation to any of this establishment's operations other than sanitary or non-contact cooling water. I understand that I must obtain prior written approval from the Industrial Inspections and Permitting Section before I can discharge any such wastewater. I am aware that there are significant civil and criminal sanctions for submitting false information.

Name (Print) Signature

Title Date Phone #

8. ★ CERTIFICATIONS (CONTINUED) ★

B. TOXIC ORGANICS CERTIFICATION:

I. "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, no Toxic Organics are used or stored at my facility. I certify that I am duly authorized by the establishment to make this statement on its behalf, and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

Wes Lindemuth		Wes Lindemuth
Name (Print)		Signature
Senior Project Manager	01/10/2025	917-794-3107
Title	Date	Phone#

OR

II "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, there was no discharge to a public sewer of toxic organics during the reporting period covered by this report. I also certify that the explanations provided concerning the disposal of toxic organics from the facility are true, accurate and complete. I further certify that this facility is implementing a toxic organics management plan to protect against the release of such compounds to a public sewer. I certify that I am duly authorized by the establishment to make this statement on its behalf, and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

Name (Print)		Signature
Title	Date	Phone#

C. AUTHORIZED FIRM REPRESENTATIVE CERTIFICATION:

I hereby certify, under penalty of law, that I have personally examined and am familiar with the information contained in this report and all attachments therein. Furthermore, based on my inquiry of those persons immediately responsible for obtaining the information contained in this report, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I further certify that the reported sampling results are representative of the facility's normal work cycles and expected pollutant discharges.

Wes Lindemuth		Wes Lindemuth
Name (Print)		Signature
Senior Project Manager	01/10/2025	917-794-3107
Title	Date	Phone#

Please sign the following certification if required by the Permit/Directive:

D CYANIDE CERTIFICATION

The Industrial User must sign and submit one of the following certifications in its periodic self-monitoring reports:

a. "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, cyanide is not used or stored at my facility or generated in any of our manufacturing processes and there was no discharge of cyanide to the public sewer. I certify that I am duly authorized by the establishment to make this statement on its behalf, and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

Name (print) Wes Lindemuth Signature Wes Lindemuth

Title Senior Project Manager Date 01/10/2025 Phone Number 917-794-3107

OR

b. "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, there was no discharge to a public sewer of cyanide-bearing waste during the reporting period covered by this report. I also certify that the explanations provided concerning the disposal of cyanide-bearing waste from the facility are true, accurate and complete. I certify that I am duly authorized by the establishment to make this statement on its behalf, and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

Name (print)_____ Signature_____

Title_____ Date_____ Phone Number_____

If certification b. (above) is signed and submitted, explanations concerning the disposal of cyanide-bearing waste from the facility shall be provided.

9.	★ DESCRIPTION OF OPERATION ★
Site is a former landfill which is now operated as a public Park. The discharge is comprised of landfill leachate which is allowed to pass through an oil-water separator prior to discharge.	

10.	★ ATTACHMENTS ★	Yes	No	N/A
A.	All laboratory analyses must be conducted by a New York State Health Department certified wastewater laboratory. The results must be certified by the laboratory and submitted on the laboratory's letterhead. For each sample, the laboratory report must indicate the date of sampling, time sample was taken, sample location, sampling preservation procedures, analytical techniques used, date of analysis, units of measurement, and the laboratory's sample identification; where the analytical result reported is below the method detection level, the laboratory report must also indicate the method detection level.	X		
B.	Chain of custody for all samples.	X		
C.	Explanation of non-compliance and what will be done to rectify it. A compliance schedule is to be included.			X
D.	Amount of spent solvents generated and method of disposal. Explanation of zero discharges to be included.			X
E.	Description of any major modifications or malfunctions in manufacturing or pretreatment operations.			X
F.	Hazardous wastes manifests.			X

DAILY VOLUME OF DISCHARGE

BROOKFIELD LANDFILL LEACHATE SYSTEM
EFFLUENT FLOW METER REPORT

NYC Parks

Date/Time	FLOW GPM *Instantaneous	FLOW TOTAL DAILY GAL *Resets at Midnight	FLOW TOTAL RUNNING GAL *Resets at 100 Million Gallons
9/1/24 23:50	29.96	43148.50	26554773.00
9/2/24 23:50	29.96	43148.50	26597921.50
9/3/24 23:50	29.96	43148.50	26641070.00
9/4/24 23:50	29.96	43148.50	26684218.50
9/5/24 23:50	29.96	43148.50	26727367.00
9/6/24 23:50	29.96	43148.50	26813664.00
9/7/24 23:50	10.00	14404.00	26828068.00
9/8/24 23:50	10.00	14404.00	26842472.00
9/9/24 23:50	10.00	14404.00	26856876.00
9/10/24 23:50	10.00	14404.00	26871280.00
9/11/24 23:50	10.00	14404.00	26885684.00
9/12/24 23:50	8.00	31180.00	26900088.00
9/13/24 23:50	8.00	31180.00	26931268.00
9/14/24 23:50	8.00	31180.00	26962448.00
9/15/24 23:50	8.00	31180.00	26993628.00
9/16/24 23:50	8.00	31180.00	27024808.00
9/17/24 23:50	8.00	31180.00	27055988.00
9/18/24 23:50	8.00	31180.00	27087168.00
9/19/24 23:50	8.00	31180.00	27118348.00
9/20/24 23:50	8.00	31180.00	27149528.00
9/21/24 23:50	4.00	13634.50	27163162.50
9/22/24 23:50	4.00	13634.50	27176797.00
9/23/24 23:50	4.00	13634.50	27190431.50
9/24/24 23:50	4.00	13634.50	27204066.00
9/25/24 23:50	7.00	30619.71	27234685.71
9/26/24 23:50	7.00	30619.71	27265305.43
9/27/24 23:50	7.00	30619.71	27295925.14
9/28/24 23:50	7.00	30619.71	27326544.86
9/29/24 23:50	7.00	30619.71	27357164.57
9/30/24 23:50	7.00	30619.71	27387784.29
10/1/24 23:50	7.00	30619.71	27418404.00
10/2/24 23:50	13.00	8409.08	27426813.08
10/3/24 23:50	13.00	8409.08	27435222.15
10/4/24 23:50	13.00	8409.08	27443631.23
10/5/24 23:50	13.00	8409.08	27452040.31
10/6/24 23:50	13.00	8409.08	27460449.38
10/7/24 23:50	13.00	8409.08	27468858.46
10/8/24 23:50	13.00	8409.08	27477267.54
10/9/24 23:50	13.00	8409.08	27485676.62
10/10/24 23:50	13.00	8409.08	27494085.69
10/11/24 23:50	13.00	8409.08	27502494.77
10/12/24 23:50	13.00	8409.08	27510903.85
10/13/24 23:50	13.00	8409.08	27519312.92
10/14/24 23:50	13.00	8409.08	27527722.00
10/15/24 23:50	7.00	14551.14	27542273.14
10/16/24 23:50	7.00	14551.14	27556824.29
10/17/24 23:50	7.00	14551.14	27571375.43
10/18/24 23:50	7.00	14551.14	27585926.57
10/19/24 23:50	7.00	14551.14	27600477.71
10/20/24 23:50	7.00	14551.14	27615028.86
10/21/24 23:50	7.00	14551.14	27629580.00
10/22/24 23:50	7.00	13088.00	27642668.00
10/23/24 23:50	7.00	13088.00	27655756.00
10/24/24 23:50	7.00	13088.00	27668844.00
10/25/24 23:50	7.00	13088.00	27681932.00
10/26/24 23:50	7.00	13088.00	27695020.00
10/27/24 23:50	7.00	13088.00	27708108.00
10/28/24 23:50	7.00	13088.00	27721196.00
10/29/24 23:50	9.00	33132.22	27754328.22
10/30/24 23:50	9.00	33132.22	27787460.44
10/31/24 23:50	9.00	33132.22	27820592.67

BROOKFIELD LANDFILL LEACHATE SYSTEM
EFFLUENT FLOW METER REPORT

NYC Parks

Date/Time	FLOW GPM *Instantaneous	FLOW TOTAL DAILY GAL *Resets at Midnight	FLOW TOTAL RUNNING GAL *Resets at 100 Million Gallons
11/1/24 23:50	9.00	33132.22	27853724.89
11/2/24 23:50	9.00	33132.22	27886857.11
11/3/24 23:50	9.00	33132.22	27919989.33
11/4/24 23:50	9.00	33132.22	27953121.56
11/5/24 23:50	9.00	33132.22	27986253.78
11/6/24 23:50	9.00	33132.22	28019386.00
11/7/24 23:50	20.00	26606.30	28045992.30
11/8/24 23:50	20.00	26606.30	28072598.60
11/9/24 23:50	20.00	26606.30	28099204.90
11/10/24 23:50	20.00	26606.30	28125811.20
11/11/24 23:50	20.00	26606.30	28152417.50
11/12/24 23:50	20.00	26606.30	28179023.80
11/13/24 23:50	20.00	26606.30	28205630.10
11/14/24 23:50	20.00	26606.30	28232236.40
11/15/24 23:50	20.00	26606.30	28258842.70
11/16/24 23:50	20.00	26606.30	28285449.00
11/17/24 23:50	20.00	26606.30	28312055.30
11/18/24 23:50	20.00	26606.30	28338661.60
11/19/24 23:50	20.00	26606.30	28365267.90
11/20/24 23:50	20.00	26606.30	28391874.20
11/21/24 23:50	20.00	26606.30	28418480.50
11/22/24 23:50	20.00	26606.30	28445086.80
11/23/24 23:50	20.00	26606.30	28471693.10
11/24/24 23:50	20.00	26606.30	28498299.40
11/25/24 23:50	20.00	26606.30	28524905.70
11/26/24 23:50	20.00	26606.30	28551512.00
11/27/24 23:50	9.00	22438.44	28573950.44
11/28/24 23:50	9.00	22438.44	28596388.89
11/29/24 23:50	9.00	22438.44	28618827.33
11/30/24 23:50	9.00	22438.44	28641265.78

Note:
The 2025 Q2 SMR, 'FLOW TOTAL RUNNING GAL', 'FLOW GPM', and 'FLOW TOTAL DAILY FAL' values were calculated estimations using recorded totalizer values from on-site weekly inspections.

LAB DATA SUMMARY

Table 1
New York City Parks and Recreation
Brookfield Avenue Landfill
Self Monitoring Report Results for Industrial Wastewater Discharge Permit No: 23-P3149-1
September 2024

Sample ID	Sewer Use Limits (15 R.C.N.Y. ch. 19)	M1-COMP-09-18-2024	M1-A-D-09-18-2024 COMP	M1-A-09-18-2024	M1-B-09-18-2024	M1-C-09-18-2024	M1-D-09-18-2024
Lab ID		AD46998-002	AD46998-001				
Date		9/18/2024	9/18/2024	9/18/2024	9/18/2024	9/18/2024	9/18/2024
VOCs (ppb)							
1,1,1 -Trichloroethane	NS		1.0 U				
1,2,4-Trichlorobenzene	NS		1.0 U				
Benzene	Daily Limit: 134 Monthly Limit: 57		0.50 U				
Carbon Tetrachloride	NS		1.0 U				
Chloroform	NS		1.0 U				
Ethylbenzene	Daily Limit: 380 Monthly Limit: 142		1.0 U				
Methyl-Tert-Butyl-Ether (MTBE)	50		0.53 U				
Tetrachloroethene (Perc)	20		1.0 U				
Toluene	Daily Limit: 74 Monthly Limit: 28		1.0 U				
Xylenes (Total)	Daily Limit: 74 Monthly Limit: 28		1.0 U				
Semi-Volatile Organics (ppb)							
Naphthalene	Daily Limit: 47 Monthly Limit: 19	0.50 U					
1,4-Dichlorobenzene	NS	2.0 U					
Phenol	NS	2.0 U					
Pesticides/ PBCs (ppb)	1.0 (Total PCBs, 7 PCB compounds)						
Aroclor-1016		0.25 U					
Aroclor-1242		0.25 U					
Aroclor-1254		0.25 U					
Aroclor-1221		0.25 U					
Aroclor-1232		0.25 U					
Aroclor-1248		0.25 U					
Aroclor-1260		0.25 U					
Metals (ppm)							
Cadmium	2	0.0020 U					
Chromium (Total)	5	0.0020 U					
Chromium (Hexavalent)	5	0.020 U					
Copper	5	0.012					
Lead	2	0.0030 U					
Mercury	0.05	0.00050 U					
Molybdenum	NS	0.0020 U					
Nickel	3	0.016					
Silver	NS	0.0020 U					
Zinc	5	0.040 U					
General Chemistry Analysis							
Carbonaceous Biochemical Oxygen Demand (CBOD) (mg/L)	NS	4.0					
Total Nitrogen (mg/L)	NS	2.0 U					
Chloride (mg/L)	NS	270					
Cyanide (Total) (mg/L)	0.2		0.0040 U				
Cyanide (Amenable to Chlorination) (mg/L)	0.2		0.010 U				
Total Suspended Solids (TSS) (mg/L)	350		35				
Non-Polar Material (Oil and Grease 1664-A HEM) (mg/L)	50		5.0 U				
pH	5.0-12.0 Standard Units			7.20	7.15	7.30	7.19
TKN (mg/L)	NS	48.3					
Temperature	Deg. C (< 65.5)			20.82	20.79	20.86	20.89

Notes:

< = Less than

NS = No Standard

U = Not Detected

(Blank) = Parameter not required for analysis

Bold = Above Daily Limit

Table 1
New York City Parks and Recreation
Brookfield Avenue Landfill
Self Monitoring Report Results for Industrial Wastewater Discharge Permit No: 23-P3149-1
October 2024

Sample ID	Sewer Use Limits (15 R.C.N.Y. ch. 19)	M1-COMP-10-18-2024	M1-COMP-(A-D)-10-17-2024	M1-A-10-17-2024	M1-B-10-17-2024	M1-C-10-17-2024	M1-D-10-17-2024
Lab ID		AD47630-002	AD47630-001				
Date		10/18/2024	10/17/2024	10/17/2024	10/17/2024	10/17/2024	10/17/2024
VOCs (ppb)							
1,1,1 -Trichloroethane	NS		1.0 U				
1,2,4-Trichlorobenzene	NS		1.0 U				
Benzene	Daily Limit: 134 Monthly Limit: 57		0.50 U				
Carbon Tetrachloride	NS		1.0 U				
Chloroform	NS		1.0 U				
Ethylbenzene	Daily Limit: 380 Monthly Limit: 142		1.0 U				
Methyl-Tert-Butyl-Ether (MTBE)	50		0.53 U				
Tetrachloroethene (Perc)	20		1.0 U				
Toluene	Daily Limit: 74 Monthly Limit: 28		1.0 U				
Xylenes (Total)	Daily Limit: 74 Monthly Limit: 28		1.0 U				
Semi-Volatile Organics (ppb)							
Naphthalene	Daily Limit: 47 Monthly Limit: 19	0.50 U					
1,4-Dichlorobenzene	NS	2.0 U					
Phenol	NS	2.0 U					
Pesticides/ PBCs (ppb)	1.0 (Total PCBs, 7 PCB compounds)						
Aroclor-1016		0.25 U					
Aroclor-1242		0.25 U					
Aroclor-1254		0.25 U					
Aroclor-1221		0.25 U					
Aroclor-1232		0.25 U					
Aroclor-1248		0.25 U					
Aroclor-1260		0.25 U					
Metals (ppm)							
Cadmium	2	0.0020 U					
Chromium (Total)	5	0.0110					
Chromium (Hexavalent)	5	0.0026 U					
Copper	5	0.0100 U					
Lead	2	0.0035					
Mercury	0.05	0.00050 U					
Molybdenum	NS	0.0020 U					
Nickel	3	0.0100 U					
Silver	NS	0.0020 U					
Zinc	5	0.051 U					
General Chemistry Analysis							
Carbonaceous Biochemical Oxygen Demand (CBOD) (mg/L)	NS	13.0					
Total Nitrogen (mg/L)	NS	2.0 U					
Chloride (mg/L)	NS	410					
Cyanide (Total) (mg/L)	0.2		0.0040 U				
Cyanide (Amenable to Chlorination) (mg/L)	0.2		0.010 U				
Total Suspended Solids (TSS) (mg/L)	350		39.0				
Non-Polar Material (Oil and Grease 1664-A HEM) (mg/L)	50		5.0 U				
pH	5.0-12.0 Standard Units			6.66	6.62	6.84	6.80
TKN (mg/L)	NS	51.3					
Temperature	Deg. C (< 65.5)			18.84	19.18	19.62	19.64

Notes:

< = Less than

NS = No Standard

U = Not Detected

(Blank) = Parameter not required for analysis

Bold = Above Daily Limit

Table 1
New York City Parks and Recreation
Brookfield Avenue Landfill
Self Monitoring Report Results for Industrial Wastewater Discharge Permit No: 23-P3149-1
November 2024

Sample ID	Sewer Use Limits (15 R.C.N.Y. ch. 19)	M1-COMP-11-15-2024	M1-COMP-(A-D)-11-14-2024	M1-A-11-14-2024	M1-B-11-14-2024	M1-C-11-14-2024	M1-D-11-14-2024
Lab ID		AD48186-002	AD48186-001				
Date		11/15/2024	11/14/2024	11/14/2024	11/14/2024	11/14/2024	11/14/2024
VOCs (ppb)							
1,1,1 -Trichloroethane	NS		1.0 U				
1,2,4-Trichlorobenzene	NS		1.0 U				
Benzene	Daily Limit: 134 Monthly Limit: 57		0.50 U				
Carbon Tetrachloride	NS		1.0 U				
Chloroform	NS		5.0 U				
Ethylbenzene	Daily Limit: 380 Monthly Limit: 142		1.0 U				
Methyl-Tert-Butyl-Ether (MTBE)	50		0.53 U				
Tetrachloroethene (Perc)	20		1.0 U				
Toluene	Daily Limit: 74 Monthly Limit: 28		1.0 U				
Xylenes (Total)	Daily Limit: 74 Monthly Limit: 28		1.0 U				
Semi-Volatile Organics (ppb)							
Naphthalene	Daily Limit: 47 Monthly Limit: 19	2.00 U					
1,4-Dichlorobenzene	NS	2.0 U					
Phenol	NS	2.0 U					
Pesticides/ PBCs (ppb)	1.0 (Total PCBs, 7 PCB compounds)						
Aroclor-1016		0.25 U					
Aroclor-1242		0.25 U					
Aroclor-1254		0.25 U					
Aroclor-1221		0.25 U					
Aroclor-1232		0.25 U					
Aroclor-1248		0.25 U					
Aroclor-1260		0.25 U					
Metals (ppm)							
Cadmium	2	0.0020 U					
Chromium (Total)	5	0.0020 U					
Chromium (Hexavalent)	5	0.0022 U					
Copper	5	0.0120					
Lead	2	0.0030 U					
Mercury	0.05	0.00050 U					
Molybdenum	NS	0.0020 U					
Nickel	3	0.0100 U					
Silver	NS	0.0020 U					
Zinc	5	0.040 U					
General Chemistry Analysis							
Carbonaceous Biochemical Oxygen Demand (CBOD) (mg/L)	NS	3.1					
Total Nitrogen (mg/L)	NS	2.0 H					
Chloride (mg/L)	NS	420					
Cyanide (Total) (mg/L)	0.2		0.0040 U				
Cyanide (Amenable to Chlorination) (mg/L)	0.2		0.010 U				
Total Suspended Solids (TSS) (mg/L)	350		28.0				
Non-Polar Material (Oil and Grease 1664-A HEM) (mg/L)	50		6.0 U				
pH	5.0-12.0 Standard Units			6.72	6.60	6.84	6.89
TKN (mg/L)	NS	63.9					
Temperature	Deg. C (< 65.5)			13.58	14.26	14.34	14.34

Notes:

< = Less than

NS = No Standard

U = Not Detected

(Blank) = Parameter not required for analysis

Bold = Above Daily Limit

H = Sample was prepped or analyzed beyond the specified holding time.

LABORATORY REPORTS

HC Report of Analysis

Client: TRC Engineering
HC Project #: 4091829
Project: Brookfield Ave Landfill

Sample ID: M1-A-D-09-18-2024 COMP
Lab#: AD46998-001
Matrix: Aqueous
Collection Date: 9/18/2024
Receipt Date: 9/18/2024

Cyanide (Amenable) SM22 4500-CN-E/G

Analyte	DF	Units	MDL	RL	Result
Cyanide	1	mg/l	0.010	0.010	0.010 U

Cyanide (Potable) EPA 335.4

Analyte	DF	Units	MDL	RL	Result
Cyanide	1	mg/l	0.0040	0.010	0.0040 U

SGT-HEM (Non-Polar Material) 1664B

Analyte	DF	Units	RL	Result
SGT-HEM (Non-Polar Material)	1	mg/l	5.0	ND

Total Suspended Solids (SM2540D-15)

Analyte	DF	Units	RL	Result
Total Suspended Solids @ 103-105 C	1	mg/l	4.0	35

Volatile Organics (no search) 8260

Analyte	DF	Units	RL	Result
1,1,1-Trichloroethane	1	ug/l	1.0	ND
1,2,4-Trichlorobenzene	1	ug/l	1.0	ND
Benzene	1	ug/l	0.50	ND
Carbon tetrachloride	1	ug/l	1.0	ND
Chloroform	1	ug/l	1.0	ND
Ethylbenzene	1	ug/l	1.0	ND
m&p-Xylenes	1	ug/l	1.0	ND
Methyl-t-butyl ether	1	ug/l	0.53	ND
o-Xylene	1	ug/l	1.0	ND
Tetrachloroethene	1	ug/l	1.0	ND
Toluene	1	ug/l	1.0	ND
Xylenes (Total)	1	ug/l	1.0	ND

Sample ID: M1-COMP-09-18-2024
Lab#: AD46998-002
Matrix: Aqueous

Collection Date: 9/18/2024
Receipt Date: 9/18/2024

Carbonaceous BOD-5 Day (SM5210 B-16)

Analyte	DF	Units	RL	Result
Carbonaceous Bod, 5 Day	**1**	**mg/l**	**1.0**	**4.0**

Chloride (Water) 300.0

Analyte	DF	Units	RL	Result
Chloride	**50**	**mg/l**	**100**	**270**

Dissolved Cr (Hexavalent) 3500-Cr B11

Analyte	DF	Units	RL	Result
Cr (Hexavalent)	1	mg/l	0.020	ND

Mercury (Water) 7470A

Analyte	DF	Units	RL	Result
Mercury	1	ug/l	0.50	ND

Nitrate-N (Water) 300.0

Analyte	DF	Units	RL	Result
Nitrate	1	mg/l	1.0	ND

Nitrite-N (Aqueous) 300.0

Analyte	DF	Units	RL	Result
Nitrite	1	mg/l	1.0	ND

PCB 8082

Analyte	DF	Units	RL	Result
Aroclor (Total)	1	ug/l	0.25	ND
Aroclor-1016	1	ug/l	0.25	ND
Aroclor-1221	1	ug/l	0.25	ND
Aroclor-1232	1	ug/l	0.25	ND
Aroclor-1242	1	ug/l	0.25	ND
Aroclor-1248	1	ug/l	0.25	ND
Aroclor-1254	1	ug/l	0.25	ND
Aroclor-1260	1	ug/l	0.25	ND

Semivolatile Organics (no search) 8270

Analyte	DF	Units	RL	Result
1,4-Dichlorobenzene	1	ug/l	2.0	ND
Naphthalene	1	ug/l	0.50	ND
Phenol	1	ug/l	2.0	ND

TAL Metals 6020B

Analyte	DF	Units	RL	Result
Cadmium	1	ug/l	2.0	ND
Chromium	1	ug/l	2.0	ND
Copper	**1**	**ug/l**	**10**	**12**
Lead	1	ug/l	3.0	ND
Molybdenum	1	ug/l	2.0	ND
Nickel	**1**	**ug/l**	**10**	**16**
Silver	1	ug/l	2.0	ND
Zinc	1	ug/l	40	ND

Total Kjeldahl Nitrogen EPA 351

Analyte	DF	Units	MDL	RL	Result
Total Kjeldahl Nitrogen	**10**	**mg/l**	**7.5**	15.0	**48.3**

Form1

ORGANICS VOLATILE REPORT

Sample Number: AD46998-001
Client Id: M1-A-D-09-18-2024 COMP
Data File: 2M204623.D
Analysis Date: 09/19/24 14:00
Date Rec/Extracted: 09/18/24-NA
Column: DB-624 25M 0.200mm ID 1.12um film

Method: EPA 8260D
Matrix: Aqueous
Initial Vol: 5ml
Final Vol: NA
Dilution: 1.00
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
71-55-6	1,1,1-Trichloroethane	1.0	U	79601-23-1	m&p-Xylenes	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1634-04-4	Methyl-t-butyl ether	0.53	U
71-43-2	Benzene	0.50	U	95-47-6	o-Xylene	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U	127-18-4	Tetrachloroethene	1.0	U
67-66-3	Chloroform	1.0	U	108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U	1330-20-7	Xylenes (Total)	1.0	U

Worksheet #: 754514

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AD46998-002
Client Id: M1-COMP-09-18-2024
Data File: 9M129368.D
Analysis Date: 09/23/24 09:49
Date Rec/Extracted: 09/18/24-09/21/24
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270E
Matrix: Aqueous
Initial Vol: 500ml
Final Vol: 0.5ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
106-46-7	1,4-Dichlorobenzene	2.0	U	108-95-2	Phenol	2.0	U
91-20-3	Naphthalene	0.50	U				

Worksheet #: 754598

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS PCB REPORT

Sample Number: AD46998-002
Client Id: M1-COMP-09-18-2024
Data File: 2G195129.D
Analysis Date: 09/23/24 10:30
Date Rec/Extracted: 09/18/24-09/20/24
Column: DB-17/1701P 30M 0.32mm ID 0.25um film

Method: EPA 8082A
Matrix: Aqueous
Initial Vol: 500ml
Final Vol: 2.5ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
12674-11-2	Aroclor-1016	0.25	U	12672-29-6	Aroclor-1248	0.25	U
11104-28-2	Aroclor-1221	0.25	U	11097-69-1	Aroclor-1254	0.25	U
11141-16-5	Aroclor-1232	0.25	U	11096-82-5	Aroclor-1260	0.25	U
53469-21-9	Aroclor-1242	0.25	U	1336-36-3	Aroclor (Total)	0.25	U

Worksheet #: 753985

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD46998-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-COMP-09-18-2024	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	9/19/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-43-9	Cadmium	2.0	ND	1	50	100	09/20/24	116439	SW31334A	22	MS	MS4_7800SWA
7440-47-3	Chromium	2.0	ND	1	50	100	09/20/24	116439	SW31334A	22	MS	MS4_7800SWA
7440-50-8	Copper	10	12	1	50	100	09/20/24	116439	SW31334A	22	MS	MS4_7800SWA
7439-92-1	Lead	3.0	ND	1	50	100	09/20/24	116439	SW31334A	22	MS	MS4_7800SWA
7439-98-7	Molybdenum	2.0	ND	1	50	100	09/20/24	116439	SW31334A	22	MS	MS4_7800SWA
7440-02-0	Nickel	10	16	1	50	100	09/20/24	116439	SW31334A	22	MS	MS4_7800SWA
7440-22-4	Silver	2.0	ND	1	50	100	09/20/24	116439	SW31334A	22	MS	MS4_7800SWA
7440-66-6	Zinc	40	ND	1	50	100	09/20/24	116439	SW31334A	22	MS	MS4_7800SWA

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD46998-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-COMP-09-18-2024	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	9/19/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7439-97-6	Mercury	0.50	ND	1	25	25	09/24/24	116439	H31334SW	13	CV	HGCV3A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

VERITECH Wet Chem Form1 Analysis Summary

Lab#: AD46998-001
Matrix Aqueous
Client SampleID: M1-A-D-09-18-2024 COM

Project Number: 4091829
Received Date: 9/18/2024
Collect Date: 9/18/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
SGT-HEM (Non-Polar Material)	HEM-NPM	1	ND	MG/L	5.0	09/24/24	09/25/24
Total Suspended Solids @ 103-105	TSS-MUR	**1**	**35**	**mg/l**	**4.0**	09/20/24	09/23/24

Lab#: AD46998-002
Matrix Aqueous
Client SampleID: M1-COMP-09-18-2024

Project Number: 4091829
Received Date: 9/18/2024
Collect Date: 9/18/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
Carbonaceous Bod, 5 Day	CBOD-5-MUR	**1**	**4.0**	**MG/L**	**1.0**	09/19/24	09/24/24
Chloride	CHLORIDE-ICW	**50**	**270**	**mg/L**	**100**	09/19/24	09/19/24
Cr (Hexavalent)	CR6-WATER	1	ND	mg/l	0.020	09/30/24	09/30/24
Nitrite	NO2-ICW	1	ND	mg/L	1.0	09/18/24	09/18/24
Nitrate	NO3-ICW	1	ND	mg/L	1.0	09/18/24	09/18/24

Chain of Custody Forms

4091829 0016

Hampton-Clarke, Inc. (WBE/DBE/SBE)

175 US Highway 46, STE D and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787
Service Center: 137-C Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056

Hampton-Clarke WBE/DBE/SBE 800-426-9992
A Women-Owned, Disadvantaged, Small Business Enterprise

NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | KY #90124 | DE HSCA Approved

CHAIN OF CUSTODY RECORD

Project# (Lab Use Only): 4091829

Page 1 of 1

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Data Deliv.
When Available:	Summary	NJ Hazsite
1 Business Day (100%) *	Results + QC (Waste)	Excel Reg. NJ / NY / PA
2 Business Days (75%) *	Reduced:	EnviroData
3 Business Days (50%) *	[ ] NJ [ ] NY	EQuIS:
4 Business Days (35%) *	[ ] PA [ ] Other___	[ ] 4-File [ ] EZ
5 Business Days (25%)	NJ Full / NY ASP Cat B	[ ] NYDEC
7 Business Days (Stand.)	NY ASP CatA	[ ] Region 2 or 5
Other:		Other:

* Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

1a) Customer: TRC Engineers, Inc.
Address: 1407 Broadway Suite 3301
New York, NY 10018
1b) Email/Cell/Fax/Ph: Ivan.Gonzalez@trccompanies.com
1c) Send Invoice to: APInvoice.approval@trccompanies.com
1d) Send Report to: Ivan.Gonzalez@trccompanies.com

Project Information

2a) Project: Brookfield Landfill
2b) Project Mgr: Kirsten Myers
2c) Project Location (City/State): Staten Island, NY
2d) Quote/PO # (If Applicable): 194549

FOR LAB USE ONLY ↓

Batch # AD46998

===> Check If Contingent ===>

Matrix Codes
DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis *(specify methods & parameter lists)*

<=== Check If Contingent <===

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	VOCs	Cyanide (total)	Cyanide (amenable)	Total suspended solids	Non-polar material	PCBs	SVOCs	Cadmium, chromium, copper (hexavalent)	Lead, mercury, silver, MBNA, iron, chromium	CBOD, total + Nitrate	Chloride, TDS, TKN	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
001	MI-A-09-18-2024	GW	9/18/24	0720		X	X	X	X	X	X							1			2	5				
	MI-B-09-18-2024	↓	9/18/24	0830		X	↓	↓	↓	↓	↓							1			2	5				
	MI-C-09-18-2024		9/18/24	0930		X	↓	↓	↓	↓	↓							1			2	5				
	MI-D-09-18-2024		9/18/24	1050		X	↓	↓	↓	↓	↓							1			2	5				
002	MI-COMP-09-18-2024	↓	9/18/24	0940	X							X	→	→	→	→	→	4					1	1		

10) Relinquished by:	Accepted by:	Date	Time
Elise Ne	Anthony Chadwick	9/18/24	12:55
Cathy Chadwick		9/18/24	5:00

11) Sampler (print name): Date:

Additional Notes

Comments, Notes, Special Requirements, HAZARDS

Indicate if low-level methods required to meet current groundwater standards (SPLP for soil):
- [ ] BN or BNA (8270E SIM)
- [ ] VOC (8260D SIM or 8011)
- [ ] SPLP (BN, BNA, Metals)
- [ ] 1,4 Dioxane

For NJ LSRP projects, indicate which standards need to be met:
- [ ] NJDEP GWQS
- [ ] NJDEP SRS
- [ ] NJDEP SPLP
- [ ] Other (specify):

Check if applicable:
- [ ] Project-Specific Reporting Limits
- [ ] High Contaminant Concentrations
- [ ] NJ LSRP Project (also check boxes above/right)

Cooler Temperature: 2.3 2.7

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

Internal use: sampling plan (check box) HC [ ] or client [ ] FSP#

Sample Summary

Client: Hampton-Clarke Veritech
Project/Site: 4091829 9280

Job ID: 460-311893-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-311893-1	AD46998-001	Water	09/18/24 07:30	09/20/24 10:30
460-311893-2	AD46998-002	Water	09/18/24 09:40	09/20/24 10:30

Eurofins Edison

Detection Summary

Client: Hampton-Clarke Veritech
Project/Site: 4091829 9280

Job ID: 460-311893-1

Client Sample ID: AD46998-001 — Lab Sample ID: 460-311893-1

No Detections.

Client Sample ID: AD46998-002 — Lab Sample ID: 460-311893-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	48.3		15.0	7.5	mg/L	10		351.2	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Hampton-Clarke Veritech
Project/Site: 4091829 9280

Job ID: 460-311893-1

Method	Method Description	Protocol	Laboratory
335.4	Cyanide, Total	EPA	EET EDI
351.2	Nitrogen, Total Kjeldahl	EPA	ELLE
4500-CN G-2016	Cyanide, Amenable	SM	EET EDI
351.2	Nitrogen, Total Kjeldahl	EPA	ELLE
Distill/CN	Distillation, Cyanide	None	EET EDI

Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Client Sample ID: AD46998-001
Lab Sample ID: 460-311893-1

Date Collected: 09/18/24 07:30
Matrix: Water
Date Received: 09/20/24 10:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA 335.4)	0.0040	U	0.010	0.0040	mg/L		10/01/24 10:00	10/01/24 11:56	1
Cyanide, Amenable (SM 4500-CN G-2016)	0.010	U	0.010	0.010	mg/L			10/01/24 16:03	1

Client Sample ID: AD46998-002
Lab Sample ID: 460-311893-2

Date Collected: 09/18/24 09:40
Matrix: Water
Date Received: 09/20/24 10:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen (EPA 351.2	48.3		15.0	7.5	mg/L		09/25/24 17:08	09/26/24 12:52	10

HC Report of Analysis

Client: TRC Engineering
Project: Brookfield Landfill

HC Project #: 4101839

Sample ID: M1-COMP (A-D)-10-17-24
Lab#: AD47630-001
Matrix: Aqueous

Collection Date: 10/17/2024
Receipt Date: 10/18/2024

Cyanide (Amenable) SM22 4500-CN-E/G

Analyte	DF	Units	MDL	RL	Result
Cyanide	1	mg/l	0.010	0.010	0.010 U

Cyanide (Potable) EPA 335.4

Analyte	DF	Units	MDL	RL	Result
Cyanide	1	mg/l	0.0040	0.010	0.0040 U

SGT-HEM (Non-Polar Material) 1664B

Analyte	DF	Units	RL	Result
SGT-HEM (Non-Polar Material)	1	mg/l	5.0	ND

Total Suspended Solids (SM2540D-15)

Analyte	DF	Units	RL	Result
Total Suspended Solids @ 103-105 C	1	mg/l	4.0	39

Volatile Organics (no search) 8260

Analyte	DF	Units	RL	Result
1,1,1-Trichloroethane	1	ug/l	1.0	ND
1,2,4-Trichlorobenzene	1	ug/l	1.0	ND
Benzene	1	ug/l	0.50	ND
Carbon tetrachloride	1	ug/l	1.0	ND
Chloroform	1	ug/l	1.0	ND
Ethylbenzene	1	ug/l	1.0	ND
m&p-Xylenes	1	ug/l	1.0	ND
Methyl-t-butyl ether	1	ug/l	0.53	ND
o-Xylene	1	ug/l	1.0	ND
Tetrachloroethene	1	ug/l	1.0	ND
Toluene	1	ug/l	1.0	ND
Xylenes (Total)	1	ug/l	1.0	ND

Sample ID: M1-COMP-10-18-2024
Lab#: AD47630-002
Matrix: Aqueous
Collection Date: 10/18/2024
Receipt Date: 10/18/2024

Carbonaceous BOD-5 Day (SM5210 B-16)

Analyte	DF	Units	RL	Result
Carbonaceous Bod, 5 Day	**1**	**mg/l**	**1.0**	**13**

Chloride (Water) 300.0

Analyte	DF	Units	RL	Result
Chloride	**50**	**mg/l**	**100**	**410**

Dissolved Cr (Hexavalent) 3500-Cr B11

Analyte	DF	Units	RL	Result
Cr (Hexavalent)	1.3	mg/l	0.026	ND

Mercury (Water) 7470A

Analyte	DF	Units	RL	Result
Mercury	1	ug/l	0.50	ND

Nitrate-N (Water) 300.0

Analyte	DF	Units	RL	Result
Nitrate	1	mg/l	1.0	ND

Nitrite-N (Aqueous) 300.0

Analyte	DF	Units	RL	Result
Nitrite	1	mg/l	1.0	ND

PCB 8082

Analyte	DF	Units	RL	Result
Aroclor (Total)	1	ug/l	0.25	ND
Aroclor-1016	1	ug/l	0.25	ND
Aroclor-1221	1	ug/l	0.25	ND
Aroclor-1232	1	ug/l	0.25	ND
Aroclor-1242	1	ug/l	0.25	ND
Aroclor-1248	1	ug/l	0.25	ND
Aroclor-1254	1	ug/l	0.25	ND
Aroclor-1260	1	ug/l	0.25	ND

Semivolatile Organics (no search) 8270

Analyte	DF	Units	RL	Result
1,4-Dichlorobenzene	1	ug/l	2.0	ND
Naphthalene	1	ug/l	0.50	ND
Phenol	1	ug/l	2.0	ND

TAL Metals 6020B

Analyte	DF	Units	RL	Result
Cadmium	1	ug/l	2.0	ND
Chromium	**1**	**ug/l**	**2.0**	**11**
Copper	1	ug/l	10	ND
Lead	**1**	**ug/l**	**3.0**	**3.5**
Molybdenum	1	ug/l	2.0	ND
Nickel	1	ug/l	10	ND
Silver	1	ug/l	2.0	ND
Zinc	1	ug/l	40	ND

Total Kjeldahl Nitrogen EPA 351

Analyte	DF	Units	MDL	RL	Result
Total Kjeldahl Nitrogen	**50**	**mg/l**	**5.0**	10.0	**51.3**

Form1

ORGANICS VOLATILE REPORT

Sample Number: AD47630-001
Client Id: MW-COMP (A-D)-10-17-24
Data File: 11M129618.D
Analysis Date: 10/22/24 03:20
Date Rec/Extracted: 10/18/24-NA
Column: DB-624 25M 0.200mm ID 1.12um film

Method: EPA 8260D
Matrix: Aqueous
Initial Vol: 5ml
Final Vol: NA
Dilution: 1.00
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
71-55-6	1,1,1-Trichloroethane	1.0	U	79601-23-1	m&p-Xylenes	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1634-04-4	Methyl-t-butyl ether	0.53	U
71-43-2	Benzene	0.50	U	95-47-6	o-Xylene	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U	127-18-4	Tetrachloroethene	1.0	U
67-66-3	Chloroform	1.0	U	108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U	1330-20-7	Xylenes (Total)	1.0	U

Worksheet #: 759207

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AD47630-002
Client Id: MCOMP-10-18-2024
Data File: 10M103839.D
Analysis Date: 10/25/24 20:25
Date Rec/Extracted: 10/18/24-10/25/24
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270E
Matrix: Aqueous
Initial Vol: 1000ml
Final Vol: 1ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
106-46-7	1,4-Dichlorobenzene	2.0	U	108-95-2	Phenol	2.0	U
91-20-3	Naphthalene	0.50	U				

Worksheet #: 759319

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS PCB REPORT

Sample Number: AD47630-002
Client Id: MCOMP-10-18-2024
Data File: 2G196414.D
Analysis Date: 10/23/24 10:38
Date Rec/Extracted: 10/18/24-10/22/24
Column: DB-17/1701P 30M 0.32mm ID 0.25um film

Method: EPA 8082A
Matrix: Aqueous
Initial Vol: 500ml
Final Vol: 2.5ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
12674-11-2	Aroclor-1016	0.25	U	12672-29-6	Aroclor-1248	0.25	U
11104-28-2	Aroclor-1221	0.25	U	11097-69-1	Aroclor-1254	0.25	U
11141-16-5	Aroclor-1232	0.25	U	11096-82-5	Aroclor-1260	0.25	U
53469-21-9	Aroclor-1242	0.25	U	1336-36-3	Aroclor (Total)	0.25	U

Worksheet #: 759385

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD47630-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	MWCOMP-10-18-2024	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	10/18/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-43-9	Cadmium	2.0	ND	1	50	100	10/22/24	116533	SW31428A	32	MSMS4_7800SWA	
7440-47-3	Chromium	2.0	11	1	50	100	10/22/24	116533	SW31428A	32	MSMS4_7800SWA	
7440-50-8	Copper	10	ND	1	50	100	10/22/24	116533	SW31428A	32	MSMS4_7800SWA	
7439-92-1	Lead	3.0	3.5	1	50	100	10/22/24	116533	SW31428A	32	MSMS4_7800SWA	
7439-98-7	Molybdenum	2.0	ND	1	50	100	10/22/24	116533	SW31428A	32	MSMS4_7800SWA	
7440-02-0	Nickel	10	ND	1	50	100	10/22/24	116533	SW31428A	32	MSMS4_7800SWA	
7440-22-4	Silver	2.0	ND	1	50	100	10/22/24	116533	SW31428A	32	MSMS4_7800SWA	
7440-66-6	Zinc	40	ND	1	50	100	10/22/24	116533	SW31428A	32	MSMS4_7800SWA	

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD47630-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	MWCOMP-10-18-2024	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	10/18/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7439-97-6	Mercury	0.50	ND	1	25	25	10/22/24	116533	31428SWC	22	CV	HGCV4A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

VERITECH Wet Chem Form1 Analysis Summary

Lab#: AD47630-001
Matrix Aqueous 1 5 H2l
Client SampleID: MCOMP (A-D)-10-17-24

Project Number: 4101839
Received Date: 10/18/2024
Collect Date: 10/17/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
SGT-HEM (Non-Polar Material)	HEM-NPM	1	ND	MG/L	5.0	10/21/24	10/21/24
Total Suspended Solids @ 103-105	TSS-MUR	**1**	**39**	**mg/l**	**4.0**	10/22/24	10/23/24

Lab#: AD47630-002
Matrix Aqueous 1 5 H2l
Client SampleID: MCOMP-10-18-2024

Project Number: 4101839
Received Date: 10/18/2024
Collect Date: 10/18/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
Carbonaceous Bod, 5 Day	CBOD-5-MUR	**1**	**13**	**MG/L**	**1.0**	10/18/24	10/23/24
Chloride	CHLORIDE-ICW	**50**	**410**	**mg/L**	**100**	10/22/24	10/22/24
Cr (Hexavalent)	CR6-WATER	1.3	ND	mg/l	0.026	10/24/24	10/24/24
Nitrite	NO2-ICW	1	ND	mg/L	1.0	10/18/24	10/18/24
Nitrate	NO3-ICW	1	ND	mg/L	1.0	10/18/24	10/18/24

Chain of Custody Forms

4101839 0016

Hampton-Clarke, Inc. (WBE/DBE/SBE)

175 US Highway 46, STE D and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787
Service Center: 137-C Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056

Hampton-Clarke WBE/DBE/SBE 800-426-9992
A Women-Owned, Disadvantaged, Small Business Enterprise

NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | KY #90124 | DE HSCA Approved

CHAIN OF CUSTODY RECORD

Project# (Lab Use Only): 4101839

Page 1 of 1

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Data Deliv.
When Available:	Summary	NJ Hazsite
1 Business Day (100%) *	Results + QC (Waste)	Excel Reg. NJ / NY / PA
2 Business Days (75%) *	Reduced:	EnviroData
3 Business Days (50%) *	[ ] NJ [ ] NY	EQuIS:
4 Business Days (35%) *	[ ] PA [ ] Other___	[ ] 4-File [ ] EZ
5 Business Days (25%)	NJ Full / NY ASP CatB	[ ] NYDEC
8 Business Days (Stand.)	NY ASP CatA	[ ] Region 2 or 5
Other:		Other:

* Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

1a) Customer: TRC Engineers, Inc
Address: 1407 Broadway, Suite 3301
New York, NY 10018
1b) Email/Cell/Fax/Ph: Ivan.Gonzalez@trcompanies.com
1c) Send Invoice to: APinvoice.approval@trcompanies.com
1d) Send Report to: Ivan.Gonzalez@trcompanies.com

Project Information

2a) Project: Bidokfield Landfill
2b) Project Mgr: Kirsten Myers
2c) Project Location (City/State): Staten Island, NY
2d) Quote/PO # (If Applicable): 194549

FOR LAB USE ONLY

Batch #: A104780

===> Check If Contingent ===>

Matrix Codes
DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis (specify methods & parameter lists)

<=== Check If Contingent <===

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	VOCs	Cyanide (total)	Cyanide Comamphip	TSS	Nutrient matrix	PCBs	SVOCs	Cadmium, chromium, Copper, Lead, Mercury, Nickel, Zinc, Cr6+	Cond., total filtered	Chloride, TKN	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
01	MI-A-10-17-2024	GW	10/17/24	0940		X	X	X	X	X	X						1			2	5				
	MI-B-10-17-2024			1040		X											1			2	5				
	MI-C-10-17-2024			1140		X											1			2	5				
	MI-D-10-17-2024			1240		X											1			2	5				
EM	~~MI-COMP-10-17-2024~~				X							X							(BA)			1	1		
02	MI-COMP-10-18-2024	GW	10/18/24	0900	X							X					7					1	1		

10) Relinquished by:

Relinquished by:	Accepted by:	Date	Time
Elise He		10/18/24	10:55
Zoila Castillo		10/18/24	4:30

11) Sampler (print name): Elise He & Zoila Castillo Date: 10/19/2024

Additional Notes

Comments, Notes, Special Requirements, HAZARDS

Indicate if low-level methods required to meet current groundwater standards (SPLP for soil):
- [ ] BN or BNA (8270E SIM)
- [ ] VOC (8260D SIM or 8011)
- [ ] SPLP (BN, BNA, Metals)
- [ ] 1,4 Dioxane

For NJ LSRP projects, indicate which standards need to be met:
- [ ] NJDEP GWQS
- [ ] NJDEP SRS
- [ ] NJDEP SPLP
- [ ] Other (specify):

Check if applicable:
- [ ] Project-Specific Reporting Limits
- [ ] High Contaminant Concentrations
- [ ] NJ LSRP Project (also check boxes above/right)

Cooler Temperature: 2.7, 3.1, 2.8

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

Internal use: sampling plan (check box) HC [ ] or client [ ] FSP#

Sample Summary

Client: Hampton-Clarke Veritech
Project/Site: NY Sites

Job ID: 460-313998-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-313998-1	AD47630-001	Water	10/17/24 12:40	10/23/24 10:33
460-313998-2	AD47630-002	Water	10/18/24 09:00	10/23/24 10:33

Detection Summary

Client: Hampton-Clarke Veritech
Project/Site: NY Sites

Job ID: 460-313998-1

Client Sample ID: AD47630-001 — Lab Sample ID: 460-313998-1

No Detections.

Client Sample ID: AD47630-002 — Lab Sample ID: 460-313998-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrogen, Kjeldahl	51.3		10.0	5.0	mg/L	50		351.2-1993 R2.0	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Hampton-Clarke Veritech
Project/Site: NY Sites

Job ID: 460-313998-1

Method	Method Description	Protocol	Laboratory
335.4	Cyanide, Total	EPA	EET EDI
351.2-1993 R2.0	Nitrogen, Total Nitrogen	MCAWW	EET SAV
4500-CN G-2016	Cyanide, Amenable	SM	EET EDI
Digestion	Digestion, Hot Block	EPA	EET SAV
Distill/CN	Distillation, Cyanide	None	EET EDI

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Client Sample ID: AD47630-001

Lab Sample ID: 460-313998-1

Date Collected: 10/17/24 12:40

Matrix: Water

Date Received: 10/23/24 10:33

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA 335.4)	0.0040	U	0.010	0.0040	mg/L		10/30/24 09:08	10/30/24 13:42	1
Cyanide, Amenable (SM 4500-CN G-2016)	0.010	U	0.010	0.010	mg/L			10/30/24 16:48	1

Client Sample ID: AD47630-002

Lab Sample ID: 460-313998-2

Date Collected: 10/18/24 09:00

Matrix: Water

Date Received: 10/23/24 10:33

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl (MCAWW 351.2-1993 R2.0)	**51.3**		10.0	5.0	mg/L		10/25/24 08:12	10/28/24 10:58	50

HC Report of Analysis

Client: TRC Engineering
Project: Brookfield Landfill

HC Project #: 4111535

Sample ID: M1-Comp(A-D)-2024-11-14
Lab#: AD48186-001
Matrix: Aqueous

Collection Date: 11/14/2024
Receipt Date: 11/15/2024

Cyanide (Amenable) SM22 4500-CN-E/G

Analyte	DF	Units	MDL	RL	Result
Cyanide	**1**	**mg/l**	**0.010**	0.010	**0.010 U**

Cyanide (Potable) EPA 335.4

Analyte	DF	Units	MDL	RL	Result
Cyanide	**1**	**mg/l**	**0.0040**	0.010	**0.0040 U**

SGT-HEM (Non-Polar Material) 1664B

Analyte	DF	Units	RL	Result
SGT-HEM (Non-Polar Material)	1	mg/l	6.0	ND

Total Suspended Solids (SM2540D-15)

Analyte	DF	Units	RL	Result
Total Suspended Solids @ 103-105 C	**1**	**mg/l**	**4.0**	**28**

Volatile Organics (no search) 8260

Analyte	DF	Units	RL	Result
1,1,1-Trichloroethane	1	ug/l	1.0	ND
1,2,4-Trichlorobenzene	1	ug/l	1.0	ND
Benzene	1	ug/l	0.50	ND
Carbon tetrachloride	1	ug/l	1.0	ND
Chloroform	1	ug/l	5.0	ND
Ethylbenzene	1	ug/l	1.0	ND
m&p-Xylenes	1	ug/l	1.0	ND
Methyl-t-butyl ether	1	ug/l	0.53	ND
o-Xylene	1	ug/l	1.0	ND
Tetrachloroethene	1	ug/l	1.0	ND
Toluene	1	ug/l	1.0	ND
Xylenes (Total)	1	ug/l	1.0	ND

Sample ID: M1-Comp-11-15
Lab#: AD48186-002
Matrix: Aqueous
Collection Date: 11/15/2024
Receipt Date: 11/15/2024

Carbonaceous BOD-5 Day (SM5210 B-16)

Analyte	DF	Units	RL	Result
Carbonaceous Bod, 5 Day	**1**	**mg/l**	**1.0**	**3.1**

Chloride (Water) 300.0

Analyte	DF	Units	RL	Result
Chloride	**50**	**mg/l**	**100**	**420**

Mercury (Water) 7470A

Analyte	DF	Units	RL	Result
Mercury	1	ug/l	0.50	ND

Nitrate-N (Water) 300.0

Analyte	DF	Units	RL	Result
Nitrate	1	mg/l	1.0	ND

Nitrite-N (Aqueous) 300.0

Analyte	DF	Units	RL	Result
Nitrite	1	mg/l	1.0	ND

PCB 8082

Analyte	DF	Units	RL	Result
Aroclor (Total)	1	ug/l	0.25	ND
Aroclor-1016	1	ug/l	0.25	ND
Aroclor-1221	1	ug/l	0.25	ND
Aroclor-1232	1	ug/l	0.25	ND
Aroclor-1242	1	ug/l	0.25	ND
Aroclor-1248	1	ug/l	0.25	ND
Aroclor-1254	1	ug/l	0.25	ND
Aroclor-1260	1	ug/l	0.25	ND

Semivolatile Organics (no search) 8270

Analyte	DF	Units	RL	Result
1,4-Dichlorobenzene	1	ug/l	2.0	ND
Naphthalene	1	ug/l	2.0	ND
Phenol	1	ug/l	2.0	ND

TAL Metals 6020B

Analyte	DF	Units	RL	Result
Cadmium	1	ug/l	2.0	ND
Chromium	1	ug/l	2.0	ND
Copper	**1**	**ug/l**	**10**	**12**
Lead	1	ug/l	3.0	ND
Molybdenum	1	ug/l	2.0	ND
Nickel	1	ug/l	10	ND
Silver	1	ug/l	2.0	ND
Zinc	1	ug/l	40	ND

Total Kjeldahl Nitrogen EPA 351

Analyte	DF	Units	MDL	RL	Result
Total Kjeldahl Nitrogen	**200**	**mg/l**	**20.0**	40.0	**63.9**

Sample ID: M1-Comp-11-15 f
Lab#: AD48186-003
Matrix: Aqueous

Collection Date: 11/15/2024
Receipt Date: 11/15/2024

Dissolved Cr (Hexavalent) 3500-Cr B11

Analyte	DF	Units	RL	Result
Cr (Hexavalent)	1.12	mg/l	0.022	ND

Form1

ORGANICS VOLATILE REPORT

Sample Number: AD48186-001
Client Id: M1-Comp(A-D)-2024-11-14
Data File: 1M195393.D
Analysis Date: 11/21/24 19:09
Date Rec/Extracted: 11/15/24-NA
Column: DB-624 25M 0.200mm ID 1.12um film

Method: EPA 8260D
Matrix: Aqueous
Initial Vol: 5ml
Final Vol: NA
Dilution: 1.00
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
71-55-6	1,1,1-Trichloroethane	1.0	U	79601-23-1	m&p-Xylenes	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1634-04-4	Methyl-t-butyl ether	0.53	U
71-43-2	Benzene	0.50	U	95-47-6	o-Xylene	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U	127-18-4	Tetrachloroethene	1.0	U
67-66-3	Chloroform	5.0	U	108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U	1330-20-7	Xylenes (Total)	1.0	U

Worksheet #: 763213

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AD48186-002
Client Id: M1-Comp-11-15
Data File: 10M104260.D
Analysis Date: 11/22/24 16:30
Date Rec/Extracted: 11/15/24-11/21/24
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270E
Matrix: Aqueous
Initial Vol: 1000ml
Final Vol: 1ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
106-46-7	1,4-Dichlorobenzene	2.0	U	108-95-2	Phenol	2.0	U
91-20-3	Naphthalene	2.0	U				

Worksheet #: 763238

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration usea
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS PCB REPORT

Sample Number: AD48186-002
Client Id: M1-Comp-11-15
Data File: 5G1109133.D
Analysis Date: 11/18/24 16:32
Date Rec/Extracted: 11/15/24-11/18/24
Column: DB-17/1701P 30M 0.32mm ID 0.25um film

Method: EPA 8082A
Matrix: Aqueous
Initial Vol: 1000ml
Final Vol: 5ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
12674-11-2	Aroclor-1016	0.25	U	12672-29-6	Aroclor-1248	0.25	U
11104-28-2	Aroclor-1221	0.25	U	11097-69-1	Aroclor-1254	0.25	U
11141-16-5	Aroclor-1232	0.25	U	11096-82-5	Aroclor-1260	0.25	U
53469-21-9	Aroclor-1242	0.25	U	1336-36-3	Aroclor (Total)	0.25	U

Worksheet #: 761781

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD48186-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-Comp-11-15	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	11/17/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-43-9	Cadmium	2.0	ND	1	50	100	11/20/24	116634	SW31530B	34	MSMS4_7800SWA	
7440-47-3	Chromium	2.0	ND	1	50	100	11/20/24	116634	SW31530B	34	MSMS4_7800SWA	
7440-50-8	Copper	10	12	1	50	100	11/20/24	116634	SW31530B	34	MSMS4_7800SWA	
7439-92-1	Lead	3.0	ND	1	50	100	11/20/24	116634	SW31530B	34	MSMS4_7800SWA	
7439-98-7	Molybdenum	2.0	ND	1	50	100	11/20/24	116634	SW31530B	34	MSMS4_7800SWA	
7440-02-0	Nickel	10	ND	1	50	100	11/20/24	116634	SW31530B	34	MSMS4_7800SWA	
7440-22-4	Silver	2.0	ND	1	50	100	11/22/24	116634	SW31536B	50	MSMS4_7800SWA	
7440-66-6	Zinc	40	ND	1	50	100	11/20/24	116634	SW31530B	34	MSMS4_7800SWA	

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD48186-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-Comp-11-15	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	11/17/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7439-97-6	Mercury	0.50	ND	1	25	25	11/26/24	116634	H31530SW	19	CV	HGCV3A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

VERITECH Wet Chem Form1 Analysis Summary

Lab#: AD48186-001
Matrix Aqueous
Client SampleID: M1-Comp(A-D)-2024-11-1
Project Number: 4111535
Received Date: 11/15/2024
Collect Date: 11/14/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
SGT-HEM (Non-Polar Material)	HEM-NPM	1	ND	mg/L	6.0	11/20/24	11/20/24
Total Suspended Solids @ 103-105	TSS-MUR	**1**	**28**	**mg/l**	**4.0**	11/18/24	11/19/24

Lab#: AD48186-002
Matrix Aqueous
Client SampleID: M1-Comp-11-15
Project Number: 4111535
Received Date: 11/15/2024
Collect Date: 11/15/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
Carbonaceous Bod, 5 Day	CBOD-5-MUR	**1**	**3.1**	**MG/L**	**1.0**	11/15/24	11/20/24
Chloride	CHLORIDE-ICW	**50**	**420**	**mg/L**	**100**	11/18/24	11/18/24
Nitrite	NO2-ICW	1	ND	mg/L	1.0	11/18/24	11/18/24
Nitrate	NO3-ICW	1	ND	mg/L	1.0	11/18/24	11/18/24

Lab#: AD48186-003
Matrix Aqueous
Client SampleID: M1-Comp-11-15 f
Project Number: 4111535
Received Date: 11/15/2024
Collect Date: 11/15/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
Cr (Hexavalent)	CR6-WATER	1.12	ND	mg/l	0.022	11/20/24	11/20/24

Chain of Custody Forms

4111535 0017

Hampton-Clarke, Inc. (WBE/DBE/SBE)

175 US Highway 46, STE D and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787
Service Center: 137-C Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056

Hampton-Clarke WBE/DBE/SBE 800-426-9992
A Women-Owned, Disadvantaged, Small Business Enterprise

NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | KY #90124 | DE HSCA Approved

CHAIN OF CUSTODY RECORD

Project# (Lab Use Only): 4111535

Page 1 of 1

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Data Deliv.
When Available:	Summary	NJ Hazsite
1 Business Day (100%) *	Results + QC (Waste)	Excel Reg. NJ / NY / PA
2 Business Days (75%) *	Reduced:	EnviroData
3 Business Days (50%) *	[ ] NJ [ ] NY	EQuIS:
4 Business Days (35%) *	[ ] PA [ ] Other___	[ ] 4-File [ ] EZ
5 Business Days (25%)	NJ Full / NJ ASP CatB	[ ] NYDEC
6 Business Days (Stand.)	NY ASP CatA	[ ] Region 2 or 5
Other:		Other:

* Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

1a) Customer: TRC Engineers Inc.
Address: 1407 Broadway, Suite 3301, New York, NY 10018
1b) Email/Cell/Fax/Ph: Ivan.gonzalez@trccompanies.com
1c) Send Invoice to: AP.invoice.approval@trccompanies.com
1d) Send Report to: Ivan.gonzalez@trccompanies.com

Project Information

2a) Project: Brookfield Landfill
2b) Project Mgr: Kirsten Myers
2c) Project Location (City/State): Staten Island, NY
2d) Quote/PO # (If Applicable): 194549

FOR LAB USE ONLY

Batch # AD48186

===> Check If Contingent ===>

Matrix Codes
DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis *(specify methods & parameter lists)*

<=== Check If Contingent <===

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	VOCs	Cyanide/Phenol	Cyanide Commercial	TSS	Non-color Natural	PCBs	SVOCs	Cadmium, chromium(VI), lead, mercury, molybdenum, silver, nickel, zinc, cobalt, TI, tin, vanadium	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
001	MI-A-2024-11-14	GW	11/14/24	10:20		X	X	X	X	X	X				1			2	S				
	MI-B-2024-11-14			11:10											1			2	S				
	MI-C-2024-11-14			12:20											1			2	S				
	MI-D-2024-11-14			13:20											1			2	S				
002	MI-comp-11-15 (EQ)	GW	11/14/24	10:00	X							+	+	+	6					1	1		
003	MI-comp-2024-11-15f (EQ)	GW	11/15/24	10:00	X									+	1					1	1		

10) Relinquished by:	Accepted by:	Date	Time
Ivan Gonzalez		11/15/24	11:40
		11/15/24	18:20

11) Sampler (print name): Ivan Gonzalez + Abigail Donnelley Date: 11/15/24

Additional Notes: Please composite MI-A through D into one sample with sample ID. "MI-comp(A-D)-2024-11-15.
Sample MI-comp-2024-11-15f was field filtered for heavy, per requirement.

Comments, Notes, Special Requirements, HAZARDS

Indicate if low-level methods required to meet current groundwater standards (SPLP for soil):
- [ ] BN or BNA (8270E SIM)
- [ ] VOC (8260D SIM or 8011)
- [ ] SPLP (BN, BNA, Metals)
- [ ] 1,4 Dioxane

For NJ LSRP projects, indicate which standards need to be met:
- [ ] NJDEP GWQS
- [ ] NJDEP SRS
- [ ] NJDEP SPLP
- [ ] Other (specify):

Check if applicable:
- [ ] Project-Specific Reporting Limits
- [ ] High Contaminant Concentrations
- [ ] NJ LSRP Project (also check boxes above/right)

Cooler Temperature: 2-3.1

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

Internal use: sampling plan (check box) HC [ ] or client [ ] FSP#

Sample Summary

Client: Hampton-Clarke Veritech
Project/Site: 4111535 9358

Job ID: 460-315837-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-315837-1	AD48186-001	Water	11/14/24 10:20	11/19/24 14:35
460-315837-2	AD48186-002	Water	11/15/24 10:00	11/19/24 14:35

Detection Summary

Client: Hampton-Clarke Veritech
Project/Site: 4111535 9358

Job ID: 460-315837-1

Client Sample ID: AD48186-001 — Lab Sample ID: 460-315837-1

No Detections.

Client Sample ID: AD48186-002 — Lab Sample ID: 460-315837-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Nitrogen, Kjeldahl	63.9		40.0	20.0	mg/L	200		351.2-1993 R2.0	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Hampton-Clarke Veritech
Project/Site: 4111535 9358

Job ID: 460-315837-1

Method	Method Description	Protocol	Laboratory
335.4	Cyanide, Total	EPA	EET EDI
351.2-1993 R2.0	Nitrogen, Total Nitrogen	MCAWW	EET SAV
4500-CN G-2016	Cyanide, Amenable	SM	EET EDI
Digestion	Digestion, Hot Block	EPA	EET SAV
Distill/CN	Distillation, Cyanide	None	EET EDI

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

EET SAV = Eurofins Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

Client Sample ID: AD48186-001
Lab Sample ID: 460-315837-1

Date Collected: 11/14/24 10:20
Matrix: Water
Date Received: 11/19/24 14:35

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA 335.4)	0.0040	U	0.010	0.0040	mg/L		11/26/24 18:49	11/26/24 22:09	1
Cyanide, Amenable (SM 4500-CN G-2016)	0.010	U	0.010	0.010	mg/L			11/27/24 05:52	1

Client Sample ID: AD48186-002
Lab Sample ID: 460-315837-2

Date Collected: 11/15/24 10:00
Matrix: Water
Date Received: 11/19/24 14:35

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl (MCAWW 351.2-1993 R2.0)	**63.9**		40.0	20.0	mg/L		11/25/24 11:13	11/26/24 18:42	200

1407 Broadway, Suite 3301
New York, NY 10018
t 212.221.7822

March 14, 2025

Frances Leung, P.E., Chief
Industrial Inspection and Permitting Section
Bureau of Wastewater Treatment
New York City Department of Environmental Protection
96-05 Horace Harding Expressway
Corona, NY 11368

RE: Q3 Industrial Wastewater Discharge Self-Monitoring Report
New York City Department of Parks and Recreation
Brookfield Landfill/Park
575 Arthur Kill Road, Staten Island, NY 10308
Permit No. 23-P3149-1
TRC Project No. 625454.0000

Dear Ms. Leung:

Enclosed, please find a revised version of the Q3 Industrial Wastewater Discharge Self-Monitoring Report (SMR) for the monitoring period of December 1, 2024, to February 28, 2025, for the New York City Department of Parks and Recreation (NYCDPR) Brookfield Avenue Landfill. The report contains SMR Forms with certifications, Daily Volume of Discharge, summary tables of M1 sample results, M1 laboratory data packages, and chain of custody forms. The results of the monthly sampling indicate there were no exceedances of any permit compound limits.

Please do not hesitate to contact me at (917) 794-3107 or via email at wlindemuth@trccompanies.com if you have any questions.

Sincerely,
TRC Engineers, Inc.

Wes D. Lindemuth, CHMM, CSP
Senior Project Manager

cc: K. Zias, R. Wilson, NYCDPR
K. Myers, R. Bowden , Z. Castillo, C. Winter, S. Kahn, A. Donnelly, TRC

Enclosure:

Q3 Industrial Wastewater Discharge Self-Monitoring Report

1□	★ □sta□is□□ent □nfor□ation ★			
□□	Na□e□Brookfield Avenue Landfill			
B□	□ddress□575 Arthur Kill Road, Staten Island, NY 10308			
□□	□ndustria□□ategory□			
D□	□onta□t Offi□ia□□ Wes Lindemuth		□□	□□one □□917-794-3107
□□	Reporting □eriod		□□	Date sa□p□ed
	Start □□□12/□□1□/□2□24	□nd □□□2/□2□□/□2□25	Start 12/□1□□/□24	□nd □2/□21□/□25

Note□f t□e on□y wastewater dis□□arges □y your esta□is□□ent into t□e pu□i□sewer syste□ are sanitary or non□ □onta□t □oo□ing water, do not address ite□s in □a□es 2, 3, 4, 5 and □□ n t□is □ase, □□e□□ere □ □and pro□eed dire□t□y to □a□e 7□

2□	★□□ow □nfor□ation ★	□verage	□ea□
□□	□ota□□□ant □□ow, ga□/day	2□1□1□□1	51,471.57
B□	Regu□ated □□ow, ga□/day	2□1□1□□1	51,471.57
□□	Met□od of □□ow Measure□ent□Flow meter (non-resettable) on the discharge line to the on-Site sanitary manhole.		
The volume□□□□ □□□r discharged is monitored daily.			

3□	★ Sa□p□e □o□e□tion □nfor□ation ★
□□	Sa□p□ing □o□ation□Prior to the gravity discharge from the oil/water seperator into the on-Site sanitary sewer system,
a sample port installed on the effluent end of the discharge piping collects samples.	
B□	Sa□p□ing □ro□edures□Samples are collected in accordance with 40 DFR, 403.12(g)(3) which states that grab samples
must be used for pH, cyanide, total phenols, oil & grease, sulfide and VOCs.	
For all other pollutants, 24-hours composite samples are obtained through time-proportional composite sampling techniques.	
□□	□reservatives □sed□HCl, H2SO4, NaOH, HNO3

4□	□□is esta□is□□ent's wastewater dis□□arge DO□S □□/ DO□S NO□ □x□e□□eed nationwide □ategori□a□ standard □s□or 15 R□NY 1□04 □a□□

5□	★ □rodu□tion Rate ★
□f app□i□a□□e, provide produ□tion rate□	Not Applicable

□□	★ p□ Monitoring ★											
□□our Sa□p□es □er Day □One □our □part □On□e a Mont□□												
□□	Date	12 / 18 /24		01 / 16 /25		02 / 2□/ 25		/ /		/ /		/ /	
B□	□i□e/p□	1□3□□□6□□2□□□		1□2□□□6□66□□□		1□4□□□3□□□							
		11□3□□□6□□1□□□		11□2□□□6□□4□□□		11□4□□□5□□□							
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7□	★ □□□□RDO□S □ □S□□S □□N□R□□□ON ★
□□is esta□is□□ent D□D □ □/ D□D NO□ □X □generate any □a□ardous wastes, during t□is reporting period□ □f □a□ardous wastes were generated,	
□□	□ype of □ aste□
B□	□□ount □enerated □in □i□ogra□s□□
□□	Met□od of Disposa□□

8□	★ □□R□□□□□□□ON ★
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	□□ere□y □ertify, t□at during t□is reporting period, t□is fa□i□ity □as not dis□□arged any industria□ wastewater, □□e□i□a□s, □□eaners or i□e su□stan□es generated fro□ or in re□ation to any of t□is esta□is□□ent's operations ot□er t□an sanitary or non□□onta□t □oo□ing water□ □understand t□at □□ust o□tain prior written approva□fro□ t□e □ndustria□ □nspe□tions and □er□itting Se□tion □efore □□an dis□□arge any su□□ wastewater□ □a□ aware t□at t□ere are signifi□ant □ivi□and □ri□ina□san□tions for su□□itting fa□se infor□ation□
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Wes Lindemuth — Wes Lindemuth

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Senior Project Manager | 3/14/2025 | 917-794-3107

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□□ "Based upon □y in□uiry of t□e person or persons dire□t□y responsi□□e for □anaging environ□enta□affairs at □y fa□i□ity, □□ertify t□at, to t□e □est of □y □now□edge and □e□ief, t□ere was no dis□□arge to a pu□i□ sewer of to□i□organi□s during t□e reporting period □overed □y t□is report□ □a□so □ertify t□at t□e e□p□anations provided □on□erning t□e disposa□of to□i□organi□s fro□ t□e fa□i□ity are true, a□□urate and □o□p□ete□□furt□er □ertify t□at t□is fa□i□ity is i□p□e□enting a to□i□organi□s □anage□ent p□an to prote□t against t□e re□ease of su□□ □o□pounds to a pu□i□ sewer□ □□ertify t□at □a□ du□y aut□ori□ed □y t□e esta□is□□ent to □a□e t□is state□ent on its □e□a□f, and a□ fu□□y aware t□at t□ere are signifi□ant □ivi□and □ri□ina□san□tions for su□□itting fa□se infor□ation, in□uding t□e possi□i□ity of a fine and/or i□prison□ent"

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□□ere□y □ertify, under pena□ty of □aw, t□at □□ave persona□□y e□a□ined and a□ fa□i□iar wit□ t□e infor□ation □ontained in t□is report and a□□atta□□□ents t□erein□ □urt□er□ore, □ased on □y in□uiry of t□ose persons i□□ediate□y responsi□□e for o□taining t□e infor□ation □ontained in t□is report, □□e□ieve t□at t□e infor□ation is true, a□□urate and □o□p□ete□ □a□ aware t□at t□ere are signifi□ant pena□ties for su□□itting fa□se infor□ation, in□uding t□e possi□i□ity of fine and i□prison□ent□□furt□er □ertify t□at t□e reported sa□p□ing resu□ts are representative of t□e fa□i□ity's nor□a□wor□□y□es and e□pe□ted po□□utant dis□□arges□

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Senior Project Manager | 3/14/2025 | 917-794-3107

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Na□e □print□ Wes Lindemuth Signature Wes Lindemuth

□it□e Senior Project Manager Date 3/14/25 □□one Nu□□er 917-794-3107

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□f □ertifi□ation □□a□ove□is signed and su□□itted, e□p□anations □on□erning t□e disposa□of □yanide□□earing waste fro□ t□e fa□i□ity s□a□□□e provided□

□□	★ D□S□R□□□ON O□ O□□R□□ON ★
Site is a former landfill which is now operated as public □ark. The discharge is comprised of landfill leachate which is allowed to pass through an oil-water separator prior to discharge.	

10□	★ □□□□□□M□N□S ★	Yes	No	N/□
□□	□□a□oratory ana□yses □ust □e □ondu□ted □y a New Yor□ State □ea t□ Depart□ent □ertified wastewater a□oratory□□□e resu□ts □ust □e □ertified □y t□e a□oratory and su□□itted on t□e a□oratory's □etter□ead□□or ea□□sa□p□e, t□e a□oratory report □ust indi□ate t□e date of sa□p□ing, ti□e sa□p□e was ta□en, sa□p□e lo□ation, sa□p□ing preservation pro□edures, ana□yti□a□te□□ni□ues used, date of ana□ysis, units of □easure□ent, and t□e a□oratory's sa□p□e identifi□ation□w□ere t□e ana□yti□a□resu□t reported is □e□ow t□e □et□od dete□tion □eve□, t□e a□oratory report □ust a□so indi□ate t□e □et□od dete□tion □eve□□	X		
B□	□□ain of □ustody for a□□sa□p□es□	X		
□□	□□p□anation of non□□o□p□ian□e and w□at wi□□□e done to re□tify it□ □ □o□p□ian□e s□□edu□e is to □e in□uded□			X
D□	□□ount of spent so□vents generated and □et□od of disposa□□□□p□anation of □ero dis□□arges to □e in□uded□			X
□□	Des□ription of any □a□or □odifi□ations or □a□fun□tions in □anufa□turing or pretreat□ent operations□			X
□□	□a□ardous wastes □anifests□			X

DAILY VOLUME OF DISCHARGE

BROOKFIELD LANDFILL LEACHATE SYSTEM
EFFLUENT FLOW METER REPORT

NYC Parks

Date/Time	FLOW GPM *Instantaneous	FLOW TOTAL DAILY GAL *Resets at Midnight	FLOW TOTAL RUNNING GAL *Resets at 100 Million Gallons
12/1/24 23:50	10.52	15143.50	28663703.00
12/2/24 23:50	10.52	15143.50	28678846.50
12/3/24 23:50	10.52	15143.50	28693990.00
12/4/24 23:50	10.52	15143.50	28709133.50
12/5/24 23:50	10.52	15143.50	28724277.00
12/6/24 23:50	10.52	15143.50	28739420.50
12/7/24 23:50	10.52	15143.50	28754564.00
12/8/24 23:50	10.52	15143.50	28769707.50
12/9/24 23:50	15.69	22591.00	28792298.50
12/10/24 23:50	15.69	22591.00	28814889.50
12/11/24 23:50	15.69	22591.00	28837480.50
12/12/24 23:50	15.69	22591.00	28860071.50
12/13/24 23:50	15.69	22591.00	28882662.50
12/14/24 23:50	15.69	22591.00	28905253.50
12/15/24 23:50	22.10	31828.00	28905253.50
12/16/24 23:50	22.10	31828.00	28905253.50
12/17/24 23:50	22.10	31828.00	28905253.50
12/18/24 23:50	22.10	31828.00	28905253.50
12/19/24 23:50	18.66	26877.14	28932130.64
12/20/24 23:50	18.66	26877.14	28959007.79
12/21/24 23:50	18.66	26877.14	28985884.93
12/22/24 23:50	18.66	26877.14	29012762.07
12/23/24 23:50	18.66	26877.14	29039639.21
12/24/24 23:50	18.66	26877.14	29066516.36
12/25/24 23:50	18.66	26877.14	29093393.50
12/26/24 23:50	20.87	30048.00	29123441.50
12/27/24 23:50	20.87	30048.00	29153489.50
12/28/24 23:50	20.87	30048.00	29183537.50
12/29/24 23:50	20.87	30048.00	29213585.50
12/30/24 23:50	20.87	30048.00	29243633.50
12/31/24 23:50	20.87	30048.00	29273681.50
1/1/25 23:50	20.87	30048.00	29303729.50
1/2/25 23:50	20.87	30048.00	29333777.50
1/3/25 23:50	20.66	29745.56	29363523.06
1/4/25 23:50	20.66	29745.56	29393268.61
1/5/25 23:50	20.66	29745.56	29423014.17
1/6/25 23:50	20.66	29745.56	29452759.72
1/7/25 23:50	20.66	29745.56	29482505.28
1/8/25 23:50	20.66	29745.56	29512250.83
1/9/25 23:50	20.66	29745.56	29541996.39
1/10/25 23:50	20.66	29745.56	29571741.94
1/11/25 23:50	20.66	29745.56	29601487.50
1/12/25 23:50	12.03	17322.50	29618810.00
1/13/25 23:50	12.03	17322.50	29636132.50
1/14/25 23:50	12.03	17322.50	29653455.00
1/15/25 23:50	12.03	17322.50	29670777.50
1/16/25 23:50	12.03	17322.50	29688100.00
1/17/25 23:50	12.03	17322.50	29705422.50
1/18/25 23:50	12.03	17322.50	29722745.00
1/19/25 23:50	12.03	17322.50	29740067.50
1/20/25 23:50	20.25	29155.14	29769222.64
1/21/25 23:50	20.25	29155.14	29798377.79
1/22/25 23:50	20.25	29155.14	29827532.93
1/23/25 23:50	20.25	29155.14	29856688.07
1/24/25 23:50	20.25	29155.14	29885843.21
1/25/25 23:50	20.25	29155.14	29914998.36
1/26/25 23:50	20.25	29155.14	29944153.50
1/27/25 23:50	17.64	25400.00	29969553.50
1/28/25 23:50	17.64	25400.00	29994953.50
1/29/25 23:50	17.64	25400.00	30020353.50
1/30/25 23:50	17.64	25400.00	30045753.50

BROOKFIELD LANDFILL LEACHATE SYSTEM
EFFLUENT FLOW METER REPORT

NYC Parks

Date/Time	FLOW GPM *Instantaneous	FLOW TOTAL DAILY GAL *Resets at Midnight	FLOW TOTAL RUNNING GAL *Resets at 100 Million Gallons
1/31/25 23:50	17.64	25400.00	30071153.50
2/1/25 23:50	17.64	25400.00	30096553.50
2/2/25 23:50	17.64	25400.00	30121953.50
2/3/25 23:50	10.46	15062.00	30137015.50
2/4/25 23:50	10.46	15062.00	30152077.50
2/5/25 23:50	10.46	15062.00	30167139.50
2/6/25 23:50	10.46	15062.00	30182201.50
2/7/25 23:50	10.46	15062.00	30197263.50
2/8/25 23:50	10.46	15062.00	30212325.50
2/9/25 23:50	10.46	15062.00	30227387.50
2/10/25 23:50	35.74	51470.57	30278858.07
2/11/25 23:50	35.74	51470.57	30330328.64
2/12/25 23:50	35.74	51470.57	30381799.21
2/13/25 23:50	35.74	51470.57	30433269.79
2/14/25 23:50	35.74	51470.57	30484740.36
2/15/25 23:50	35.74	51470.57	30536210.93
2/16/25 23:50	35.74	51470.57	30587681.50
2/17/25 23:50	35.06	50486.50	30638168.00
2/18/25 23:50	35.06	50486.50	30688654.50
2/19/25 23:50	35.06	50486.50	30739141.00
2/20/25 23:50	35.06	50486.50	30789627.50
2/21/25 23:50	31.15	44860.33	30834487.83
2/22/25 23:50	31.15	44860.33	30879348.17
2/23/25 23:50	31.15	44860.33	30924208.50
2/24/25 23:50	31.15	44860.33	30969068.83
2/25/25 23:50	31.15	44860.33	31013929.17
2/26/25 23:50	31.15	44860.33	31058789.50
2/27/25 23:50	31.15	44860.33	31103649.83
2/28/25 23:50	31.15	44860.33	31148510.17

The 2025 Q3 SMR, 'FLOW TOTAL RUNNING GAL', 'FLOW GPM', and 'FLOW TOTAL DAILY FAL' values were calculated estimations using recorded totalizer values from on-site weekly inspections.

LAB DATA SUMMARY

Table 1
New York City Parks and Recreation
Brookfield Avenue Landfill
Self Monitoring Report Results for Industrial Wastewater Discharge Permit No: 23-P3149-1
December 2024

Sample ID	Sewer Use Limits (15 R.C.N.Y. ch. 19)	M1-COMP-12-19-2024		M1-COMP-(A-D)-12-18-2024		M1-A-12-18-2024	M1-B-12-18-2024	M1-C-12-18-2024	M1-D-12-18-2024
Lab ID		AD48830-002		AD48830-001					
Date		12/19/2024		12/18/2024		12/18/2024	12/18/2024	12/18/2024	12/18/2024
Volatile Organics (ppb)									
1,1,1 -Trichloroethane	NS			1.0	U				
1,2,4-Trichlorobenzene	NS			1.0	U				
Benzene	Daily Limit: 134 Monthly Limit: 57			0.50	U				
Carbon Tetrachloride	NS			1.0	U				
Chloroform	NS			5.0	U				
Ethylbenzene	Daily Limit: 380 Monthly Limit: 142			1.0	U				
Methyl-Tert-Butyl-Ether (MTBE)	50			0.53	U				
Tetrachloroethene (Perc)	20			1.0	U				
Toluene	Daily Limit: 74 Monthly Limit: 28			1.0	U				
Xylenes (Total)	Daily Limit: 74 Monthly Limit: 28			1.0	U				
Semi-Volatile Organics (ppb)									
Naphthalene	Daily Limit: 47 Monthly Limit: 19	2.0	U						
1,4-Dichlorobenzene	NS	2.0	U						
Phenol	NS	2.0	U						
Pesticides/ PBCs (ppb)	1.0 (Total PCBs, 7 PCB compounds)								
Aroclor-1016		0.25	U						
Aroclor-1242		0.25	U						
Aroclor-1254		0.25	U						
Aroclor-1221		0.25	U						
Aroclor-1232		0.25	U						
Aroclor-1248		0.25	U						
Aroclor-1260		0.25	U						
Metals (ppm)									
Cadmium	2	0.0020	U						
Chromium (Total)	5	0.0020	U						
Chromium (Hexavalent)	5	0.0020	U						
Copper	5	0.010	U						
Lead	2	0.0030	U						
Mercury	0.05	0.00050	U						
Molybdenum	NS	0.0020	U						
Nickel	3	0.010	U						
Silver	NS	0.0020	U						
Zinc	5	0.040	U						
General Chemistry Analysis									
Carbonaceous Biochemical Oxygen Demand (CBOD) (mg/L)	NS	4.6							
Total Nitrogen (mg/L)	NS	2.0	U						
Chloride (mg/L)	NS	350							
Cyanide (Total) (mg/L)	0.2			0.0040	U				
Cyanide (Amenable to Chlorination) (mg/L)	0.2			0.010	U				
Total Suspended Solids (TSS) (mg/L)	350			27.0					
Non-Polar Material (Oil and Grease 1664-A HEM) (mg/L)	50			5.2	U				
pH	5.0-12.0 Standard Units					6.72	6.81	6.81	6.82
TKN (mg/L)	NS	28.7							
Temperature	Deg. C (< 65.5)					11.98	13.36	14.34	14.85

Notes:

< = Less than

(Blank) = Parameter not required for analysis

Bold = Above Daily Limit

mg/L =Miligrams Per Liter

NS = No Standard

PCB = Polychlorinated Biphenyls

PPB = Parts Per Billion

Sewer Use Limits are presented in Chapter 19 of Title 15 of the NYC Guidance Document titled "Rules of the City of New York" (March 1, 2025)

TKN = Total Kjeldahl Nitrogen

U = Not Detected

Table 1
New York City Parks and Recreation
Brookfield Avenue Landfill
Self Monitoring Report Results for Industrial Wastewater Discharge Permit No: 23-P3149-1
January 2025

Sample ID	Sewer Use Limits (15 R.C.N.Y. ch. 19)	M1-COMP-01-17-2025		M1-COMP(A-D)-01-16-2025		M1-A-01-16-2025	M1-B-01-16-2025	M1-C-01-16-2025	M1-D-01-16-2025
Lab ID		AD49249-002		AD49249-001					
Date		1/17/2025		1/16/2025		1/16/2025	1/16/2025	1/16/2025	1/16/2025
Volatile Organics (ppb)									
1,1,1 -Trichloroethane	NS			1.0	U				
1,2,4-Trichlorobenzene	NS			1.0	U				
Benzene	Daily Limit: 134 Monthly Limit: 57			0.50	U				
Carbon Tetrachloride	NS			1.0	U				
Chloroform	NS			5.0	U				
Ethylbenzene	Daily Limit: 380 Monthly Limit: 142			1.0	U				
Methyl-Tert-Butyl-Ether (MTBE)	50			0.53	U				
Tetrachloroethene (Perc)	20			1.0	U				
Toluene	Daily Limit: 74 Monthly Limit: 28			1.0	U				
Xylenes (Total)	Daily Limit: 74 Monthly Limit: 28			1.0	U				
Semi-Volatile Organics (ppb)									
Naphthalene	Daily Limit: 47 Monthly Limit: 19	2.0	U						
1,4-Dichlorobenzene	NS	2.0	U						
Phenol	NS	2.0	U						
Pesticides/ PBCs (ppb)	1.0 (Total PCBs, 7 PCB compounds)								
Aroclor-1016		0.25	U						
Aroclor-1242		0.25	U						
Aroclor-1254		0.25	U						
Aroclor-1221		0.25	U						
Aroclor-1232		0.25	U						
Aroclor-1248		0.25	U						
Aroclor-1260		0.25	U						
Metals (ppm)									
Cadmium	2	0.0020	U						
Chromium (Total)	5	0.0028							
Chromium (Hexavalent)	5	0.0024	U						
Copper	5	0.010	U						
Lead	2	0.0030	U						
Mercury	0.05	0.00050	U						
Molybdenum	NS	0.0020	U						
Nickel	3	0.010	U						
Silver	NS	0.0020	U						
Zinc	5	0.040	U						
General Chemistry Analysis									
Carbonaceous Biochemical Oxygen Demand (CBOD) (mg/L)	NS	7.0							
Total Nitrogen (mg/L)	NS	2.0	U						
Chloride (mg/L)	NS	410							
Cyanide (Total) (mg/L)	0.2			0.0040	U				
Cyanide (Amenable to Chlorination) (mg/L)	0.2			0.010	U				
Total Suspended Solids (TSS) (mg/L)	350			26.0					
Non-Polar Material (Oil and Grease 1664-A HEM) (mg/L)	50			5.0	U				
pH	5.0-12.0 Standard Units					6.66	6.74	6.78	6.72
TKN (mg/L)	NS	33.9							
Temperature	Deg. C (< 65.5)					10.64	10.81	10.30	10.38

Notes:

< = Less than

(Blank) = Parameter not required for analysis

Bold = Above Daily Limit

mg/L =Miligrams Per Liter

NS = No Standard

PCB = Polychlorinated Biphenyls

PPB = Parts Per Billion

Sewer Use Limits are presented in Chapter 19 of Title 15 of the NYC Guidance Document titled "Rules of the City of New York" (March 1, 2025)

TKN = Total Kjeldahl Nitrogen

U = Not Detected

Table 1
New York City Parks and Recreation
Brookfield Avenue Landfill
Self Monitoring Report Results for Industrial Wastewater Discharge Permit No: 23-P3149-1
February 2025

Sample ID	Sewer Use Limits (15 R.C.N.Y. ch. 19)	M1-COMP-02-21-2025		M1-COMP(A-D)-02-20-2025		M1-A-02-20-2025	M1-B-02-20-2025	M1-C-02-20-2025	M1-D-02-20-2025
Lab ID		AD49883-002		AD49883-001					
Date		2/21/2025		2/20/2025		2/20/2025	2/20/2025	2/20/2025	2/20/2025
Volatile Organics (ppb)									
1,1,1 -Trichloroethane	NS			1.0	U				
1,2,4-Trichlorobenzene	NS			1.0	U				
Benzene	Daily Limit: 134 Monthly Limit: 57			0.50	U				
Carbon Tetrachloride	NS			1.0	U				
Chloroform	NS			5.0	U				
Ethylbenzene	Daily Limit: 380 Monthly Limit: 142			1.0	U				
Methyl-Tert-Butyl-Ether (MTBE)	50			0.53	U				
Tetrachloroethene (Perc)	20			1.0	U				
Toluene	Daily Limit: 74 Monthly Limit: 28			1.0	U				
Xylenes (Total)	Daily Limit: 74 Monthly Limit: 28			1.0	U				
Semi-Volatile Organics (ppb)									
Naphthalene	Daily Limit: 47 Monthly Limit: 19	2.0	U						
1,4-Dichlorobenzene	NS	2.0	U						
Phenol	NS	2.0	U						
Pesticides/ PBCs (ppb)	1.0 (Total PCBs, 7 PCB compounds)								
Aroclor-1016		0.14	U						
Aroclor-1242		0.14	U						
Aroclor-1254		0.14	U						
Aroclor-1221		0.14	U						
Aroclor-1232		0.14	U						
Aroclor-1248		0.14	U						
Aroclor-1260		0.14	U						
Metals (ppm)									
Cadmium	2	0.00080	U						
Chromium (Total)	5	0.010	U						
Chromium (Hexavalent)	5	0.024	U						
Copper	5	0.020	U						
Lead	2	0.0030	U						
Mercury	0.05	0.00050	U						
Molybdenum	NS	0.0020	U						
Nickel	3	0.010	U						
Silver	NS	0.0020	U						
Zinc	5	0.040	U						
General Chemistry Analysis									
Carbonaceous Biochemical Oxygen Demand (CBOD) (mg/L)	NS	1.8							
Total Nitrogen (mg/L)	NS	2.0	U						
Chloride (mg/L)	NS	190							
Cyanide (Total) (mg/L)	0.2			0.0040	U				
Cyanide (Amenable to Chlorination) (mg/L)	0.2			0.010	U				
Total Suspended Solids (TSS) (mg/L)	350			32					
Non-Polar Material (Oil and Grease 1664-A HEM) (mg/L)	50			5.0	U				
pH	5.0-12.0 Standard Units					3.79	5.77	7.28	7.04
TKN (mg/L)	NS	38.7							
Temperature	Deg. C (< 65.5)					9.24	8.55	8.22	8.44

Notes:

1 ppb = 1 µg/L

1 ppm = 1 mg/L

1 ppm = 1,000 µg/L

< = Less than

(Blank) = Parameter not required for analysis

Bold = Above Daily Limit

mg/L =Miligrams Per Liter

NS = No Standard

PCB = Polychlorinated Biphenyls

PPB = Parts Per Billion

PPM = Parts Per Million

Sewer Use Limits are presented in Chapter 19 of Title 15 of the NYC Guidance Document titled "Rules of the City of New York"

TKN = Total Kjeldahl Nitrogen

U = Not Detected

LABORATORY REPORTS

HC Report of Analysis

Client: TRC Engineering
Project: Brookfield Landfill

HC Project #: 4121936

Sample ID: M1-Comp(A-D)-12-18-24
Lab#: AD48830-001
Matrix: Aqueous

Collection Date: 12/18/2024
Receipt Date: 12/19/2024

Cyanide (Amenable) SM22 4500-CN-E/G

Analyte	DF	Units	MDL	RL	Result
Cyanide	**1**	**mg/l**	**0.010**	0.010	**0.010**

Cyanide (Potable) EPA 335.4

Analyte	DF	Units	MDL	RL	Result
Cyanide	**1**	**mg/l**	**0.0040**	0.010	**0.0040**

SGT-HEM (Non-Polar Material) 1664B

Analyte	DF	Units	RL	Result
SGT-HEM (Non-Polar Material)	1	mg/l	5.2	ND

Total Suspended Solids (SM2540D-15)

Analyte	DF	Units	RL	Result
Total Suspended Solids @ 103-105 C	**1**	**mg/l**	**4.0**	**27**

Volatile Organics (no search) 8260

Analyte	DF	Units	RL	Result
1,1,1-Trichloroethane	1	ug/l	1.0	ND
1,2,4-Trichlorobenzene	1	ug/l	1.0	ND
Benzene	1	ug/l	0.50	ND
Carbon tetrachloride	1	ug/l	1.0	ND
Chloroform	1	ug/l	5.0	ND
Ethylbenzene	1	ug/l	1.0	ND
m&p-Xylenes	1	ug/l	1.0	ND
Methyl-t-butyl ether	1	ug/l	0.53	ND
o-Xylene	1	ug/l	1.0	ND
Tetrachloroethene	1	ug/l	1.0	ND
Toluene	1	ug/l	1.0	ND
Xylenes (Total)	1	ug/l	1.0	ND

Sample ID: M1-Comp-12-19-24
Lab#: AD48830-002
Matrix: Aqueous
Collection Date: 12/19/2024
Receipt Date: 12/19/2024

Carbonaceous BOD-5 Day (SM5210 B-16)

Analyte	DF	Units	RL	Result
Carbonaceous Bod, 5 Day	**1**	**mg/l**	**1.0**	**4.6**

Chloride (Water) 300.0

Analyte	DF	Units	RL	Result
Chloride	**50**	**mg/l**	**100**	**350**

Mercury (Water) 7470A

Analyte	DF	Units	RL	Result
Mercury	1	ug/l	0.50	ND

Nitrate-N (Water) 300.0

Analyte	DF	Units	RL	Result
Nitrate	1	mg/l	1.0	ND

Nitrite-N (Aqueous) 300.0

Analyte	DF	Units	RL	Result
Nitrite	1	mg/l	1.0	ND

PCB 8082

Analyte	DF	Units	RL	Result
Aroclor (Total)	1	ug/l	0.25	ND
Aroclor-1016	1	ug/l	0.25	ND
Aroclor-1221	1	ug/l	0.25	ND
Aroclor-1232	1	ug/l	0.25	ND
Aroclor-1242	1	ug/l	0.25	ND
Aroclor-1248	1	ug/l	0.25	ND
Aroclor-1254	1	ug/l	0.25	ND
Aroclor-1260	1	ug/l	0.25	ND

Semivolatile Organics (no search) 8270

Analyte	DF	Units	RL	Result
1,4-Dichlorobenzene	1	ug/l	2.0	ND
Naphthalene	1	ug/l	2.0	ND
Phenol	1	ug/l	2.0	ND

TAL Metals 6020B

Analyte	DF	Units	RL	Result
Cadmium	1	ug/l	2.0	ND
Chromium	1	ug/l	2.0	ND
Copper	1	ug/l	10	ND
Lead	1	ug/l	3.0	ND
Molybdenum	1	ug/l	2.0	ND
Nickel	1	ug/l	10	ND
Silver	1	ug/l	2.0	ND
Zinc	1	ug/l	40	ND

Total Kjeldahl Nitrogen EPA 351

Analyte	DF	Units	MDL	RL	Result
Total Kjeldahl Nitrogen	**10**	**mg/l**	**7.5**	15.0	**28.7**

Form1

ORGANICS VOLATILE REPORT

Sample Number: AD48830-001
Client Id: M1-Comp(A-D)-12-18-24
Data File: 8M5697382.D
Analysis Date: 12/23/24 12:08
Date Rec/Extracted: 12/19/24-NA
Column: DB-624 25M 0.200mm ID 1.12um film

Method: EPA 8260D
Matrix: Aqueous
Initial Vol: 5ml
Final Vol: NA
Dilution: 1.00
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
71-55-6	1,1,1-Trichloroethane	1.0	U	79601-23-1	m&p-Xylenes	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1634-04-4	Methyl-t-butyl ether	0.53	U
71-43-2	Benzene	0.50	U	95-47-6	o-Xylene	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U	127-18-4	Tetrachloroethene	1.0	U
67-66-3	Chloroform	5.0	U	108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U	1330-20-7	Xylenes (Total)	1.0	U

Worksheet #: 767438

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used

Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AD48830-002
Client Id: M1-Comp-12-19-24
Data File: 7M140598.D
Analysis Date: 12/24/24 17:49
Date Rec/Extracted: 12/19/24-12/24/24
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270E
Matrix: Aqueous
Initial Vol: 1000ml
Final Vol: 1ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
106-46-7	1,4-Dichlorobenzene	2.0	U	108-95-2	Phenol	2.0	U
91-20-3	Naphthalene	2.0	U				

Worksheet #: 767478

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS PCB REPORT

Sample Number: AD48830-002
Client Id: M1-Comp-12-19-24
Data File: 2G198835.D
Analysis Date: 12/27/24 11:11
Date Rec/Extracted: 12/19/24-12/24/24
Column: DB-17/1701P 30M 0.32mm ID 0.25um film

Method: EPA 8082A
Matrix: Aqueous
Initial Vol: 1000ml
Final Vol: 5ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
12674-11-2	Aroclor-1016	0.25	U	12672-29-6	Aroclor-1248	0.25	U
11104-28-2	Aroclor-1221	0.25	U	11097-69-1	Aroclor-1254	0.25	U
11141-16-5	Aroclor-1232	0.25	U	11096-82-5	Aroclor-1260	0.25	U
53469-21-9	Aroclor-1242	0.25	U	1336-36-3	Aroclor (Total)	0.25	U

Worksheet #: 766949

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD48830-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-Comp-12-19-24	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	12/20/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-43-9	Cadmium	2.0	ND	1	50	100	12/23/24	116743	SW31635A	51	MSMS4_7800SWA	
7440-47-3	Chromium	2.0	ND	1	50	100	12/24/24	116743	SW31635C	39	MSMS4_7800SWA	
7440-50-8	Copper	10	ND	1	50	100	12/23/24	116743	SW31635A	51	MSMS4_7800SWA	
7439-92-1	Lead	3.0	ND	1	50	100	12/23/24	116743	SW31635A	51	MSMS4_7800SWA	
7439-98-7	Molybdenum	2.0	ND	1	50	100	12/23/24	116743	SW31635A	51	MSMS4_7800SWA	
7440-02-0	Nickel	10	ND	1	50	100	12/23/24	116743	SW31635A	51	MSMS4_7800SWA	
7440-22-4	Silver	2.0	ND	1	50	100	12/23/24	116743	SW31635A	51	MSMS4_7800SWA	
7440-66-6	Zinc	40	ND	1	50	100	12/24/24	116743	SW31635C	39	MSMS4_7800SWA	

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD48830-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-Comp-12-19-24	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	12/20/2024	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7439-97-6	Mercury	0.50	ND	1	25	25	12/26/24	116743	H31635SW	29	CV	HGCV4A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

VERITECH Wet Chem Form1 Analysis Summary

Lab#: AD48830-001
Matrix Aqueous
Client SampleID: M1-Comp(A-D)-12-18-24

Project Number: 4121936
Received Date: 12/19/2024
Collect Date: 12/18/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
SGT-HEM (Non-Polar Material)	HEM-NPM	1	ND	MG/L	5.2	12/26/24	12/26/24
Total Suspended Solids @ 103-105	TSS-MUR	1	27	mg/l	4.0	12/24/24	12/24/24

Lab#: AD48830-002
Matrix Aqueous
Client SampleID: M1-Comp-12-19-24

Project Number: 4121936
Received Date: 12/19/2024
Collect Date: 12/19/2024

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
Carbonaceous Bod, 5 Day	CBOD-5-MUR	1	4.6	MG/L	1.0	12/19/24	12/24/24
Chloride	CHLORIDE-ICW	50	350	mg/L	100	12/20/24	12/20/24
Nitrite	NO2-ICW	1	ND	mg/L	1.0	12/20/24	12/20/24
Nitrate	NO3-ICW	1	ND	mg/L	1.0	12/20/24	12/20/24

Chain of Custody Forms

4121936 00016

Hampton-Clarke, Inc. (WBE/DBE/SBE)

175 US Highway 46, STE D and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787
Service Center: 137-C Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056

Hampton-Clarke WBE/DBE/SBE 800-426-9992
A Women-Owned, Disadvantaged, Small Business Enterprise

NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | KY #90124 | DE HSCA Approved

CHAIN OF CUSTODY RECORD

Project# (Lab Use Only): 4121936

Page _____ of _____

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Data Deliv.
When Available:	Summary	NJ Hazsite
1 Business Day (100%) *	Results + QC (Waste)	Excel Reg. NJ / NY / PA
2 Business Days (75%) *	Reduced:	EnviroData
3 Business Days (50%) *	[ ] NJ [ ] NY	EQuIS:
4 Business Days (35%) *	[ ] PA [ ] Other___	[ ] 4-File [ ] EZ
5 Business Days (25%)	NJ Full / NY ASP CatB	[ ] NYDEC
6 Business Days (Stand)	NY ASP CatA	[ ] Region 2 or 5
Other: _____		Other: _____

* Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

1a) Customer: TRC Engineers Inc.
Address: 1407 Broadway, suite 3301, New York, NY 10018
1b) Email/Cell/Fax/Ph: Ivan, gonzalez@trcompanies.com
1c) Send Invoice to: AP invoice approval@trcompanies.com
1d) Send Report to: Ivan.Gonzalez@trcompanies.com

Project Information

2a) Project: Brookfield Avenue Landfill
2b) Project Mgr: MES Lindemann
2c) Project Location (City/State): Staten Island, New York
2d) Quote/PO # (If Applicable): 225319

FOR LAB USE ONLY ↓

Batch # AD48830

===> Check If Contingent ===>

<=== Check If Contingent <===

Matrix Codes
DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	7) Analysis: VOCs	Cyanide (amenable)	Cyanide (total)	TSS	Mercury	PCB / SVOCs	Cadmium, chromium (hexavalent), chromium (total), lead, nickel, silver	Methylene blue	Nickel, zinc	COD	TKN, total nitrogen, Chloride	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
001	MI-A-12-18-24	GW	12/18/24	10:30		X	X	X	X									1			2	S				
	MI-B-12-18-24			11:30														1			2	S				
	MI-C-12-18-24			12:30														1			2	S				
	MI-D-12-18-24			13:30														1			2	S				
002	MI-COMP-12-19-24	GW	12/19/24	07:45	X						X	X	X	X	X			1					2	2		

10) Relinquished by:	Accepted by:	Date	Time
		12/19	10:55
		12/19/24	5:35

11) Sampler (print name): Ivan Gonzalez + Abigail Donnelley Date: 12/19/24

Additional Notes: Samples MI-A through D, please composite into one sample w/ name ~~MI-A~~ MI-COMP-A-D-12-18-24.
Sample MI-COMP-12-19-24 field filtered per requirement.

Comments, Notes, Special Requirements, HAZARDS

Indicate if low-level methods required to meet current groundwater standards (SPLP for soil):
- [ ] BN or BNA (8270E SIM)
- [ ] VOC (8260D SIM or 8011)
- [ ] SPLP (BN, BNA, Metals)
- [ ] 1,4 Dioxane

For NJ LSRP projects, indicate which standards need to be met:
- [ ] NJDEP GWQS
- [ ] NJDEP SRS
- [ ] NJDEP SPLP
- [ ] Other (specify):

Check if applicable:
- [ ] Project-Specific Reporting Limits
- [ ] High Contaminant Concentrations
- [ ] NJ LSRP Project (also check boxes above/right)

Cooler Temperature: 3.0 2.1

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

Internal use: sampling plan (check box) HC [ ] or client [ ] FSP#

Sample Summary

Client: Hampton-Clarke Veritech
Project/Site: 4121936 9408

Job ID: 460-317929-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-317929-1	AD48830-001 M1-Comp(A-D)-12-18-24	Water	12/18/24 10:30	12/23/24 12:15
460-317929-2	AD48830-002 M1-Comp-12-19-24	Water	12/19/24 09:45	12/23/24 12:15

Detection Summary

Client: Hampton-Clarke Veritech
Project/Site: 4121936 9408

Job ID: 460-317929-1

Client Sample ID: AD48830-001 M1-Comp(A-D)-12-18-24 — Lab Sample ID: 460-317929-1

No Detections.

Client Sample ID: AD48830-002 M1-Comp-12-19-24 — Lab Sample ID: 460-317929-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	28.7		15.0	7.5	mg/L	10		351.2	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Hampton-Clarke Veritech
Project/Site: 4121936 9408

Job ID: 460-317929-1

Method	Method Description	Protocol	Laboratory
335.4	Cyanide, Total	EPA	EET EDI
351.2	Nitrogen, Total Kjeldahl	EPA	ELLE
4500-CN G-2016	Cyanide, Amenable	SM	EET EDI
351.2	Nitrogen, Total Kjeldahl	EPA	ELLE
Distill/CN	Distillation, Cyanide	None	EET EDI

Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Client Sample ID: AD48830-001 M1-Comp(A-D)-12-18-24
Lab Sample ID: 460-317929-1

Date Collected: 12/18/24 10:30
Matrix: Water
Date Received: 12/23/24 12:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA 335.4)	0.0040	U	0.010	0.0040	mg/L		12/26/24 19:55	12/26/24 21:35	1
Cyanide, Amenable (SM 4500-CN G-2016)	0.010	U	0.010	0.010	mg/L			12/27/24 05:10	1

Client Sample ID: AD48830-002 M1-Comp-12-19-24
Lab Sample ID: 460-317929-2

Date Collected: 12/19/24 09:45
Matrix: Water
Date Received: 12/23/24 12:15

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen (EPA 351.2	28.7		15.0	7.5	mg/L		01/03/25 17:20	01/07/25 13:21	10

HC Report of Analysis

Client: TRC Engineering
Project: Brookfield Landfill

HC Project #: 5011738

Sample ID: M1-COMP(A-D)01-16-2025
Lab#: AD49249-001
Matrix: Aqueous

Collection Date: 1/16/2025
Receipt Date: 1/17/2025

Cyanide (Amenable) SM22 4500-CN-E/G

Analyte	DF	Units	MDL	RL	Result
Cyanide	1	mg/l	0.010	0.010	0.010 U

Cyanide (Potable) EPA 335.4

Analyte	DF	Units	MDL	RL	Result
Cyanide	1	mg/l	0.0040	0.010	0.0040 U

SGT-HEM (Non-Polar Material) 1664B

Analyte	DF	Units	RL	Result
SGT-HEM (Non-Polar Material)	1	mg/l	5.0	ND

Total Suspended Solids (SM2540D-15)

Analyte	DF	Units	RL	Result
Total Suspended Solids @ 103-105 C	1	mg/l	4.0	26

Volatile Organics (no search) 8260

Analyte	DF	Units	RL	Result
1,1,1-Trichloroethane	1	ug/l	1.0	ND
1,2,4-Trichlorobenzene	1	ug/l	1.0	ND
Benzene	1	ug/l	0.50	ND
Carbon tetrachloride	1	ug/l	1.0	ND
Chloroform	1	ug/l	5.0	ND
Ethylbenzene	1	ug/l	1.0	ND
m&p-Xylenes	1	ug/l	1.0	ND
Methyl-t-butyl ether	1	ug/l	0.53	ND
o-Xylene	1	ug/l	1.0	ND
Tetrachloroethene	1	ug/l	1.0	ND
Toluene	1	ug/l	1.0	ND
Xylenes (Total)	1	ug/l	1.0	ND

Sample ID: M1-COMP-01-17-2025 **Collection Date:** 1/17/2025
Lab#: AD49249-002 **Receipt Date:** 1/17/2025
Matrix: Aqueous

Carbonaceous BOD-5 Day (SM5210 B-16)

Analyte	DF	Units	RL	Result
Carbonaceous Bod, 5 Day	**1**	**mg/l**	**1.0**	**7.0**

Chloride (Water) 300.0

Analyte	DF	Units	RL	Result
Chloride	**50**	**mg/l**	**100**	**410**

Dissolved Cr (Hexavalent) 3500-Cr B11

Analyte	DF	Units	RL	Result
Cr (Hexavalent)	1.2	mg/l	0.024	ND

Mercury (Water) 7470A

Analyte	DF	Units	RL	Result
Mercury	1	ug/l	0.50	ND

Nitrate-N (Water) 300.0

Analyte	DF	Units	RL	Result
Nitrate	1	mg/l	1.0	ND

Nitrite-N (Aqueous) 300.0

Analyte	DF	Units	RL	Result
Nitrite	1	mg/l	1.0	ND

PCB 8082

Analyte	DF	Units	RL	Result
Aroclor (Total)	1	ug/l	0.25	ND
Aroclor-1016	1	ug/l	0.25	ND
Aroclor-1221	1	ug/l	0.25	ND
Aroclor-1232	1	ug/l	0.25	ND
Aroclor-1242	1	ug/l	0.25	ND
Aroclor-1248	1	ug/l	0.25	ND
Aroclor-1254	1	ug/l	0.25	ND
Aroclor-1260	1	ug/l	0.25	ND

Semivolatile Organics (no search) 8270

Analyte	DF	Units	RL	Result
1,4-Dichlorobenzene	1	ug/l	2.0	ND
Naphthalene	1	ug/l	2.0	ND
Phenol	1	ug/l	2.0	ND

TAL Metals 6020B

Analyte	DF	Units	RL	Result
Cadmium	1	ug/l	2.0	ND
Chromium	**1**	**ug/l**	**2.0**	**2.8**
Copper	1	ug/l	10	ND
Lead	1	ug/l	3.0	ND
Molybdenum	1	ug/l	2.0	ND
Nickel	1	ug/l	10	ND
Silver	1	ug/l	2.0	ND
Zinc	1	ug/l	40	ND

Total Kjeldahl Nitrogen EPA 351

Analyte	DF	Units	MDL	RL	Result
Total Kjeldahl Nitrogen	**1**	**mg/l**	**0.75**	1.5	**33.9**

Form1

ORGANICS VOLATILE REPORT

Sample Number: AD49249-001
Client Id: M1-COMP(A-D)01-16-2025
Data File: 2M209009.D
Analysis Date: 01/22/25 16:09
Date Rec/Extracted: 01/17/25-NA
Column: DB-624 25M 0.200mm ID 1.12um film

Method: EPA 8260D
Matrix: Aqueous
Initial Vol: 5ml
Final Vol: NA
Dilution: 1.00
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
71-55-6	1,1,1-Trichloroethane	1.0	U	79601-23-1	m&p-Xylenes	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1634-04-4	Methyl-t-butyl ether	0.53	U
71-43-2	Benzene	0.50	U	95-47-6	o-Xylene	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U	127-18-4	Tetrachloroethene	1.0	U
67-66-3	Chloroform	5.0	U	108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U	1330-20-7	Xylenes (Total)	1.0	U

Worksheet #: 770194

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AD49249-002
Client Id: M1-COMP-01-[illegible]-2025
Data File: 7M141107.D
Analysis Date: 01/21/25 18:26
Date Rec/Extracted: 01/17/25-01/21/25
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270E
Matrix: Aqueous
Initial Vol: 1000ml
Final Vol: 1ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
106-46-7	1,4-Dichlorobenzene	2.0	U	108-95-2	Phenol	2.0	U
91-20-3	Naphthalene	2.0	U				

Worksheet #: 770315

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS PCB REPORT

Sample Number: AD49249-002 1/7 ES 2121
Client Id: M1-COMP-01-1-2025
Data File: 2G199487.D
Analysis Date: 01/21/25 17:59
Date Rec/Extracted: 01/17/25-01/21/25
Column: DB-17/1701P 30M 0.32mm ID 0.25um film

Method: EPA 8082A
Matrix: Aqueous
Initial Vol: 1000ml
Final Vol: 5ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
12674-11-2	Aroclor-1016	0.25	U	12672-29-6	Aroclor-1248	0.25	U
11104-28-2	Aroclor-1221	0.25	U	11097-69-1	Aroclor-1254	0.25	U
11141-16-5	Aroclor-1232	0.25	U	11096-82-5	Aroclor-1260	0.25	U
53469-21-9	Aroclor-1242	0.25	U	1336-36-3	Aroclor (Total)	0.25	U

Worksheet #: 769983

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD49249-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-COMP-01-1-2025	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	1/19/2025	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-43-9	Cadmium	2.0	ND	1	50	100	01/24/25	116822	SW31713A	31	MSMS4_7800SWA	
7440-47-3	Chromium	2.0	2.8	1	50	100	01/24/25	116822	SW31713A	31	MSMS4_7800SWA	
7440-50-8	Copper	10	ND	1	50	100	01/24/25	116822	SW31713A	31	MSMS4_7800SWA	
7439-92-1	Lead	3.0	ND	1	50	100	01/24/25	116822	SW31713A	31	MSMS4_7800SWA	
7439-98-7	Molybdenum	2.0	ND	1	50	100	01/24/25	116822	SW31713A	31	MSMS4_7800SWA	
7440-02-0	Nickel	10	ND	1	50	100	01/24/25	116822	SW31713A	31	MSMS4_7800SWA	
7440-22-4	Silver	2.0	ND	1	50	100	01/27/25	116822	SW31713C	31	MSMS4_7800SWA	
7440-66-6	Zinc	40	ND	1	50	100	01/24/25	116822	SW31713A	31	MSMS4_7800SWA	

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD49249-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-COMP-01-1-2025	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	1/19/2025	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7439-97-6	Mercury	0.50	ND	1	25	25	01/24/25	116822	H31713SW	19	CV	HGCV4A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

VERITECH Wet Chem Form1 Analysis Summary

Lab#: AD49249-001
Matrix Aqueous
Client SampleID: M1-COMP(A-D)01-16-202

Project Number: 5011738
Received Date: 1/17/2025
Collect Date: 1/16/2025

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
SGT-HEM (Non-Polar Material)	HEM-NPM	1	ND	MG/L	5.0	01/22/25	01/22/25
Total Suspended Solids @ 103-105	TSS-MUR	**1**	**26**	**mg/l**	**4.0**	01/21/25	01/22/25

Lab#: AD49249-002
Matrix Aqueous
Client SampleID: M1-COMP-01-17-2025

Project Number: 5011738
Received Date: 1/17/2025
Collect Date: 1/17/2025

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
Carbonaceous Bod, 5 Day	CBOD-5-MUR	**1**	**7.0**	**MG/L**	**1.0**	01/17/25	01/22/25
Chloride	CHLORIDE-ICW	**50**	**410**	**mg/L**	**100**	01/24/25	01/24/25
Cr (Hexavalent)	CR6-WATER	1.2	ND	mg/l	0.024	01/21/25	01/21/25
Nitrite	NO2-ICW	1	ND	mg/L	1.0	01/17/25	01/17/25
Nitrate	NO3-ICW	1	ND	mg/L	1.0	01/17/25	01/17/25

Chain of Custody Forms

5011738 0016

Hampton-Clarke, Inc. (WBE/DBE/SBE)

175 US Highway 46, STE D and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787
Service Center: 137-C Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056

Hampton-Clarke WBE/DBE/SBE 800-426-9992
A Women-Owned, Disadvantaged, Small Business Enterprise

NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | KY #90124 | DE HSCA Approved

CHAIN OF CUSTODY RECORD

Project# (Lab Use Only): 5011738

Page _____ of _____

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Data Deliv.
When Available:	Summary	NJ Hazsite
1 Business Day (100%) *	Results + QC (Waste)	Excel Reg. NJ / NY / PA
2 Business Days (75%) *	Reduced:	EnviroData
3 Business Days (50%) *	[ ] NJ [ ] NY	EQuIS:
4 Business Days (35%) *	[ ] PA [ ] Other___	[ ] 4-File [ ] EZ
5 Business Days (25%)	NJ Full / NY ASP CatB	[ ] NYDEC
8 Business Days (Stand.)	NY ASP CatA	[ ] Region 2 or 5
Other: _____		Other: _____

* Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

1a) Customer: TKC
Address: 1407 Broadway, Suite 3301
New York, NY, 10018
1b) Email/Cell/Fax/Ph: CWinter@trccompanies.com
1c) Send Invoice to: APinvoiceapproval@trccompanies.com
1d) Send Report to: CWinter@trccompanies.com

Project Information

2a) Project: Brookfield Avenue Landfill
2b) Project Mgr: Wes Lindemuth
2c) Project Location (City/State): Staten Island, NY
2d) Quote/PO # (If Applicable): 225363

FOR LAB USE ONLY ↓
Batch # AD49249

===> Check If Contingent ===>

Matrix Codes
DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis *(specify methods & parameter lists)*

<=== Check If Contingent <===

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	TCL VOCs 8260	Cyanide (total)	Cyanide (amenable)	TSS	Non-Polar material	TCL SVOCs 8270	PCBs	(aluminum, chromium, copper (hexavalent), lead, mercury, silver, molybdenum	nickel, zinc, chromium (total)	(BOD, total nitrogen, chloride, TKN	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
001	ml-A-01-16-2025	GW	1/16	1020		✓	✓	✓	✓	✓	✓						1			2	5				
	ml-B-01-16-2025	GW	1/16	1120		✓	✓	✓	✓	✓	✓						1			2	5				
	ml-C-01-16-2025	GW	1/16/25	1220		✓	✓	✓	✓	✓	✓						1			2	5				
	ml-D-01-16-2025	GW	1/16/25	1320		✓	✓	✓	✓	✓	✓						1			2	5				
002	ml-COMP-01-17-2025	GW	1/17/25	1000	✓							✓	✓	✓	✓	✓	✓	9					1	2		

10) Relinquished by:	Accepted by:	Date	Time
Claire Winter	[illegible]	01/17	1230
[illegible]	[illegible]	1/17/25	5:40

Comments, Notes, Special Requirements, HAZARDS

Indicate if low-level methods required to meet current groundwater standards (SPLP for soil):
- [ ] BN or BNA (8270E SIM)
- [ ] VOC (8260D SIM or 8011)
- [ ] SPLP (BN, BNA, Metals)
- [ ] 1,4 Dioxane

For NJ LSRP projects, indicate which standards need to be met:
- [ ] NJDEP GWQS
- [ ] NJDEP SRS
- [ ] NJDEP SPLP
- [ ] Other (specify):

Check if applicable:
- [ ] Project-Specific Reporting Limits
- [ ] High Contaminant Concentrations
- [ ] NJ LSRP Project (also check boxes above/right)

Cooler Temperature: 2-8, 3°C

11) Sampler (print name): Claire Winter Date: 1-17-25

Additional Notes: Please composite samples ml-A-01-16-2025, ml-B-01-16-2025, ml-C-01-16-2025, ml-D-01-16-2025 into one sample ID as ml-COMP(A-D)-01-16-2025

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

Internal use: sampling plan (check box) HC [ ] or client [ ] FSP#

Sample Summary

Client: Hampton-Clarke Veritech
Project/Site: AD-49249

Job ID: 460-319324-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-319324-1	AD49249-001	Water	01/16/25 13:20	01/23/25 14:35
460-319324-2	AD49249-002	Water	01/16/25 10:00	01/23/25 14:35

Detection Summary

Client: Hampton-Clarke Veritech
Project/Site: AD-49249

Job ID: 460-319324-1

Client Sample ID: AD49249-001 — Lab Sample ID: 460-319324-1

No Detections.

Client Sample ID: AD49249-002 — Lab Sample ID: 460-319324-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	33.9		1.5	0.75	mg/L	1		351.2	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Hampton-Clarke Veritech
Project/Site: AD-49249

Job ID: 460-319324-1

Method	Method Description	Protocol	Laboratory
335.4	Cyanide, Total	EPA	EET EDI
351.2	Nitrogen, Total Kjeldahl	EPA	ELLE
4500-CN G-2016	Cyanide, Amenable	SM	EET EDI
351.2	Nitrogen, Total Kjeldahl	EPA	ELLE
Distill/CN	Distillation, Cyanide	None	EET EDI

Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Client Sample ID: AD49249-001
Lab Sample ID: 460-319324-1

Date Collected: 01/16/25 13:20
Matrix: Water
Date Received: 01/23/25 14:35

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA 335.4)	0.0040	U	0.010	0.0040	mg/L		01/30/25 09:24	01/30/25 12:52	1
Cyanide, Amenable (SM 4500-CN G-2016)	0.010	U	0.010	0.010	mg/L			01/30/25 15:42	1

Client Sample ID: AD49249-002
Lab Sample ID: 460-319324-2

Date Collected: 01/16/25 10:00
Matrix: Water
Date Received: 01/23/25 14:35

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen (EPA 351.2	33.9		1.5	0.75	mg/L		01/28/25 16:00	01/29/25 11:30	1

HC Report of Analysis

Client: TRC Engineering
Project: Brookfield Landfill

HC Project #: 5022135

Sample ID: M1-A-02-20-2025 A-D
Lab#: AD49883-001
Matrix: Aqueous

Collection Date: 2/20/2025
Receipt Date: 2/21/2025

Cyanide (Amenable) SM22 4500-CN-E/G

Analyte	DF	Units	RL	Result
Cyanide	1	mg/l	0.010	0.010 U

Cyanide (Potable) EPA 335.4

Analyte	DF	Units	RL	Result
Cyanide	1	mg/l	0.0040	0.0040 U

SGT-HEM (Non-Polar Material) 1664B

Analyte	DF	Units	RL	Result
SGT-HEM (Non-Polar Material)	1	mg/l	5.0	ND

Total Suspended Solids (SM2540D-15)

Analyte	DF	Units	RL	Result
Total Suspended Solids @ 103-105 C	1	mg/l	4.0	32

Volatile Organics (no search) 8260

Analyte	DF	Units	RL	Result
1,1,1-Trichloroethane	1	ug/l	1.0	ND
1,2,4-Trichlorobenzene	1	ug/l	1.0	ND
Benzene	1	ug/l	0.50	ND
Carbon tetrachloride	1	ug/l	1.0	ND
Chloroform	1	ug/l	5.0	ND
Ethylbenzene	1	ug/l	1.0	ND
m&p-Xylenes	1	ug/l	1.0	ND
Methyl-t-butyl ether	1	ug/l	0.53	ND
o-Xylene	1	ug/l	1.0	ND
Tetrachloroethene	1	ug/l	1.0	ND
Toluene	1	ug/l	1.0	ND
Xylenes (Total)	1	ug/l	1.0	ND

Sample ID: M1-COMP-02-21-2025 | **Collection Date:** 2/21/2025
Lab#: AD49883-002 | **Receipt Date:** 2/21/2025
Matrix: Aqueous

Carbonaceous BOD-5 Day (SM5210 B-16)

Analyte	DF	Units	RL	Result
Carbonaceous Bod, 5 Day	**1**	**mg/l**	**1.0**	**1.8**

Chloride (Water) 300.0

Analyte	DF	Units	RL	Result
Chloride	**50**	**mg/l**	**100**	**190**

Dissolved Cr (Hexavalent) 3500-Cr B11

Analyte	DF	Units	RL	Result
Cr (Hexavalent)	1.2	mg/l	0.024	ND

Mercury (Water) 7470A

Analyte	DF	Units	RL	Result
Mercury	1	ug/l	0.50	ND

Nitrate-N (Water) 300.0

Analyte	DF	Units	RL	Result
Nitrate	1	mg/l	1.0	ND

Nitrite-N (Aqueous) 300.0

Analyte	DF	Units	RL	Result
Nitrite	1	mg/l	1.0	ND

PCB 8082

Analyte	DF	Units	RL	Result
Aroclor (Total)	1	ug/l	0.14	ND
Aroclor-1016	1	ug/l	0.14	ND
Aroclor-1221	1	ug/l	0.14	ND
Aroclor-1232	1	ug/l	0.14	ND
Aroclor-1242	1	ug/l	0.14	ND
Aroclor-1248	1	ug/l	0.14	ND
Aroclor-1254	1	ug/l	0.14	ND
Aroclor-1260	1	ug/l	0.14	ND

Semivolatile Organics (no search) 8270

Analyte	DF	Units	RL	Result
1,4-Dichlorobenzene	1	ug/l	2.0	ND
Naphthalene	1	ug/l	2.0	ND
Phenol	1	ug/l	2.0	ND

TAL Metals 6020B

Analyte	DF	Units	RL	Result
Cadmium	1	ug/l	0.80	ND
Chromium	1	ug/l	10	ND
Copper	1	ug/l	20	ND
Lead	1	ug/l	3.0	ND
Molybdenum	1	ug/l	2.0	ND
Nickel	1	ug/l	10	ND
Silver	1	ug/l	2.0	ND
Zinc	1	ug/l	40	ND

Total Kjeldahl Nitrogen EPA 351

Analyte	DF	Units	RL	Result
Total Kjeldahl Nitrogen	**10**	**mg/l**	**7.5**	**38.7**

Form1

ORGANICS VOLATILE REPORT

Sample Number: AD49883-001
Client Id: M1-A-02-20-2025 A-D
Data File: 2M210398.D
Analysis Date: 02/25/25 18:17
Date Rec/Extracted: 02/21/25-NA
Column: DB-624 25M 0.200mm ID 1.12um film

Method: EPA 8260D
Matrix: Aqueous
Initial Vol: 5ml
Final Vol: NA
Dilution: 1.00
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
71-55-6	1,1,1-Trichloroethane	1.0	U	79601-23-1	m&p-Xylenes	1.0	U
120-82-1	1,2,4-Trichlorobenzene	1.0	U	1634-04-4	Methyl-t-butyl ether	0.53	U
71-43-2	Benzene	0.50	U	95-47-6	o-Xylene	1.0	U
56-23-5	Carbon Tetrachloride	1.0	U	127-18-4	Tetrachloroethene	1.0	U
67-66-3	Chloroform	5.0	U	108-88-3	Toluene	1.0	U
100-41-4	Ethylbenzene	1.0	U	1330-20-7	Xylenes (Total)	1.0	U

Worksheet #: 774283

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration usea

Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS SEMIVOLATILE REPORT

Sample Number: AD49883-002
Client Id: M1-COMP-02-21-2025
Data File: 10M105352.D
Analysis Date: 02/24/25 18:41
Date Rec/Extracted: 02/21/25-02/24/25
Column: DB-5MS 30M 0.250mm ID 0.25um film

Method: EPA 8270E
Matrix: Aqueous
Initial Vol: 1000ml
Final Vol: 1ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
106-46-7	1,4-Dichlorobenzene	2.0	U	108-95-2	Phenol	2.0	U
91-20-3	Naphthalene	2.0	U				

Worksheet #: 774348

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

ORGANICS PCB REPORT

Sample Number: AD49883-002
Client Id: M1-COMP-02-21-2025
Data File: 6G195797.D
Analysis Date: 02/28/25 16:01
Date Rec/Extracted: 02/21/25-02/27/25
Column: DB-17/1701P 30M 0.32mm ID 0.25um film

Method: EPA 8082A
Matrix: Aqueous
Initial Vol: 925ml
Final Vol: 2.5ml
Dilution: 1
Solids: 0

Units: ug/L

Cas #	Compound	RL	Conc	Cas #	Compound	RL	Conc
12674-11-2	Aroclor-1016	0.14	U	12672-29-6	Aroclor-1248	0.14	U
11104-28-2	Aroclor-1221	0.14	U	11097-69-1	Aroclor-1254	0.14	U
11141-16-5	Aroclor-1232	0.14	U	11096-82-5	Aroclor-1260	0.14	U
53469-21-9	Aroclor-1242	0.14	U	1336-36-3	Aroclor (Total)	0.14	U

Worksheet #: 774296

Total Target Concentration 0

ColumnID: (^) Indicates results from 2nd column

U - Indicates the compound was analyzed but not detected.
B - Indicates the analyte was found in the blank as well as in the sample.
E - Indicates the analyte concentration exceeds the calibration range of the instrument.
R - Retention Time Out
J - Indicates an estimated value when a compound is detected at less than the specified detection limit.
d - Pesticide %Diff>40% between columns due to coelution. Lower concentration used
Chlordane (Total) is sum of a-Chlordane and y-Chlordane.

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD49883-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-COMP-02-21-2025	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	2/23/2025	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7440-43-9	Cadmium	0.80	ND	1	50	100	02/24/25	116916	SW31807A	22	MSMS4_7800SWA	
7440-47-3	Chromium	10	ND	1	50	100	02/24/25	116916	SW31807A	22	MSMS4_7800SWA	
7440-50-8	Copper	20	ND	1	50	100	02/24/25	116916	SW31807A	22	MSMS4_7800SWA	
7439-92-1	Lead	3.0	ND	1	50	100	02/24/25	116916	SW31807A	22	MSMS4_7800SWA	
7439-98-7	Molybdenum	2.0	ND	1	50	100	02/24/25	116916	SW31807A	22	MSMS4_7800SWA	
7440-02-0	Nickel	10	ND	1	50	100	02/24/25	116916	SW31807A	22	MSMS4_7800SWA	
7440-22-4	Silver	2.0	ND	1	50	100	02/24/25	116916	SW31807A	22	MSMS4_7800SWA	
7440-66-6	Zinc	40	ND	1	50	100	02/24/25	116916	SW31807A	22	MSMS4_7800SWA	

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

Form1

Inorganic Analysis Data Sheet

Sample ID:	AD49883-002	% Solid:	0	Lab Name:	Hampton-Clarke	Nras No:	
Client Id:	M1-COMP-02-21-2025	Units:	UG/L	Lab Code:		Sdg No:	
Matrix:	AQUEOUS	Date Rec:	2/23/2025	Contract:		Case No:	
Level:	LOW						

Cas No.	Analyte	RL	Conc	Dil Fact	Initial Wt/Vol	Final Wt/Vol	Analysis Date	Prep Batch	File:	Seq Num	M	Instr
7439-97-6	Mercury	0.50	ND	1	25	25	02/24/25	116916	H31807SW	13	CV	HGCV3A

Comments: _____

_____

Flag Codes:

U or ND - Indicates Compound was not found above the detection/reporting limit
P - ICP-AES
CV -ColdVapor
MS - ICP-MS

VERITECH Wet Chem Form1 Analysis Summary

Lab#: AD49883-001
Matrix Aqueous
Client SampleID: M1-A-02-20-2025 A-D

Project Number: 5022135
Received Date: 2/21/2025
Collect Date: 2/20/2025

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
SGT-HEM (Non-Polar Material)	HEM-NPM	1	ND	mg/L	5.0	02/25/25	02/26/25
Total Suspended Solids @ 103-105	TSS-MUR	1	32	mg/l	4.0	02/24/25	02/24/25

Lab#: AD49883-002
Matrix Aqueous
Client SampleID: M1-COMP-02-21-2025

Project Number: 5022135
Received Date: 2/21/2025
Collect Date: 2/21/2025

Analysis	TestGroup	Dilution:	Result	Units:	RL	Prep Date:	Analysis Date:
Carbonaceous Bod, 5 Day	CBOD-5-MUR	1	1.8	MG/L	1.0	02/21/25	02/26/25
Chloride	CHLORIDE-ICW	50	190	mg/L	100	02/21/25	02/22/25
Cr (Hexavalent)	CR6-WATER	1.2	ND	mg/l	0.024	02/25/25	02/25/25
Nitrite	NO2-ICW	1	ND	mg/L	1.0	02/21/25	02/21/25
Nitrate	NO3-ICW	1	ND	mg/L	1.0	02/21/25	02/21/25

Chain of Custody Forms

5022135 0015

Hampton-Clarke, Inc. (WBE/DBE/SBE)

175 US Highway 46, STE D and 2 Madison Road, Fairfield, New Jersey 07004
Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787
Service Center: 137-C Gaither Drive, Mount Laurel, New Jersey 08054
Ph (Service Center): 856-780-6057 Fax: 856-780-6056
NELAC/NJ #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | KY #90124 | DE HSCA Approved

Hampton-Clarke WBE/DBE/SBE 800-426-9992
A Women-Owned, Disadvantaged, Small Business Enterprise

CHAIN OF CUSTODY RECORD

Project# (Lab Use Only): 5022135
Page 1 of ____

3) Reporting Requirements (Please Circle)

Turnaround	Report Type	Electronic Data Deliv.
When Available:	Summary	NJ Hazsite
1 Business Day (100%) *	Results + QC (Waste)	Excel Reg. NJ / NY / PA
2 Business Days (75%) *	Reduced:	EnviroData
3 Business Days (50%) *	[ ] NJ [ ] NY	EQuIS:
4 Business Days (35%) *	[ ] PA [ ] Other___	[ ] 4-File [ ] EZ
5 Business Days (25%)	NJ Full / NY ASP CatB	[ ] NYDEC
8 Business Days (Stand.)	NY ASP CatA	[ ] Region 2 or 5
Other: ____		Other: ____

* Expedited TAT Not Always Available. Please Check with Lab.

Customer Information

1a) Customer: TRC Engineers, Inc.
Address: 1407 Broadway, Suite 3301
1b) Email/Cell/Fax/Ph: Wlindemuth@trccompanies.com
1c) Send Invoice to: "
1d) Send Report to: "

Project Information

2a) Project: Brookfield Avenue Landfill Park
2b) Project Mgr: Kirsten Myers
2c) Project Location (City/State): Brookfield Park, Staten Island, NY
2d) Quote/PO # (If Applicable): 144547

FOR LAB USE ONLY ↓
Batch # AD49883

===> Check If Contingent ===>

Matrix Codes
DW - Drinking Water S - Soil A - Air
GW - Ground Water SL - Sludge
WW - Waste Water OL - Oil
OT - Other (please specify under item 9, Comments)

7) Analysis *(specify methods & parameter lists)*

<=== Check If Contingent <===

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample Date	6) Sample Time	Sample Type: Composite (C)	Sample Type: Grab (G)	VOCs (8260)	Cyanide (Total)	Cyanide (amenable)	Total suspended solids	Non-polar material	PCBs	SVOCs	Cadmium, Chromium, Copper, Hexavalent chrom.	Lead, Mercury, Silver, Molybdenum	Nickel, Zinc, Chromium (Total)	CBOD, Total Nitrogen, Chlorides, TKN	8) # of Bottles: None	MeOH	En Core	NaOH	HCl	H2SO4	HNO3	Other:	9) Comments
001	MI-A-02-20-2025	GW	2/20/25	1040		X	X	X	X	X	X							1			2	5				
	MI-B-02-20-2025	↓	↓	1140		X	X	X	X	X	X							1			2	5				
	MI-C-02-20-2025			1240		X	X	X	X	X	X							1			2	5				
	MI-D-02-20-2025		↓	1340		X	X	X	X	X	X							1			2	5				
002	MI-COMP-02 21-2025	↓	2/21/25	0906 C140	X							X	X	X	X	X	X	7					1	1		

10) Relinquished by:	Accepted by:	Date	Time
AD		2/21/25	12:05
		2/21/25	3:25

11) Sampler (print name): Abby Donnelly / Zara Castillo Date: 02/21/25

Additional Notes: Please composite samples, MI-A-02-20-2025, MI-B-02-20-2025, MI-C-02-20-2025, and MI-D-02-20-2025 into one sample, with sample ID MI-COMP-(A-D)-02-20-2025

Comments, Notes, Special Requirements, HAZARDS

Indicate if low-level methods required to meet current groundwater standards (SPLP for soil):
- [ ] BN or BNA (8270E SIM)
- [ ] VOC (8260D SIM or 8011)
- [ ] SPLP (BN, BNA, Metals)
- [ ] 1,4 Dioxane

For NJ LSRP projects, indicate which standards need to be met:
- [ ] NJDEP GWQS
- [ ] NJDEP SRS
- [ ] NJDEP SPLP
- [ ] Other (specify):

Check if applicable:
- [ ] Project-Specific Reporting Limits
- [ ] High Contaminant Concentrations
- [ ] NJ LSRP Project (also check boxes above/right)

Cooler Temperature: 2.6, 2.4

Please note NUMBERED items. If not completed your analytical work may be delayed.
A fee of $5/sample will be assessed for storage should sample not be activated for any analysis.

Internal use: sampling plan (check box) HC [ ] or client [ ] FSP#

Sample Summary

Client: Hampton-Clarke Veritech
Project/Site: 5022135 9522

Job ID: 460-321033-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-321033-1	AD49883-001	Water	02/20/25 13:40	02/25/25 09:41
460-321033-2	AD49883-002	Water	02/20/25 09:40	02/25/25 09:41

Detection Summary

Client: Hampton-Clarke Veritech
Project/Site: 5022135 9522

Job ID: 460-321033-1

Client Sample ID: AD49883-001 — Lab Sample ID: 460-321033-1

No Detections.

Client Sample ID: AD49883-002 — Lab Sample ID: 460-321033-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	38.7		15.0	7.5	mg/L	10		351.2	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Hampton-Clarke Veritech
Project/Site: 5022135 9522

Job ID: 460-321033-1

Method	Method Description	Protocol	Laboratory
335.4	Cyanide, Total	EPA	EET EDI
351.2	Nitrogen, Total Kjeldahl	EPA	ELLE
4500-CN G-2016	Cyanide, Amenable	SM	EET EDI
351.2	Nitrogen, Total Kjeldahl	EPA	ELLE
Distill/CN	Distillation, Cyanide	None	EET EDI

Protocol References:

EPA = US Environmental Protection Agency

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

EET EDI = Eurofins Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Client Sample ID: AD49883-001
Lab Sample ID: 460-321033-1

Date Collected: 02/20/25 13:40
Matrix: Water
Date Received: 02/25/25 09:41

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total (EPA 335.4)	0.0040	U	0.010	0.0040	mg/L		03/05/25 10:29	03/05/25 13:18	1
Cyanide, Amenable (SM 4500-CN G-2016)	0.010	U	0.010	0.010	mg/L			03/05/25 14:55	1

Client Sample ID: AD49883-002
Lab Sample ID: 460-321033-2

Date Collected: 02/20/25 09:40
Matrix: Water
Date Received: 02/25/25 09:41

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen (EPA 351.2	38.7		15.0	7.5	mg/L		02/27/25 17:30	02/28/25 13:03	10

Method: 335.4 - Cyanide, Total

Lab Sample ID: MRL 460-1024179/12-A
Matrix: Water
Analysis Batch: 1024231

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 1024179

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	0.0100	0.00930	J	mg/L		93	50 - 150

Lab Sample ID: MB 460-1024181/1-A
Matrix: Water
Analysis Batch: 1024231

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 1024181

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	0.0040	U	0.010	0.0040	mg/L		03/05/25 10:29	03/05/25 13:03	1

Lab Sample ID: LCS 460-1024181/2-A
Matrix: Water
Analysis Batch: 1024231

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 1024181

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	0.100	0.101		mg/L		101	90 - 110

Lab Sample ID: 460-321367-H-1-B MS
Matrix: Water
Analysis Batch: 1024231

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 1024181

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Cyanide, Total	0.070		0.200	0.256		mg/L		93	90 - 110

Lab Sample ID: 460-321367-H-1-C MSD
Matrix: Water
Analysis Batch: 1024231

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 1024181

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Cyanide, Total	0.070		0.200	0.256		mg/L		93	90 - 110	0	35

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 410-611110/2-A
Matrix: Water
Analysis Batch: 611514

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 611110

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	0.75	U	1.5	0.75	mg/L		02/27/25 17:30	02/28/25 11:37	1

Lab Sample ID: LCS 410-611110/1-A
Matrix: Water
Analysis Batch: 611514

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 611110

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Total Kjeldahl Nitrogen	3.98	3.96		mg/L		100	90 - 110

APPENDIX D

LANDFILL GAS MANAGEMENT SYSTEM

FORM LGM-1

FLARE STATION MONTHLY OPERATION SUMMARY

LANDFILL GAS MANAGEMENT

APRIL 2024

BROOKFIELD AVENUE LANDFILL

Date	Day	Time	Vac (in. of H20)	Blower 301 (SCFM)	Blower 302 (SCFM)	Total SCFM	% CH4	% O2	Temperature (°F)	Blower 301 (hrs)	Blower 302 (hrs)	Blower Frequency (Hz)	Blower 301 (Amps)	Blower 302 (Amps)	Remarks
4/1/2024	Monday						25.0			41619	41545				
4/2/2024	Tuesday	9:05	-5.0	187	0	203	30.2	1.3	1567	41643	41569	5.3	5.5	6.0	Flare on upon arrival
4/3/2024	Wednesday						32.0			41664	41589				
4/4/2024	Thursday						37.3			41688	41613				
4/5/2024	Friday						36.4			41712	41637				
4/6/2024	Saturday						32.0			41736	41661				
4/7/2024	Sunday						31.0			41760	41685				
4/8/2024	Monday	9:00	-5.0	165	0	188	27.0	1.8	1622	41780	41706	5.7	5.9	6.0	Flare on upon arrival
4/9/2024	Tuesday						32.9			41807	41733				
4/10/2024	Wednesday						34.1			41831	41757				
4/11/2024	Thursday						33.3			41855	41781				
4/12/2024	Friday						33.1			41879	41805				
4/13/2024	Saturday						32.8			41903	41829				
4/14/2024	Sunday						31.0			41927	41853				
4/15/2024	Monday						29.2			41949	41875				
4/16/2024	Tuesday						26.8			41972	41898				
4/17/2024	Wednesday						29.1			41999	41925				
4/18/2024	Thursday	12:33	-4.0	171	0	189	27.9	2.5	1667	42024	41949	5.5	5.7	6.2	Flare on upon arrival
4/19/2024	Friday						30			42050	41976				
4/20/2024	Saturday						29.5			42069	41995				
4/21/2024	Sunday						28.6			42093	42019				
4/22/2024	Monday						27.6			42117	42043				
4/23/2024	Tuesday						27.2			42142	42067				
4/24/2024	Wednesday	11:52	-5.0	169	0	190	26.1	1.6	1677	42167	42093	5.6	5.5	6.1	Flare on upon arrival
4/25/2024	Thursday						33.6			42178	42103				
4/26/2024	Friday						42.6			42178	42103				
4/27/2024	Saturday						40.3			42178	42103				
4/28/2024	Sunday						39.2			42178	42103				
4/29/2024	Monday						39.8			42178	42103				
4/30/2024	Tuesday	8:45	-5.7	164	0	187	25.8	0.6	1709	42198	42123	5.6	5.8	6.1	Flare on upon arrival
					AVG	191.4	31.6	1.6	TOTAL	579	578				
						TOTAL MONTHLY SCF									
						6,637,752									

COMMENTS

BROOKFIELD AVENUE LANDFILL			
April-24			
Date: 4-24-2024			**Inspected by: M. Marks**
Clear			**Temperature: 65-70 degree. F**
Barometric Pressure (Hg): 29.88			
MONITORING TASK		**INSPECT**	**REMARKS**
Gauges	**Blower Vacuum (in. WC)**		
	PDI-301	√	Checked Weekly
	PD!-302	√	Checked Weekly
	Flow Transmitter (SCFM)		
	FT-301	√	Checked Weekly
	FT-302	√	Checked Weekly
	Field Inlet Temperature (◦F)		
	TI-301	√	Checked Weekly
	TI-302	√	Checked Weekly
	Pressure Differential Indicator		
	PDI-301	√	Checked Weekly
	PDI-302	√	Checked Weekly
	Pressure Indicator		
	PI-301	√	Checked Weekly
	PI-302	√	Checked Weekly
	Blower Inlet Temperature (◦F)		
	TI-303	√	Checked Weekly
	TI-304	√	Checked Weekly
	Pressure Indicator		
	PI-303	√	Checked Weekly
	PI-304	√	Checked Weekly
	Blower Discharge Temperature (◦F)		
	TI-305	√	Checked Weekly
	TI-306	√	Checked Weekly
	Flow Transmitter Totalizer (SCFM)		
	FT-303	√	Checked Weekly
	FAU - TDL Gas Analyzer	√	Checked Weekly
	%CH4 (0-100%)	√	Checked Weekly
	CO2 (0-100%0	√	Checked Weekly
	O2 (0-25%)	√	Checked Weekly
CP	**Control Panel/ PLC Analog Data**		
	Landfill Vacuum (in. WC)	√	Checked Weekly
	Flow (SCFM)	√	Checked Weekly
	Blower 301 hrs.	√	Greased on 3/27/24
	Blower 302 hrs.	√	Greased on 3/27/24
	Flare Temperature (◦F)	√	Checked Weekly
	LFG % Methane	√	Checked Weekly
	LFG % Oxygen	√	Checked Weekly
	Area LEL	√	Checked Weekly
	Blower Frequency (Hz)	√	Checked Weekly
	Blower (Amps)	√	Checked Weekly

FORM LGM-3
INSPECTION CHECKLIST
LANDFILL GAS MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

24-Apr-24				Inspected By: M. Marks
INSPECTION TASK	**LOCATION**			**REMARKS**
Daily	**Blower 301**	**Blower 302**	**Flare**	
Visibly Inspect the Unit - repair leaks and loose wires	--	--	√	4/24/2024
Test Lamps by Pushing the Run Lamp and Alarm Shutdown	--	--	√	4/24/2024
Inspect Power Distribution System	--	--	√	4/24/2024
Weekly	**Blower 301**	**Blower 302**	**Flare**	
Rotate Shafts on Blowers	√	√	--	4/24/2024
			--	
			--	
			--	
			--	
			--	
Monthly	**Gas Well Vaults No.**			
Well Casings, Valves, Instruments, Piping	√			4/24/2024
Odors, High Gas Readings,	√			4/24/2024
Dead Vegetation, Settlement	√			4/24/2024
Vandalism, Damage, Destruction	√			4/24/2024
Settling, Deterioration of Base	√			4/24/2024
Fading of Labels, Nesting insects	√			4/24/2024
Check Condensate Drains	√			4/24/2024
Bolted Lids	√			4/24/2024
Quarterly	**Blower 301**	**Blower 302**	**Flare**	
Lubricate Blowers / Check by Testing Hand and Auto Position	√	√	--	1/29/2024
Inspect Ignitor Gap, Wiring,Pilot, Thermocouple Voltage	--	--	√	1/29/2024
Shut Down Valve FV-301	√	√	√	1/29/2024
Zero out Pressure, Delta Pressure, and Vacuum Gauges	√	√	√	1/29/2024
Remove Debris in 8" Blind Flange Inspection Port	√	√	√	1/29/2024
Test Louvers	√	√	√	1/29/2024
Test Pilot Fail Shutdown	√	√	√	1/29/2024
Test Flame Fail Shutdown	√	√	√	1/29/2024
Test Low Temperature Shutdown	√	√	√	1/29/2024
Semi- Annual	**Gas Well Vaults No.**			
Open Wellhead Vaults Check for Mechanical Issues	√			4/24/2024
Inspect All Fittings	√			4/24/2024
Open Condensate Drain Hatch and Inspect	√			4/24/2024
Annual	**Gas Well Vaults No.**	**Flare**		
Open and Close Throttling Valve	√	√		
Inspect Sampling Port, Quick Connect Fittings	√	√		
Inspect Air Flow Rates of all Landfill Pipe Sections	√	√		
Shut Flare Down:	√	√		
Check for Loose Bolts on Structure and Flanges	√	√		
Check Chart Recorder Configuration Sheets Against Actual Secttings to Confirm no Alterations	√	√		

COMMENTS

On 1-19-21 replaced new hoses from nitrogen tank to block valve. Also replaced heat trace surrounding the block valve due to faulty prior assembly.

5/5/21 Replaced missing bolt in B-10	4/12/22 Propane changed out.
5/5/21 Drained low spot at e-hill	6/22/22 Drained low spot e-hill
5/5/21 Replaced broken valve at B-11	8/11/22 Flare down electrical issues
8/4/21 Drained low spot at e-hill	9/8/22 Drained low spot at e-hill
11/5/21 Drained low spot at E-hill	9/8/22 PLC/Chart recorder issues
1/6/2022 Drained low spot at E-hill	9/20/22 RMC repair
2/4/2022 Drained low spot at E-hill	10/11/2023 Drained low spot at e-hill
4/5/2022 Drained low spot at E-hill	

FORM LFG-1

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

4/24/2024			**Inspected by : M. Marks**
Partly Cloudy			**Temperature (deg. F): 65-70 deg. F**
			Humidity (%): 60
MONITORING TASK			**DATE**
1	**Flare Piping**		Checked Weekly
	Bolts secure	√	
	Paint	√	
2	**Manual Valves**		Checked Weekly
	Normally Open	√	
3	**Propane Gas**		Checked Weekly
	Available - (regulator open)	√	
4	**Nitrogen Gas**		Checked Weekly
	Open Valve- Check Quantity	√	
5	**Blowers**		Checked Daily - Greased 3/27/24
	Turn Manually (≤ 32◦F)	√	
6	**Alarms (Clear)**		Checked Weekly
	Combustible Gas Detectors	√	Checked Weekly FDNY 10/28/22
	Sharp Eye IR/UV	√	Checked weekly Replaced unit 301 on 10/2/2019 w/FDNY
	FACP - System Normal	√	(Annual FDNY Inspection by SG 10/28/22
	Power	√	Checked Weekly
7	**Gas Analyzer**		Weekly
	% Methane available (25-50%)	√	Weekly
	% Oxygen (≤ 5%)	√	Weekly
	check valve	√	Weekly
8	**PERIMETER, FENCE, GATES & LOCKS**		Checked Weekly
	Vandalism	√	Checked Weekly
	Debris	√	Checked Weekly
	Fence Damage	√	Checked Weekly
	Gate Alignment and Swing Action	√	Checked Weekly
	Fire Extinguishers	√	Checked Weekly (Inspected 10/6/21)
	Yard Hydrants (2)	√	Checked Weekly (Tested 10/6/21)
	Large Fire Boss	√	Checked Weekly
	Lock Lubrication and Function	√	Checked Weekly
9	**PLC Cabinet**		Checked Weekly
	Vandalism	√	Checked Weekly
	Power Supply	√	Checked Weekly
	Test Lamps	√	Checked Weekly
	Circular Chart	√	Checked Weekly
	Louvers Open	√	Checked Weekly
	"Auto"Start	√	Checked Weekly
	Purge Motor	√	Checked Weekly
	Louvers Close / Pilot	√	Checked Weekly
	Blowers Activated	√	Checked Weekly
	Shutdown Valve Open	√	Checked Weekly
	Manually Adjust Louvers (optional)	√	Checked Weekly
	Autodialer Activated	√	Checked Weekly

FORM DP-1
LANDFILL GAS MANAGEMENT SYSTEM
APRIL 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
4/12/2022	Flare station	Propane changed	Propane full
8/11/2022	Flare station	Electrical at panel	Need to toubleshoot issue further
8/23/22	Flare station	Fire call system	New batteries installed
9/8/22	Flare station	PLC Electrical Issues	Awaiting RMC
9/20/22	Flare station	PLC Electrical Issues	RMC Repair
10/28/22	Flare station	FDNY inspect	Proposed inspection date
4/26/23	Flare station	Panel Issues	Reset and fixed
2/29/24	Flare station	Pannel/Flare Issues; unable to clear alarms.	Flare will be observed and troubleshooted by SCS.
3/11/2024 - 3/15/2024	Flare Station	Pannel/Flare Issues	TRC identified a Soft Fault that wasn't allowing the system to clear alarms and activate flare. Soft fault cleared, Alarms cleared, and the flare system is running as normal.
3/26/24	Flare station	Thermocouples issue, triggering a 'Low Flame Temperature Shut Down' alarm at 1400℉	A new thermocouple card was installed on 03/14/2024 and diagnosed as the issue for malfunction. The old thermocouple card was re-installed. The Landfill Gas System is running and operating as normal.
4/9/24	Flare station	Flare Station panel in need of UPS and Bypass switch to prevent outages.	JMP is on-site to set up a UPS (Uninterrupted Power Supply) and Bypass switch installation.

Date: 4/29/2024

Inspected By: **I. Gonzalez**

Signature: 

FORM LGM-1

FLARE STATION MONTHLY OPERATION SUMMARY

LANDFILL GAS MANAGEMENT

MAY 2024

BROOKFIELD AVENUE LANDFILL

Date	Day	Time	Vac (in. of H20)	Blower 301 (SCFM)	Blower 302 (SCFM)	Total SCFM	% CH4	% O2	Temperature (°F)	Blower 301 (hrs)	Blower 302 (hrs)	Blower Frequency (Hz)	Blower 301 (Amps)	Blower 302 (Amps)	Remarks
5/1/2024	Wednesday						29.8			42225	42151				
5/2/2024	Thursday						29.0			42248	42174				
5/3/2024	Friday						195.3			42267	42193				Error in Methane Readings
5/4/2024	Saturday						195.3			42267	42193				Error in Methane Readings
5/5/2024	Sunday						195.3			42267	42193				Error in Methane Readings
5/6/2024	Monday	0.5	-5.5	175	0	201.0	28.4	0.4	1566	42271	42197	25.6	5.8	6.1	Flare on upon arrival
5/7/2024	Tuesday						28.2			42297	42222				
5/8/2024	Wednesday						28.2			42321	42246				
5/9/2024	Thursday						28.0			42345	42270				
5/10/2024	Friday						28.4			42372	42297				
5/11/2024	Saturday						30.5			42396	42321				
5/12/2024	Sunday						30.5			42420	42345				
5/13/2024	Monday	11:49	-5.0	192	0	222	22.7	1.7	1567	42440	42366	25.9	6.0	5.5	Flare on upon arrival
5/14/2024	Tuesday						26.5			42440	42366				
5/15/2024	Wednesday						29.1			42466	42392				
5/16/2024	Thursday						28.7			42486	42411				
5/17/2024	Friday						28.3			42511	42436				
5/18/2024	Saturday						28.5			42511	42436				
5/19/2024	Sunday						28.9			42511	42436				
5/20/2024	Monday						28.6			42512	42438				
5/21/2024	Tuesday						29.1			42539	42465				
5/22/2024	Wednesday	12:05	-5.5	195	0	223	24.4	0.7	1655	42562	42487	26.2	6.2	5.7	Flare on upon arrival
5/23/2024	Thursday						28.7			42587	42513				
5/24/2024	Friday						29.2			42616	42541				
5/25/2024	Saturday						28.6			42631	42557				
5/26/2024	Sunday						27.4			42655	42581				
5/27/2024	Monday						27.2			42679	42605				
5/28/2024	Friday	10:59	0.0	0	0	0	20.9	9.0	77	42719	42645	0.0	0	0.0	Flare off
5/29/2024	Wednesday						17.6			42718	42644				
5/30/2024	Thursday						22.6			42718	42644				
5/31/2024	Friday						25.4			42718	42644				
					AVG	161.5	27.3	3.0	TOTAL	493	493				
						TOTAL MONTHLY SCF									
						4,777,170									

COMMENTS

BROOKFIELD AVENUE LANDFILL			
May-24			
Date: 5-22-2024			**Inspected by: M. Marks**
Clear			**Temperature: 80-85 degree. F**
Barometric Pressure (Hg): 29.98			
MONITORING TASK		**INSPECT**	**REMARKS**
Gauges	**Blower Vacuum (in. WC)**		
	PDI-301	√	Checked Weekly
	PD!-302	√	Checked Weekly
	Flow Transmitter (SCFM)		
	FT-301	√	Checked Weekly
	FT-302	√	Checked Weekly
	Field Inlet Temperature (◦F)		
	TI-301	√	Checked Weekly
	TI-302	√	Checked Weekly
	Pressure Differential Indicator		
	PDI-301	√	Checked Weekly
	PDI-302	√	Checked Weekly
	Pressure Indicator		
	PI-301	√	Checked Weekly
	PI-302	√	Checked Weekly
	Blower Inlet Temperature (◦F)		
	TI-303	√	Checked Weekly
	TI-304	√	Checked Weekly
	Pressure Indicator		
	PI-303	√	Checked Weekly
	PI-304	√	Checked Weekly
	Blower Discharge Temperature (◦F)		
	TI-305	√	Checked Weekly
	TI-306	√	Checked Weekly
	Flow Transmitter Totalizer (SCFM)		
	FT-303	√	Checked Weekly
	FAU - TDL Gas Analyzer	√	Checked Weekly
	%CH4 (0-100%)	√	Checked Weekly
	CO2 (0-100%0	√	Checked Weekly
	O2 (0-25%)	√	Checked Weekly
CP	**Control Panel/ PLC Analog Data**		
	Landfill Vacuum (in. WC)	√	Checked Weekly
	Flow (SCFM)	√	Checked Weekly
	Blower 301 hrs.	√	Greased on 3/27/24
	Blower 302 hrs.	√	Greased on 3/27/24
	Flare Temperature (◦F)	√	Checked Weekly
	LFG % Methane	√	Checked Weekly
	LFG % Oxygen	√	Checked Weekly
	Area LEL	√	Checked Weekly
	Blower Frequency (Hz)	√	Checked Weekly
	Blower (Amps)	√	Checked Weekly

FORM LGM-3
INSPECTION CHECKLIST
LANDFILL GAS MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

22-May-24				Inspected By: M. Marks
INSPECTION TASK	**LOCATION**			**REMARKS**
Daily	**Blower 301**	**Blower 302**	**Flare**	
Visibly Inspect the Unit - repair leaks and loose wires	--	--	√	5/22/2024
Test Lamps by Pushing the Run Lamp and Alarm Shutdown	--	--	√	5/22/2024
Inspect Power Distribution System	--	--	√	5/22/2024
Weekly	**Blower 301**	**Blower 302**	**Flare**	
Rotate Shafts on Blowers	√	√	--	4/24/2024
			--	
			--	
			--	
			--	
			--	
Monthly	**Gas Well Vaults No.**			
Well Casings, Valves, Instruments, Piping	√			5/22/2024
Odors, High Gas Readings,	√			5/22/2024
Dead Vegetation, Settlement	√			5/22/2024
Vandalism, Damage, Destruction	√			5/22/2024
Settling, Deterioration of Base	√			5/22/2024
Fading of Labels, Nesting insects	√			5/22/2024
Check Condensate Drains	√			5/22/2024
Bolted Lids	√			5/22/2024
Quarterly	**Blower 301**	**Blower 302**	**Flare**	
Lubricate Blowers / Check by Testing Hand and Auto Position	√	√	--	1/29/2024
Inspect Ignitor Gap, Wiring,Pilot, Thermocouple Voltage	--	--	√	1/29/2024
Shut Down Valve FV-301	√	√	√	1/29/2024
Zero out Pressure, Delta Pressure, and Vacuum Gauges	√	√	√	1/29/2024
Remove Debris in 8" Blind Flange Inspection Port	√	√	√	1/29/2024
Test Louvers	√	√	√	1/29/2024
Test Pilot Fail Shutdown	√	√	√	1/29/2024
Test Flame Fail Shutdown	√	√	√	1/29/2024
Test Low Temperature Shutdown	√	√	√	1/29/2024
Semi- Annual	**Gas Well Vaults No.**			
Open Wellhead Vaults Check for Mechanical Issues	√			4/24/2024
Inspect All Fittings	√			4/24/2024
Open Condensate Drain Hatch and Inspect	√			4/24/2024
Annual	**Gas Well Vaults No.**	**Flare**		
Open and Close Throttling Valve	√	√		
Inspect Sampling Port, Quick Connect Fittings	√	√		
Inspect Air Flow Rates of all Landfill Pipe Sections	√	√		
Shut Flare Down:	√	√		
Check for Loose Bolts on Structure and Flanges	√	√		
Check Chart Recorder Configuration Sheets Against Actual Secttings to Confirm no Alterations	√	√		

COMMENTS

On 1-19-21 replaced new hoses from nitrogen tank to block valve. Also replaced heat trace surrounding the block valve due to faulty prior assembly.

5/5/21 Replaced missing bolt in B-10	4/12/22 Propane changed out.
5/5/21 Drained low spot at e-hill	6/22/22 Drained low spot e-hill
5/5/21 Replaced broken valve at B-11	8/11/22 Flare down electrical issues
8/4/21 Drained low spot at e-hill	9/8/22 Drained low spot at e-hill
11/5/21 Drained low spot at E-hill	9/8/22 PLC/Chart recorder issues
1/6/2022 Drained low spot at E-hill	9/20/22 RMC repair
2/4/2022 Drained low spot at E-hill	10/11/2023 Drained low spot at e-hill
4/5/2022 Drained low spot at E-hill	

FORM LFG-1

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

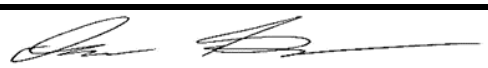
5/22/2024			**Inspected by : M. Marks**
Partly Cloudy			**Temperature (deg. F): 80-85 deg. F**
			Humidity (%): 60
MONITORING TASK			**DATE**
1	**Flare Piping**		Checked Weekly
	Bolts secure	√	
	Paint	√	
2	**Manual Valves**		Checked Weekly
	Normally Open	√	
3	**Propane Gas**		Checked Weekly
	Available - (regulator open)	√	
4	**Nitrogen Gas**		Checked Weekly
	Open Valve- Check Quantity	√	
5	**Blowers**		Checked Daily - Greased 3/27/24
	Turn Manually (≤ 32◦F)	√	
6	**Alarms (Clear)**		Checked Weekly
	Combustible Gas Detectors	√	Checked Weekly FDNY 10/28/22
	Sharp Eye IR/UV	√	Checked weekly Replaced unit 301 on 10/2/2019 w/FDNY
	FACP - System Normal	√	(Annual FDNY Inspection by SG 10/28/22
	Power	√	Checked Weekly
7	**Gas Analyzer**		Weekly
	% Methane available (25-50%)	√	Weekly
	% Oxygen (≤ 5%)	√	Weekly
	check valve	√	Weekly
8	**PERIMETER, FENCE, GATES & LOCKS**		Checked Weekly
	Vandalism	√	Checked Weekly
	Debris	√	Checked Weekly
	Fence Damage	√	Checked Weekly
	Gate Alignment and Swing Action	√	Checked Weekly
	Fire Extinguishers	√	Checked Weekly (Inspected 10/6/21)
	Yard Hydrants (2)	√	Checked Weekly (Tested 10/6/21)
	Large Fire Boss	√	Checked Weekly
	Lock Lubrication and Function	√	Checked Weekly
9	**PLC Cabinet**		Checked Weekly
	Vandalism	√	Checked Weekly
	Power Supply	√	Checked Weekly
	Test Lamps	√	Checked Weekly
	Circular Chart	√	Checked Weekly
	Louvers Open	√	Checked Weekly
	"Auto"Start	√	Checked Weekly
	Purge Motor	√	Checked Weekly
	Louvers Close / Pilot	√	Checked Weekly
	Blowers Activated	√	Checked Weekly
	Shutdown Valve Open	√	Checked Weekly
	Manually Adjust Louvers (optional)	√	Checked Weekly
	Autodialer Activated	√	Checked Weekly

FORM DP-1
LANDFILL GAS MANAGEMENT SYSTEM
MAY 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
2/29/24	Flare station	Pannel/Flare Issues; unable to clear alarms.	Flare will be observed and troubleshooted by SCS.
3/11/2024 - 3/15/2024	Flare Station	Pannel/Flare Issues	TRC identified a Soft Fault that wasn't allowing the system to clear alarms and activate flare. Soft fault cleared, Alarms cleared, and the flare system is running as normal.
3/26/24	Flare station	Thermocouples issue, triggering a 'Low Flame Temperature Shut Down' alarm at 1400℉	A new thermocouple card was installed on 03/14/2024 and diagnosed as the issue for malfunction. The old thermocouple card was re-installed. The Landfill Gas System is running and operating as normal.
4/9/24	Flare station	Flare Station panel in need of UPS and Bypass switch to prevent outages.	JMP is on-site to set up a UPS (Uninterrupted Power Supply) and Bypass switch installation.
5/28/24	Flare station (remote access)	TRC plans to adjust flare settings to improve flare performace.	TRC changed the flare station iInlet vacuum rate changed from 5.5 InWC to 5.0InWC.
5/31/24	Flare station (remote access)	Changes to the Inlet vaccuum rate potentially triggered issues with the UV Flame Detector causing incorrect 'Low Flame SD' alarms.	TRC returned settings to the previous default. A new UV Flame detector ordered, and SCS/TRC will continue to monitor flare status. Flare operating as normal.

Date: 5/14/2024

Inspected By: **I. Gonzalez**

Signature: 

FORM LGM-1

FLARE STATION MONTHLY OPERATION SUMMARY

LANDFILL GAS MANAGEMENT

JUNE 2024

BROOKFIELD AVENUE LANDFILL

Date	Day	Time	Vac (in. of H20)	Blower 301 (SCFM)	Blower 302 (SCFM)	Total SCFM	% CH4	% O2	Temperature (°F)	Blower 301 (hrs)	Blower 302 (hrs)	Blower Frequency (Hz)	Blower 301 (Amps)	Blower 302 (Amps)	Remarks
6/1/2024	Saturday					0	28.6	1.5		42718	42644				
6/2/2024	Sunday					0	29.5	1.3		42718	42644				
6/3/2024	Monday					193	33.0	1.1		42722	42647				
6/4/2024	Tuesday					180	31.9	1.3		42752	42678				
6/5/2024	Wednesday	9:23	-6.0	165	0	188	24.5	1.9	1677	42769	42694	25.8	5.9	5.7	Flare on upon arrival
6/6/2024	Thursday					175.0	29.8	0.8		42794	42720				
6/7/2024	Friday					174	29.1	1.1		42814	42739				
6/8/2024	Saturday					174	28.2	0.9		42838	42763				
6/9/2024	Sunday					174	27.5	1.0		42862	42787				
6/10/2024	Monday					174	26.0	1.1		42892	42817				
6/11/2024	Tuesday					0	22.3	2.0		42902	42827				
6/12/2024	Wednesday	7:58	-6.0	187	0	201	36.7	1.5	1567	42903	42828	26.4	6.1	5.8	Flare on upon arrival
6/13/2024	Thursday					0	29.5	1.3		42903	42828				
6/14/2024	Friday					0	27.5	2.0		42903	42828				
6/15/2024	Saturday					0	26.5	1.5		42903	42828				
6/16/2024	Sunday					0	25.5	1.3		42903	42828				
6/17/2024	Monday	9:44	-5.4	171	0	198	27.2	1.5	1599	42903	42829	26.1	6.2	5.9	Flare on upon arrival
6/18/2024	Tuesday					183	26.2	1.1		42924	42849				
6/19/2024	Wednesday					168	25.1	1.0		42947	42873				
6/20/2024	Thursday					167	26.7	1.5		42975	42901				
6/21/2024	Friday					169	26.5	1.5		42999	42925				
6/22/2024	Saturday					168	26.7	1.4		43023	42949				
6/23/2024	Sunday					167	26.8	1.5		43047	42973				
6/24/2024	Monday					165	26.9	1.4		43069	42995				
6/25/2024	Tuesday					164	26.4	1.4		43069	42995				
6/26/2024	Wednesday	13:04	-5.0	169	0	189	24.0	0.6	1655	43073	42999	26.2	5.9	5.7	Flare on upon arrival
6/27/2024	Thursday					1172	195.3	48.8		43086	43011				
6/28/2024	Friday					1172	195.3	48.8		43086	43011				
6/29/2024	Saturday					1172	195.3	48.8		43086	43011				
6/30/2024	Sunday					1172	195.3	48.8		43086	43011				
										43086	43011				
					AVG	129.7	27.6	3.1	TOTAL	368	367				
						TOTAL MONTHLY SCF									
						2,854,978									

COMMENTS

BROOKFIELD AVENUE LANDFILL			
June-24			
Date: 6-26-2024			**Inspected by: M. Marks**
Clear			**Temperature: 88-90 degree. F**
Barometric Pressure (Hg): 29.88			
MONITORING TASK		**INSPECT**	**REMARKS**
Gauges	**Blower Vacuum (in. WC)**		
	PDI-301	√	Checked Weekly
	PD!-302	√	Checked Weekly
	Flow Transmitter (SCFM)		
	FT-301	√	Checked Weekly
	FT-302	√	Checked Weekly
	Field Inlet Temperature (◦F)		
	TI-301	√	Checked Weekly
	TI-302	√	Checked Weekly
	Pressure Differential Indicator		
	PDI-301	√	Checked Weekly
	PDI-302	√	Checked Weekly
	Pressure Indicator		
	PI-301	√	Checked Weekly
	PI-302	√	Checked Weekly
	Blower Inlet Temperature (◦F)		
	TI-303	√	Checked Weekly
	TI-304	√	Checked Weekly
	Pressure Indicator		
	PI-303	√	Checked Weekly
	PI-304	√	Checked Weekly
	Blower Discharge Temperature (◦F)		
	TI-305	√	Checked Weekly
	TI-306	√	Checked Weekly
	Flow Transmitter Totalizer (SCFM)		
	FT-303	√	Checked Weekly
	FAU - TDL Gas Analyzer	√	Checked Weekly
	%CH4 (0-100%)	√	Checked Weekly
	CO2 (0-100%0	√	Checked Weekly
	O2 (0-25%)	√	Checked Weekly
CP	**Control Panel/ PLC Analog Data**		
	Landfill Vacuum (in. WC)	√	Checked Weekly
	Flow (SCFM)	√	Checked Weekly
	Blower 301 hrs.	√	Greased on 3/27/24
	Blower 302 hrs.	√	Greased on 3/27/24
	Flare Temperature (◦F)	√	Checked Weekly
	LFG % Methane	√	Checked Weekly
	LFG % Oxygen	√	Checked Weekly
	Area LEL	√	Checked Weekly
	Blower Frequency (Hz)	√	Checked Weekly
	Blower (Amps)	√	Checked Weekly

FORM LGM-3
INSPECTION CHECKLIST
LANDFILL GAS MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

26-Jun-24				Inspected By: M. Marks
INSPECTION TASK	**LOCATION**			**REMARKS**
Daily	**Blower 301**	**Blower 302**	**Flare**	
Visibly Inspect the Unit - repair leaks and loose wires	--	--	√	6/26/2024
Test Lamps by Pushing the Run Lamp and Alarm Shutdown	--	--	√	6/26/2024
Inspect Power Distribution System	--	--	√	6/26/2024
Weekly	**Blower 301**	**Blower 302**	**Flare**	
Rotate Shafts on Blowers	√	√	--	6/26/2024
			--	
			--	
			--	
			--	
			--	
Monthly	**Gas Well Vaults No.**			
Well Casings, Valves, Instruments, Piping	√			6/26/2024
Odors, High Gas Readings,	√			6/26/2024
Dead Vegetation, Settlement	√			6/26/2024
Vandalism, Damage, Destruction	√			6/26/2024
Settling, Deterioration of Base	√			6/26/2024
Fading of Labels, Nesting insects	√			6/26/2024
Check Condensate Drains	√			6/26/2024
Bolted Lids	√			6/26/2024
Quarterly	**Blower 301**	**Blower 302**	**Flare**	
Lubricate Blowers / Check by Testing Hand and Auto Position	√	√	--	6/26/2024
Inspect Ignitor Gap, Wiring,Pilot, Thermocouple Voltage	--	--	√	6/26/2024
Shut Down Valve FV-301	√	√	√	6/26/2024
Zero out Pressure, Delta Pressure, and Vacuum Gauges	√	√	√	6/26/2024
Remove Debris in 8" Blind Flange Inspection Port	√	√	√	6/26/2024
Test Louvers	√	√	√	6/26/2024
Test Pilot Fail Shutdown	√	√	√	6/26/2024
Test Flame Fail Shutdown	√	√	√	6/26/2024
Test Low Temperature Shutdown	√	√	√	6/26/2024
Semi- Annual	**Gas Well Vaults No.**			
Open Wellhead Vaults Check for Mechanical Issues	√			4/24/2024
Inspect All Fittings	√			4/24/2024
Open Condensate Drain Hatch and Inspect	√			4/24/2024
Annual	**Gas Well Vaults No.**	**Flare**		
Open and Close Throttling Valve	√	√		
Inspect Sampling Port, Quick Connect Fittings	√	√		
Inspect Air Flow Rates of all Landfill Pipe Sections	√	√		
Shut Flare Down:	√	√		
Check for Loose Bolts on Structure and Flanges	√	√		
Check Chart Recorder Configuration Sheets Against Actual Secttings to Confirm no Alterations	√	√		

COMMENTS

On 1-19-21 replaced new hoses from nitrogen tank to block valve. Also replaced heat trace surrounding the block valve due to faulty prior assembly.

5/5/21 Replaced missing bolt in B-10	4/12/22 Propane changed out.
5/5/21 Drained low spot at e-hill	6/22/22 Drained low spot e-hill
5/5/21 Replaced broken valve at B-11	8/11/22 Flare down electrical issues
8/4/21 Drained low spot at e-hill	9/8/22 Drained low spot at e-hill
11/5/21 Drained low spot at E-hill	9/8/22 PLC/Chart recorder issues
1/6/2022 Drained low spot at E-hill	9/20/22 RMC repair
2/4/2022 Drained low spot at E-hill	10/11/2023 Drained low spot at e-hill
4/5/2022 Drained low spot at E-hill	

FORM LFG-1

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

6/26/2024			**Inspected by : M. Marks**
Clear			**Temperature (deg. F): 88-90 deg. F**
			Humidity (%): 60
MONITORING TASK			**DATE**
1	**Flare Piping**		Checked Weekly
	Bolts secure	√	
	Paint	√	
2	**Manual Valves**		Checked Weekly
	Normally Open	√	
3	**Propane Gas**		Checked Weekly
	Available - (regulator open)	√	
4	**Nitrogen Gas**		Checked Weekly
	Open Valve- Check Quantity	√	
5	**Blowers**		Checked Daily - Greased 3/27/24
	Turn Manually (≤ 32◦F)	√	
6	**Alarms (Clear)**		Checked Weekly
	Combustible Gas Detectors	√	Checked Weekly FDNY 10/28/22
	Sharp Eye IR/UV	√	Checked weekly Replaced unit 301 on 10/2/2019 w/FDNY
	FACP - System Normal	√	(Annual FDNY Inspection by SG 10/28/22
	Power	√	Checked Weekly
7	**Gas Analyzer**		Weekly
	% Methane available (25-50%)	√	Weekly
	% Oxygen (≤ 5%)	√	Weekly
	check valve	√	Weekly
8	**PERIMETER, FENCE, GATES & LOCKS**		Checked Weekly
	Vandalism	√	Checked Weekly
	Debris	√	Checked Weekly
	Fence Damage	√	Checked Weekly
	Gate Alignment and Swing Action	√	Checked Weekly
	Fire Extinguishers	√	Checked Weekly (Inspected 10/6/21)
	Yard Hydrants (2)	√	Checked Weekly (Tested 10/6/21)
	Large Fire Boss	√	Checked Weekly
	Lock Lubrication and Function	√	Checked Weekly
9	**PLC Cabinet**		Checked Weekly
	Vandalism	√	Checked Weekly
	Power Supply	√	Checked Weekly
	Test Lamps	√	Checked Weekly
	Circular Chart	√	Checked Weekly
	Louvers Open	√	Checked Weekly
	"Auto"Start	√	Checked Weekly
	Purge Motor	√	Checked Weekly
	Louvers Close / Pilot	√	Checked Weekly
	Blowers Activated	√	Checked Weekly
	Shutdown Valve Open	√	Checked Weekly
	Manually Adjust Louvers (optional)	√	Checked Weekly
	Autodialer Activated	√	Checked Weekly

FORM DP-1
LANDFILL GAS MANAGEMENT SYSTEM
JUNE 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
6/18/24	Flare station	NYCDEP Scheduled permit inspection and emergency shutdown test on 6/19.	TRC, SCS, and JCI were on-Site on 06/18 to perform a dry-run test of the emergency shutdown. TRC, SCS, JCI, and FDNY were on-site for official inspection on 06/19/2024. Inspection passed and the permit was granted.
6/17/24	Flare station (remote access)	TRC notes an issue with the Honeywell Ultraviolet Flame Detector trigering a Low Flame SD alarm and causing a flare shutdown.	SCS installed a new UV Flame Detector on 06/17/2024.

Date: 6/18/2024

Inspected By: **I. Gonzalez**

Signature: 

FORM LGM-1

FLARE STATION MONTHLY OPERATION SUMMARY

LANDFILL GAS MANAGEMENT

JULY 2024

BROOKFIELD AVENUE LANDFILL

Date	Day	Time	Vac (in. of H20)	Blower 301 (SCFM)	Blower 302 (SCFM)	Total SCFM	% CH4	% O2	Temperature (°F)	Blower 301 (hrs)	Blower 302 (hrs)	Blower Frequency (Hz)	Blower 301 (Amps)	Blower 302 (Amps)	Remarks
7/1/2024	Monday					1172	195.3	48.8		43086	43011				
7/2/2024	Tuesday					1172	195.3	48.8		43086	43011				
7/3/2024	Wednesday	11:55	0.0	0	0	0	22.1	0.6	92	43086	43011	0.0	0	0.0	Flare off
7/4/2024	Thursday					0	28.4	0.0		43086	43011				
7/5/2024	Friday					0	32.4	0.0		43086	43011				
7/6/2024	Saturday					0	35.6	0.0		43086	43011				
7/7/2024	Sunday					0	38.2	0.0		43086	43011				
7/8/2024	Monday	11:31	-5.5	113	0	136	37.4	0.1	1650	43086	43012	25.9	6.0	5.8	Restarted flare
7/9/2024	Tuesday					167	38.9	0.3		43110	43035				
7/10/2024	Wednesday					169	37.2	0.4		43134	43059				
7/11/2024	Thursday					168	35.6	0.2		43158	43083				
7/12/2024	Friday					167	33.9	0.5		43182	43107				
7/13/2024	Saturday					165	32.3	0.7		43206	43131				
7/14/2024	Sunday					164	30.6	0.8		43230	43155				
7/15/2024	Monday					169	29.0	1.0		43252	43177				
7/16/2024	Tuesday	8:55	-4.8	95	0	115	25.8	0.9	1690	43275	43201	25.7	5.8	5.6	Flare on upon arrival
7/17/2024	Wednesday					162	27.5	1.1		43298	43224				
7/18/2024	Thursday					163	26.7	1.0		43322	43248				
7/19/2024	Friday					0	19.8	0.8		43346	43271				
7/20/2024	Saturday					0	19.8	0.8		43346	43271				
7/21/2024	Sunday					0	19.8	0.8		43346	43271				
7/22/2024	Monday					0	33.4	0.2		43346	43271				
7/23/2024	Tuesday					169	29.4	0.3		43370	43295				
7/24/2024	Wednesday	14:29	-5.3	102	0	120	24.9	0.9	1692	43398	43324	24.3	5.8	5.6	Restarted flare
7/25/2024	Thursday					173	27.5	1.0		43417	43343				
7/26/2024	Friday					174	27.8	1.3		43441	43367				
7/27/2024	Saturday					174	28.6	1.5		43465	43391				
7/28/2024	Sunday					182	28.1	1.6		43489	43415				
7/29/2024	Monday	9:31	-5.5	166	0	175	31.2	1.8	1776	43513	43439	23.9	5.8	5.6	Flare on upon arrival
7/30/2024	Tuesday					0	42.1	0.1		43525	43450				
7/31/2024	Wednesday					0	42.1	0.1		43525	43450				
					AVG	161.8	30.6	0.6	TOTAL	439	439				
					TOTAL MONTHLY SCF										
						4,261,227									

COMMENTS

FORM LGM-2

MONTHLY MONITORING ACTIVITIES CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

July-24

Date: 7-16-2024	**Inspected by: D.Cordisco**
Clear	**Temperature: 80-85 degree. F**
Barometric Pressure (Hg): 29.86	

	MONITORING TASK	INSPECT	REMARKS
Gauges	**Blower Vacuum (in. WC)**		
	PDI-301	√	Checked Weekly
	PD!-302	√	Checked Weekly
	Flow Transmitter (SCFM)		
	FT-301	√	Checked Weekly
	FT-302	√	Checked Weekly
	Field Inlet Temperature (◦F)		
	TI-301	√	Checked Weekly
	TI-302	√	Checked Weekly
	Pressure Differential Indicator		
	PDI-301	√	Checked Weekly
	PDI-302	√	Checked Weekly
	Pressure Indicator		
	PI-301	√	Checked Weekly
	PI-302	√	Checked Weekly
	Blower Inlet Temperature (◦F)		
	TI-303	√	Checked Weekly
	TI-304	√	Checked Weekly
	Pressure Indicator		
	PI-303	√	Checked Weekly
	PI-304	√	Checked Weekly
	Blower Discharge Temperature (◦F)		
	TI-305	√	Checked Weekly
	TI-306	√	Checked Weekly
	Flow Transmitter Totalizer (SCFM)		
	FT-303	√	Checked Weekly
	FAU - TDL Gas Analyzer	√	Checked Weekly
	%CH4 (0-100%)	√	Checked Weekly
	CO2 (0-100%0	√	Checked Weekly
	O2 (0-25%)	√	Checked Weekly
CP	**Control Panel/ PLC Analog Data**		
	Landfill Vacuum (in. WC)	√	Checked Weekly
	Flow (SCFM)	√	Checked Weekly
	Blower 301 hrs.	√	Greased on 3/27/24
	Blower 302 hrs.	√	Greased on 3/27/24
	Flare Temperature (◦F)	√	Checked Weekly
	LFG % Methane	√	Checked Weekly
	LFG % Oxygen	√	Checked Weekly
	Area LEL	√	Checked Weekly
	Blower Frequency (Hz)	√	Checked Weekly
	Blower (Amps)	√	Checked Weekly

FORM LGM-3
INSPECTION CHECKLIST
LANDFILL GAS MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

16-Jul-24				Inspected By: D. Cordisco
INSPECTION TASK	**LOCATION**			**REMARKS**
Daily	**Blower 301**	**Blower 302**	**Flare**	
Visibly Inspect the Unit - repair leaks and loose wires	--	--	√	7/17/2024
Test Lamps by Pushing the Run Lamp and Alarm Shutdown	--	--	√	7/17/2024
Inspect Power Distribution System	--	--	√	7/17/2024
Weekly	**Blower 301**	**Blower 302**	**Flare**	
Rotate Shafts on Blowers	√	√	--	7/17/2024
			--	
			--	
			--	
			--	
			--	
Monthly	**Gas Well Vaults No.**			
Well Casings, Valves, Instruments, Piping	√			7/17/2024
Odors, High Gas Readings,	√			7/17/2024
Dead Vegetation, Settlement	√			7/17/2024
Vandalism, Damage, Destruction	√			7/17/2024
Settling, Deterioration of Base	√			7/17/2024
Fading of Labels, Nesting insects	√			7/17/2024
Check Condensate Drains	√			7/17/2024
Bolted Lids	√			7/17/2024
Quarterly	**Blower 301**	**Blower 302**	**Flare**	
Lubricate Blowers / Check by Testing Hand and Auto Position	√	√	--	6/26/2024
Inspect Ignitor Gap, Wiring,Pilot, Thermocouple Voltage	--	--	√	6/26/2024
Shut Down Valve FV-301	√	√	√	6/26/2024
Zero out Pressure, Delta Pressure, and Vacuum Gauges	√	√	√	6/26/2024
Remove Debris in 8" Blind Flange Inspection Port	√	√	√	6/26/2024
Test Louvers	√	√	√	6/26/2024
Test Pilot Fail Shutdown	√	√	√	6/26/2024
Test Flame Fail Shutdown	√	√	√	6/26/2024
Test Low Temperature Shutdown	√	√	√	6/26/2024
Semi- Annual	**Gas Well Vaults No.**			
Open Wellhead Vaults Check for Mechanical Issues	√			4/24/2024
Inspect All Fittings	√			4/24/2024
Open Condensate Drain Hatch and Inspect	√			4/24/2024
Annual	**Gas Well Vaults No.**	**Flare**		
Open and Close Throttling Valve	√	√		
Inspect Sampling Port, Quick Connect Fittings	√	√		
Inspect Air Flow Rates of all Landfill Pipe Sections	√	√		
Shut Flare Down:	√	√		
Check for Loose Bolts on Structure and Flanges	√	√		
Check Chart Recorder Configuration Sheets Against Actual Secttings to Confirm no Alterations	√	√		

COMMENTS

On 1-19-21 replaced new hoses from nitrogen tank to block valve. Also replaced heat trace surrounding the block valve due to faulty prior assembly.

5/5/21 Replaced missing bolt in B-10	4/12/22 Propane changed out.
5/5/21 Drained low spot at e-hill	6/22/22 Drained low spot e-hill
5/5/21 Replaced broken valve at B-11	8/11/22 Flare down electrical issues
8/4/21 Drained low spot at e-hill	9/8/22 Drained low spot at e-hill
11/5/21 Drained low spot at E-hill	9/8/22 PLC/Chart recorder issues
1/6/2022 Drained low spot at E-hill	9/20/22 RMC repair
2/4/2022 Drained low spot at E-hill	10/11/2023 Drained low spot at e-hill
4/5/2022 Drained low spot at E-hill	

FORM LFG-1

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

7/16/2024			**Inspected by : D. Cordisco**
Clear			**Temperature (deg. F): 80-85 deg. F**
			Humidity (%): 60
MONITORING TASK			**DATE**
1	**Flare Piping**		Checked Weekly
	Bolts secure	√	
	Paint	√	
2	**Manual Valves**		Checked Weekly
	Normally Open	√	
3	**Propane Gas**		Checked Weekly
	Available - (regulator open)	√	
4	**Nitrogen Gas**		Checked Weekly
	Open Valve- Check Quantity	√	
5	**Blowers**		Checked Daily - Greased 3/27/24
	Turn Manually (≤ 32◦F)	√	
6	**Alarms (Clear)**		Checked Weekly
	Combustible Gas Detectors	√	Checked Weekly FDNY 10/28/22
	Sharp Eye IR/UV	√	Checked weekly Replaced unit 301 on 10/2/2019 w/FDNY
	FACP - System Normal	√	(Annual FDNY Inspection by SG 10/28/22
	Power	√	Checked Weekly
7	**Gas Analyzer**		Weekly
	% Methane available (25-50%)	√	Weekly
	% Oxygen (≤ 5%)	√	Weekly
	check valve	√	Weekly
8	**PERIMETER, FENCE, GATES & LOCKS**		Checked Weekly
	Vandalism	√	Checked Weekly
	Debris	√	Checked Weekly
	Fence Damage	√	Checked Weekly
	Gate Alignment and Swing Action	√	Checked Weekly
	Fire Extinguishers	√	Checked Weekly (Inspected 10/6/21)
	Yard Hydrants (2)	√	Checked Weekly (Tested 10/6/21)
	Large Fire Boss	√	Checked Weekly
	Lock Lubrication and Function	√	Checked Weekly
9	**PLC Cabinet**		Checked Weekly
	Vandalism	√	Checked Weekly
	Power Supply	√	Checked Weekly
	Test Lamps	√	Checked Weekly
	Circular Chart	√	Checked Weekly
	Louvers Open	√	Checked Weekly
	"Auto"Start	√	Checked Weekly
	Purge Motor	√	Checked Weekly
	Louvers Close / Pilot	√	Checked Weekly
	Blowers Activated	√	Checked Weekly
	Shutdown Valve Open	√	Checked Weekly
	Manually Adjust Louvers (optional)	√	Checked Weekly
	Autodialer Activated	√	Checked Weekly

FORM DP-1

LANDFILL GAS MANAGEMENT SYSTEM

July 2024

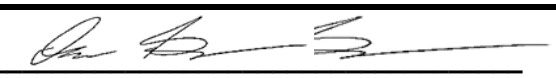
DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken

Date: 7/17/2024

Inspected By: I. Gonzalez

Signature: 

FORM LGM-1

FLARE STATION MONTHLY OPERATION SUMMARY

LANDFILL GAS MANAGEMENT

AUGUST 2024

BROOKFIELD AVENUE LANDFILL

Date	Day	Time	Vac (in. of H20)	Blower 301 (SCFM)	Blower 302 (SCFM)	Total SCFM	% CH4	% O2	Temperature (°F)	Blower 301 (hrs)	Blower 302 (hrs)	Blower Frequency (Hz)	Blower 301 (Amps)	Blower 302 (Amps)	Remarks
8/1/2024	Thursday					0	7.3	12.7		43536	43462				
8/2/2024	Friday					186	28.7	3.1		435343	43468				
8/3/2024	Saturday					0	0.0	0.0		43537	43469				
8/4/2024	Sunday					0	0.0	0.0		43538	43470				
8/5/2024	Monday					0	0.0	0.0		43539	43471				Panel Connection Time out, unable to retrieve data
8/6/2024	Tuesday					0	0.0	0.0		43540	43472				
8/7/2024	Wednesday					0	0.0	0.0		43541	43473				
8/8/2024	Thursday	8:57	-5.3	141	0	187	33.5	0.4	1660	43554	43479	26.3	5.8	6.0	Flare off upon arrival: restarted
8/9/2024	Friday					150	7.3	12.7		43567	43493				
8/10/2024	Saturday					0	0.0	0.0		43583	43508				
8/11/2024	Sunday					199	0.0	0.0		43583	43508				
8/12/2024	Monday					0	47.1	0.2		43583	43508				
8/13/2024	Tuesday	10:14	-6.1	130	0	0	32.0	0.3	1738	43584	43509	25.4	5.7	5.8	Flare on upon arrival
8/14/2024	Wednesday					0	21.0	7.2		43599	43525				
8/15/2024	Thursday					0	15.5	10.1		43599	43525				
8/16/2024	Friday					0	46.3	2.0		43599	43525				
8/17/2024	Saturday					0	0.0	0.0		43599	43525				
8/18/2024	Sunday					0	0.0	0.0		43599	43525				
8/19/2024	Monday					0	62.5	0.0		43599	43525				
8/20/2024	Tuesday					0	0.2	19.7		43599	43525				
8/21/2024	Wednesday					0	1.2	18.6		43599	43525				
8/22/2024	Thursday					0	1.2	18.1		43599	43525				
8/23/2024	Friday	9:13	-0.2	0	0	0	2.2	18.4	91	43599	43525	0.0	0.0	0.0	Flare off
8/24/2024	Saturday					0	20.5	0.0		43599	43525				
8/25/2024	Sunday					0	22.6	0.0		43599	43525				
8/26/2024	Monday	9:27	0.2	154	0	0	23.5	0.4	1682	43599	43525	26.4	5.9	5.9	Flare off upon arrival: restarted
8/27/2024	Tuesday					175	32.4	1.6		43623	43549				
8/28/2024	Wednesday					183	32.5	1.5		43644	43569				
8/29/2024	Thursday					0	21.4	4.0		43659	43584				
8/30/2024	Friday					0	9.6	1.8		43659	43584				
8/31/2024	Saturday					0	9.6	1.8		43659	43584				
					AVG	34.8	15.4	4.3	TOTAL	123	122				
						TOTAL MONTHLY SCF									
						255,019									

COMMENTS

FORM LGM-2

MONTHLY MONITORING ACTIVITIES CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

August-24

Date: 8-23-2024	**Inspected by: D.Cordisco**
Clear	**Temperature: 70-75 degree. F**
Barometric Pressure (Hg): 29.86	

	MONITORING TASK	INSPECT	REMARKS
Gauges	**Blower Vacuum (in. WC)**		
	PDI-301	√	Checked Weekly
	PD!-302	√	Checked Weekly
	Flow Transmitter (SCFM)		
	FT-301	√	Checked Weekly
	FT-302	√	Checked Weekly
	Field Inlet Temperature (◦F)		
	TI-301	√	Checked Weekly
	TI-302	√	Checked Weekly
	Pressure Differential Indicator		
	PDI-301	√	Checked Weekly
	PDI-302	√	Checked Weekly
	Pressure Indicator		
	PI-301	√	Checked Weekly
	PI-302	√	Checked Weekly
	Blower Inlet Temperature (◦F)		
	TI-303	√	Checked Weekly
	TI-304	√	Checked Weekly
	Pressure Indicator		
	PI-303	√	Checked Weekly
	PI-304	√	Checked Weekly
	Blower Discharge Temperature (◦F)		
	TI-305	√	Checked Weekly
	TI-306	√	Checked Weekly
	Flow Transmitter Totalizer (SCFM)		
	FT-303	√	Checked Weekly
	FAU - TDL Gas Analyzer	√	Checked Weekly
	%CH4 (0-100%)	√	Checked Weekly
	CO2 (0-100%0	√	Checked Weekly
	O2 (0-25%)	√	Checked Weekly
CP	**Control Panel/ PLC Analog Data**		
	Landfill Vacuum (in. WC)	√	Checked Weekly
	Flow (SCFM)	√	Checked Weekly
	Blower 301 hrs.	√	Greased on 3/27/24
	Blower 302 hrs.	√	Greased on 3/27/24
	Flare Temperature (◦F)	√	Checked Weekly
	LFG % Methane	√	Checked Weekly
	LFG % Oxygen	√	Checked Weekly
	Area LEL	√	Checked Weekly
	Blower Frequency (Hz)	√	Checked Weekly
	Blower (Amps)	√	Checked Weekly

FORM LGM-3

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

23-Aug-24				Inspected By: D. Cordisco
INSPECTION TASK	**LOCATION**			**REMARKS**
Daily	**Blower 301**	**Blower 302**	**Flare**	
Visibly Inspect the Unit - repair leaks and loose wires	--	--	√	8/23/2024
Test Lamps by Pushing the Run Lamp and Alarm Shutdown	--	--	√	8/23/2024
Inspect Power Distribution System	--	--	√	8/23/2024
Weekly	**Blower 301**	**Blower 302**	**Flare**	
Rotate Shafts on Blowers	√	√	--	8/23/2024
			--	
			--	
			--	
			--	
			--	
Monthly	**Gas Well Vaults No.**			
Well Casings, Valves, Instruments, Piping	√			8/23/2024
Odors, High Gas Readings,	√			8/23/2024
Dead Vegetation, Settlement	√			8/23/2024
Vandalism, Damage, Destruction	√			8/23/2024
Settling, Deterioration of Base	√			8/23/2024
Fading of Labels, Nesting insects	√			8/23/2024
Check Condensate Drains	√			8/23/2024
Bolted Lids	√			8/23/2024
Quarterly	**Blower 301**	**Blower 302**	**Flare**	
Lubricate Blowers / Check by Testing Hand and Auto Position	√	√	--	6/26/2024
Inspect Ignitor Gap, Wiring,Pilot, Thermocouple Voltage	--	--	√	6/26/2024
Shut Down Valve FV-301	√	√	√	6/26/2024
Zero out Pressure, Delta Pressure, and Vacuum Gauges	√	√	√	6/26/2024
Remove Debris in 8" Blind Flange Inspection Port	√	√	√	6/26/2024
Test Louvers	√	√	√	6/26/2024
Test Pilot Fail Shutdown	√	√	√	6/26/2024
Test Flame Fail Shutdown	√	√	√	6/26/2024
Test Low Temperature Shutdown	√	√	√	6/26/2024
Semi- Annual	**Gas Well Vaults No.**			
Open Wellhead Vaults Check for Mechanical Issues	√			4/24/2024
Inspect All Fittings	√			4/24/2024
Open Condensate Drain Hatch and Inspect	√			4/24/2024
Annual	**Gas Well Vaults No.**	**Flare**		
Open and Close Throttling Valve	√	√		
Inspect Sampling Port, Quick Connect Fittings	√	√		
Inspect Air Flow Rates of all Landfill Pipe Sections	√	√		
Shut Flare Down:	√	√		
Check for Loose Bolts on Structure and Flanges	√	√		
Check Chart Recorder Configuration Sheets Against Actual Secttings to Confirm no Alterations	√	√		

COMMENTS

On 1-19-21 replaced new hoses from nitrogen tank to block valve. Also replaced heat trace surrounding the block valve due to faulty prior assembly.

5/5/21 Replaced missing bolt in B-10	4/12/22 Propane changed out.
5/5/21 Drained low spot at e-hill	6/22/22 Drained low spot e-hill
5/5/21 Replaced broken valve at B-11	8/11/22 Flare down electrical issues
8/4/21 Drained low spot at e-hill	9/8/22 Drained low spot at e-hill
11/5/21 Drained low spot at E-hill	9/8/22 PLC/Chart recorder issues
1/6/2022 Drained low spot at E-hill	9/20/22 RMC repair
2/4/2022 Drained low spot at E-hill	10/11/2023 Drained low spot at e-hill
4/5/2022 Drained low spot at E-hill	

FORM LFG-1

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

8/23/2024			**Inspected by : D. Cordisco**
Clear			**Temperature (deg. F): 70-75 deg. F**
			Humidity (%): 60
MONITORING TASK			**DATE**
1	**Flare Piping**		Checked Weekly
	Bolts secure	√	
	Paint	√	
2	**Manual Valves**		Checked Weekly
	Normally Open	√	
3	**Propane Gas**		Checked Weekly
	Available - (regulator open)	√	
4	**Nitrogen Gas**		Checked Weekly
	Open Valve- Check Quantity	√	
5	**Blowers**		Checked Daily - Greased 8/23/24
	Turn Manually (≤ 32◦F)	√	
6	**Alarms (Clear)**		Checked Weekly
	Combustible Gas Detectors	√	Checked Weekly FDNY 10/28/22
	Sharp Eye IR/UV	√	Checked weekly Replaced unit 301 on 10/2/2019 w/FDNY
	FACP - System Normal	√	(Annual FDNY Inspection by SG 10/28/22
	Power	√	Checked Weekly
7	**Gas Analyzer**		Weekly
	% Methane available (25-50%)	√	Weekly
	% Oxygen (≤ 5%)	√	Weekly
	check valve	√	Weekly
8	**PERIMETER, FENCE, GATES & LOCKS**		Checked Weekly
	Vandalism	√	Checked Weekly
	Debris	√	Checked Weekly
	Fence Damage	√	Checked Weekly
	Gate Alignment and Swing Action	√	Checked Weekly
	Fire Extinguishers	√	Checked Weekly (Inspected 10/6/21)
	Yard Hydrants (2)	√	Checked Weekly (Tested 10/6/21)
	Large Fire Boss	√	Checked Weekly
	Lock Lubrication and Function	√	Checked Weekly
9	**PLC Cabinet**		Checked Weekly
	Vandalism	√	Checked Weekly
	Power Supply	√	Checked Weekly
	Test Lamps	√	Checked Weekly
	Circular Chart	√	Checked Weekly
	Louvers Open	√	Checked Weekly
	"Auto"Start	√	Checked Weekly
	Purge Motor	√	Checked Weekly
	Louvers Close / Pilot	√	Checked Weekly
	Blowers Activated	√	Checked Weekly
	Shutdown Valve Open	√	Checked Weekly
	Manually Adjust Louvers (optional)	√	Checked Weekly
	Autodialer Activated	√	Checked Weekly

FORM DP-1
LANDFILL GAS MANAGEMENT SYSTEM
AUGUST 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
8/2/24	Flare Station Panel	To impore flare running efficiency, TRC proposed adjusments to Flare Runtime programing.	TRC(Barry Klein and Ivan Gonzalez) programmed shut down at 12 am, with start up at 2am, total 22 hours of run

Date: 8/23/2024

Inspected By: **I. Gonzalez**

Signature: _____

FORM LGM-1

FLARE STATION MONTHLY OPERATION SUMMARY

LANDFILL GAS MANAGEMENT

SEPTEMBER 2024

BROOKFIELD AVENUE LANDFILL

Date	Day	Time	Vac (in. of H20)	Blower 301 (SCFM)	Blower 302 (SCFM)	Total SCFM	% CH4	% O2	Temperature (°F)	Blower 301 (hrs)	Blower 302 (hrs)	Blower Frequency (Hz)	Blower 301 (Amps)	Blower 302 (Amps)	Remarks
9/1/2024	Sunday					0	9.6	1.8	0	43659	43584				
9/2/2024	Monday					0	9.6	1.8	0	43659	43584				
9/3/2024	Tuesday	9:09	0.0	0	0	0	28.8	5.9	241			0.0	0.0	0.0	Flare off upon arrival: unable to restart
9/4/2024	Wednesday					0	0.0	0.0		43674	43599				
9/5/2024	Thursday					142	33.8	1.3		43675	43600				
9/6/2024	Friday					134	32.6	1.9		43701	43626				
9/7/2024	Saturday					0									
9/8/2024	Sunday					0									Panel Connection Timeout
9/9/2024	Monday					0									
9/10/2024	Tuesday					0									
9/11/2024	Wednesday					131	31.5	1.5	1720	43724	43649				
9/12/2024	Thursday					132	30.3	2.4	1760	43732	43658				
9/13/2024	Friday	10:03	-2.4	139	0	207	25.4	1.6	1700	43744	43670	25.8	5.8	5.8	Flare on upon arrival
9/14/2024	Saturday					0									
9/15/2024	Sunday					0									Panel Connection Timeout
9/16/2024	Monday					0									
9/17/2024	Tuesday	13:20	0.0	0	0	0	34.4	1.6	91	43790	43716	0.0	0.0	0.0	Flare off upon arrival; unable to restart
9/18/2024	Wednesday					0									
9/19/2024	Thursday					0									
9/20/2024	Friday					0									
9/21/2024	Saturday					0									
9/22/2024	Sunday					0									Panel Connection Timeout
9/23/2024	Monday					0									
9/24/2024	Tuesday					0									
9/25/2024	Wednesday					0									
9/26/2024	Thursday					0									
9/27/2024	Friday	9:27	-5.1	131	0	187	28.8	2.2	1697	43857	43783	24.7	5.7	5.7	Flare on upon arrival
9/28/2024	Saturday					0									
9/29/2024	Sunday					0									Panel Connection Timeout
9/30/2024	Monday					0				43913	43839				
					AVG	31.1	24.1	2.0	TOTAL	254	255				
					TOTAL MONTHLY SCF										
						475,830									

COMMENTS

FORM LGM-2

MONTHLY MONITORING ACTIVITIES CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

August-24

Date: 9-27-2024	**Inspected by: D.Cordisco**
Cloudy	**Temperature: 70-75 degree. F**
Barometric Pressure (Hg): 30.02	

	MONITORING TASK	INSPECT	REMARKS
Gauges	**Blower Vacuum (in. WC)**		
	PDI-301	√	Checked Weekly
	PD!-302	√	Checked Weekly
	Flow Transmitter (SCFM)		
	FT-301	√	Checked Weekly
	FT-302	√	Checked Weekly
	Field Inlet Temperature (◦F)		
	TI-301	√	Checked Weekly
	TI-302	√	Checked Weekly
	Pressure Differential Indicator		
	PDI-301	√	Checked Weekly
	PDI-302	√	Checked Weekly
	Pressure Indicator		
	PI-301	√	Checked Weekly
	PI-302	√	Checked Weekly
	Blower Inlet Temperature (◦F)		
	TI-303	√	Checked Weekly
	TI-304	√	Checked Weekly
	Pressure Indicator		
	PI-303	√	Checked Weekly
	PI-304	√	Checked Weekly
	Blower Discharge Temperature (◦F)		
	TI-305	√	Checked Weekly
	TI-306	√	Checked Weekly
	Flow Transmitter Totalizer (SCFM)		
	FT-303	√	Checked Weekly
	FAU - TDL Gas Analyzer	√	Checked Weekly
	%CH4 (0-100%)	√	Checked Weekly
	CO2 (0-100%0	√	Checked Weekly
	O2 (0-25%)	√	Checked Weekly
CP	**Control Panel/ PLC Analog Data**		
	Landfill Vacuum (in. WC)	√	Checked Weekly
	Flow (SCFM)	√	Checked Weekly
	Blower 301 hrs.	√	Greased on 3/27/24
	Blower 302 hrs.	√	Greased on 3/27/24
	Flare Temperature (◦F)	√	Checked Weekly
	LFG % Methane	√	Checked Weekly
	LFG % Oxygen	√	Checked Weekly
	Area LEL	√	Checked Weekly
	Blower Frequency (Hz)	√	Checked Weekly
	Blower (Amps)	√	Checked Weekly

FORM LGM-3

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

27-Sep-24				Inspected By: D. Cordisco
INSPECTION TASK	**LOCATION**			**REMARKS**
Daily	**Blower 301**	**Blower 302**	**Flare**	
Visibly Inspect the Unit - repair leaks and loose wires	--	--	√	9/27/2024
Test Lamps by Pushing the Run Lamp and Alarm Shutdown	--	--	√	9/27/2024
Inspect Power Distribution System	--	--	√	9/27/2024
Weekly	**Blower 301**	**Blower 302**	**Flare**	
Rotate Shafts on Blowers	√	√	--	9/27/2024
			--	
			--	
			--	
			--	
			--	
Monthly	**Gas Well Vaults No.**			
Well Casings, Valves, Instruments, Piping	√			9/27/2024
Odors, High Gas Readings,	√			9/27/2024
Dead Vegetation, Settlement	√			9/27/2024
Vandalism, Damage, Destruction	√			9/27/2024
Settling, Deterioration of Base	√			9/27/2024
Fading of Labels, Nesting insects	√			9/27/2024
Check Condensate Drains	√			9/27/2024
Bolted Lids	√			9/27/2024
Quarterly	**Blower 301**	**Blower 302**	**Flare**	
Lubricate Blowers / Check by Testing Hand and Auto Position	√	√	--	9/27/2024
Inspect Ignitor Gap, Wiring,Pilot, Thermocouple Voltage	--	--	√	9/27/2024
Shut Down Valve FV-301	√	√	√	9/27/2024
Zero out Pressure, Delta Pressure, and Vacuum Gauges	√	√	√	9/27/2024
Remove Debris in 8" Blind Flange Inspection Port	√	√	√	9/27/2024
Test Louvers	√	√	√	9/27/2024
Test Pilot Fail Shutdown	√	√	√	9/27/2024
Test Flame Fail Shutdown	√	√	√	9/27/2024
Test Low Temperature Shutdown	√	√	√	9/27/2024
Semi- Annual	**Gas Well Vaults No.**			
Open Wellhead Vaults Check for Mechanical Issues	√			4/24/2024
Inspect All Fittings	√			4/24/2024
Open Condensate Drain Hatch and Inspect	√			4/24/2024
Annual	**Gas Well Vaults No.**	**Flare**		
Open and Close Throttling Valve	√	√		
Inspect Sampling Port, Quick Connect Fittings	√	√		9/27/2024
Inspect Air Flow Rates of all Landfill Pipe Sections	√	√		
Shut Flare Down:	√	√		9/27/2024
Check for Loose Bolts on Structure and Flanges	√	√		9/27/2024
Check Chart Recorder Configuration Sheets Against Actual Secttings to Confirm no Alterations	√	√		9/27/2024

COMMENTS

On 1-19-21 replaced new hoses from nitrogen tank to block valve. Also replaced heat trace surrounding the block valve due to faulty prior assembly.

5/5/21 Replaced missing bolt in B-10	4/12/22 Propane changed out.
5/5/21 Drained low spot at e-hill	6/22/22 Drained low spot e-hill
5/5/21 Replaced broken valve at B-11	8/11/22 Flare down electrical issues
8/4/21 Drained low spot at e-hill	9/8/22 Drained low spot at e-hill
11/5/21 Drained low spot at E-hill	9/8/22 PLC/Chart recorder issues
1/6/2022 Drained low spot at E-hill	9/20/22 RMC repair
2/4/2022 Drained low spot at E-hill	10/11/2023 Drained low spot at e-hill
4/5/2022 Drained low spot at E-hill	

FORM LFG-1

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

9/27/2024			**Inspected by : D. Cordisco**
Cloudy			**Temperature (deg. F): 60-70 deg. F**
			Humidity (%): 60
MONITORING TASK			**DATE**
1	**Flare Piping**		Checked Weekly
	Bolts secure	√	
	Paint	√	
2	**Manual Valves**		Checked Weekly
	Normally Open	√	
3	**Propane Gas**		Checked Weekly
	Available - (regulator open)	√	
4	**Nitrogen Gas**		Checked Weekly
	Open Valve- Check Quantity	√	
5	**Blowers**		Checked Daily - Greased 8/23/24
	Turn Manually (≤ 32◦F)	√	
6	**Alarms (Clear)**		Checked Weekly
	Combustible Gas Detectors	√	Checked Weekly FDNY 10/28/22
	Sharp Eye IR/UV	√	Checked weekly Replaced unit 301 on 10/2/2019 w/FDNY
	FACP - System Normal	√	(Annual FDNY Inspection by SG 10/28/22
	Power	√	Checked Weekly
7	**Gas Analyzer**		Weekly
	% Methane available (25-50%)	√	Weekly
	% Oxygen (≤ 5%)	√	Weekly
	check valve	√	Weekly
8	**PERIMETER, FENCE, GATES & LOCKS**		Checked Weekly
	Vandalism	√	Checked Weekly
	Debris	√	Checked Weekly
	Fence Damage	√	Checked Weekly
	Gate Alignment and Swing Action	√	Checked Weekly
	Fire Extinguishers	√	Checked Weekly (Inspected 10/6/21)
	Yard Hydrants (2)	√	Checked Weekly (Tested 10/6/21)
	Large Fire Boss	√	Checked Weekly
	Lock Lubrication and Function	√	Checked Weekly
9	**PLC Cabinet**		Checked Weekly
	Vandalism	√	Checked Weekly
	Power Supply	√	Checked Weekly
	Test Lamps	√	Checked Weekly
	Circular Chart	√	Checked Weekly
	Louvers Open	√	Checked Weekly
	"Auto"Start	√	Checked Weekly
	Purge Motor	√	Checked Weekly
	Louvers Close / Pilot	√	Checked Weekly
	Blowers Activated	√	Checked Weekly
	Shutdown Valve Open	√	Checked Weekly
	Manually Adjust Louvers (optional)	√	Checked Weekly
	Autodialer Activated	√	Checked Weekly

FORM DP-1

LANDFILL GAS MANAGEMENT SYSTEM

September 2024

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken

Date: 9/17/2024

Inspected By: E. He

Signature: Eric He

FORM LGM-1

FLARE STATION MONTHLY OPERATION SUMMARY

LANDFILL GAS MANAGEMENT

OCTOBER 2024

BROOKFIELD AVENUE LANDFILL

Date	Day	Time	Vac (in. of H20)	Blower 301 (SCFM)	Blower 302 (SCFM)	Total SCFM	% CH4	% O2	Temperature (°F)	Blower 301 (hrs)	Blower 302 (hrs)	Blower Frequency (Hz)	Blower 301 (Amps)	Blower 302 (Amps)	Remarks
10/1/2024	Tuesday					180	27.5	3.5		43913	43849				
10/2/2024	Wednesday					180	26.3	2.6		43933	43859				
10/3/2024	Thursday					0	21.7	4.0		43947	43873				
10/4/2024	Friday					0	7.3	7.5		43947	43873				
10/5/2024	Saturday					0	15.0	0.0		43947	43873				
10/6/2024	Sunday					0	24.0	0.0		43947	43873				
10/7/2024	Monday					0	42.9	0.0		43947	43873				
10/8/2024	Tuesday					184	37.0	2.1		43953	43879				
10/9/2024	Wednesday					0	35.0	0.0		43955	43881				
10/10/2024	Thursday					0	33.0	0.0		43955	43881				
10/11/2024	Friday	8:54	-5.8	147	0	220	32.4	2.7	1725	43959	43884	26.2	5.9	6.0	Flare off upon arrival; restarted
10/12/2024	Saturday					183	31.0	2.7		43979	43904				
10/13/2024	Sunday					195	31.4	2.9		43997	43922				
10/14/2024	Monday					188	30.5	3.4		44019	43945				
10/15/2024	Tuesday					0	22.4	15.3		44022	43948				
10/16/2024	Wednesday					0	20.1	11.4		44025	43951				
10/17/2024	Thursday					0	12.5	11.7		44028	43954				
10/18/2024	Friday	10:07	-0.3	0	0	0	21.9	8.2	160	44028	43954	0.0	0.0	0.0	Flare off upon arrival; unable to restart
10/19/2024	Saturday					0	12.5	11.7		44028	43954				
10/20/2024	Sunday					0	12.5	11.7		44028	43954				
10/21/2024	Monday					0	23.1	1.1		44035	43961				
10/22/2024	Tuesday	10:08	-0.7	0	0	0	19.8	3.6	87	44043	43969	0.0	0.0	0.0	Flare off upon arrival: unable to restart
10/23/2024	Wednesday					0	22.0	1.1		44043	43969				
10/24/2024	Thursday					0	19.4	1.1		44043	43969				
10/25/2024	Friday					0	19.3	1.1		44043	43969				
10/26/2024	Saturday					0	18.4	1.1		44043	43969				
10/27/2024	Sunday					0	19.5	1.1		44043	43969				
10/28/2024	Monday					0	13.0	2.3		44043	43969				
10/29/2024	Tuesday					0	38.1	1.2		44043	43969				
10/30/2024	Wednesday	11:07	-5.2	131	0	198	26.4	5.5	1638	44055	43981	24.9	5.6	5.7	Flare on upon arrival
10/31/2024	Thursday					197	34.0	3.3		44069	44005				
					AVG	55.6	24.2	4.0	TOTAL	156	156				
						TOTAL MONTHLY SCF									
						520,839									

COMMENTS

FORM LGM-2

MONTHLY MONITORING ACTIVITIES CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

October-22

Date: 10-11-2024	**Inspected by: D. Cordisco**
Cloudy	**Temperature: 45-50 degree. F**
Barometric Pressure (Hg): 30.13	

	MONITORING TASK	INSPECT	REMARKS
Gauges	**Blower Vacuum (in. WC)**		
	PDI-301	√	Checked Weekly
	PD!-302	√	Checked Weekly
	Flow Transmitter (SCFM)		
	FT-301	√	Checked Weekly
	FT-302	√	Checked Weekly
	Field Inlet Temperature (◦F)		
	TI-301	√	Checked Weekly
	TI-302	√	Checked Weekly
	Pressure Differential Indicator		
	PDI-301	√	Checked Weekly
	PDI-302	√	Checked Weekly
	Pressure Indicator		
	PI-301	√	Checked Weekly
	PI-302	√	Checked Weekly
	Blower Inlet Temperature (◦F)		
	TI-303	√	Checked Weekly
	TI-304	√	Checked Weekly
	Pressure Indicator		
	PI-303	√	Checked Weekly
	PI-304	√	Checked Weekly
	Blower Discharge Temperature (◦F)		
	TI-305	√	Checked Weekly
	TI-306	√	Checked Weekly
	Flow Transmitter Totalizer (SCFM)		
	FT-303	√	Checked Weekly
	FAU - TDL Gas Analyzer	√	Checked Weekly
	%CH4 (0-100%)	√	Checked Weekly
	CO2 (0-100%0	√	Checked Weekly
	O2 (0-25%)	√	Checked Weekly
CP	**Control Panel/ PLC Analog Data**		
	Landfill Vacuum (in. WC)	√	Checked Weekly
	Flow (SCFM)	√	Checked Weekly
	Blower 301 hrs.	√	Greased on 8/23/24
	Blower 302 hrs.	√	Greased on 8/23/24
	Flare Temperature (◦F)	√	Checked Weekly
	LFG % Methane	√	Checked Weekly
	LFG % Oxygen	√	Checked Weekly
	Area LEL	√	Checked Weekly
	Blower Frequency (Hz)	√	Checked Weekly
	Blower (Amps)	√	Checked Weekly

FORM LGM-3

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

11-Oct-24				Inspected By: D. Cordisco
INSPECTION TASK	**LOCATION**			**REMARKS**
Daily	**Blower 301**	**Blower 302**	**Flare**	
Visibly Inspect the Unit - repair leaks and loose wires	--	--	√	10/11/2024
Test Lamps by Pushing the Run Lamp and Alarm Shutdown	--	--	√	10/11/2024
Inspect Power Distribution System	--	--	√	10/11/2024
Weekly	**Blower 301**	**Blower 302**	**Flare**	
Rotate Shafts on Blowers	√	√	--	10/11/2024
			--	
			--	
			--	
			--	
			--	
Monthly	**Gas Well Vaults No.**			
Well Casings, Valves, Instruments, Piping	√			10/11/2024
Odors, High Gas Readings,	√			10/11/2024
Dead Vegetation, Settlement	√			10/11/2024
Vandalism, Damage, Destruction	√			10/11/2024
Settling, Deterioration of Base	√			10/11/2024
Fading of Labels, Nesting insects	√			10/11/2024
Check Condensate Drains	√			10/11/2024
Bolted Lids	√			10/11/2024
Quarterly	**Blower 301**	**Blower 302**	**Flare**	
Lubricate Blowers / Check by Testing Hand and Auto Position	√	√	--	9/27/2024
Inspect Ignitor Gap, Wiring,Pilot, Thermocouple Voltage	--	--	√	9/27/2024
Shut Down Valve FV-301	√	√	√	9/27/2024
Zero out Pressure, Delta Pressure, and Vacuum Gauges	√	√	√	9/27/2024
Remove Debris in 8" Blind Flange Inspection Port	√	√	√	9/27/2024
Test Louvers	√	√	√	9/27/2024
Test Pilot Fail Shutdown	√	√	√	9/27/2024
Test Flame Fail Shutdown	√	√	√	9/27/2024
Test Low Temperature Shutdown	√	√	√	9/27/2024
Semi- Annual	**Gas Well Vaults No.**			
Open Wellhead Vaults Check for Mechanical Issues	√			4/24/2024
Inspect All Fittings	√			4/24/2024
Open Condensate Drain Hatch and Inspect	√			4/24/2024
Annual	**Gas Well Vaults No.**	**Flare**		
Open and Close Throttling Valve	√	√		
Inspect Sampling Port, Quick Connect Fittings	√	√		9/27/2024
Inspect Air Flow Rates of all Landfill Pipe Sections	√	√		
Shut Flare Down:	√	√		9/27/2024
Check for Loose Bolts on Structure and Flanges	√	√		9/27/2024
Check Chart Recorder Configuration Sheets Against Actual Secttings to Confirm no Alterations	√	√		9/27/2024

COMMENTS

On 1-19-21 replaced new hoses from nitrogen tank to block valve. Also replaced heat trace surrounding the block valve due to faulty prior assembly.

5/5/21 Replaced missing bolt in B-10	4/12/22 Propane changed out.
5/5/21 Drained low spot at e-hill	6/22/22 Drained low spot e-hill
5/5/21 Replaced broken valve at B-11	8/11/22 Flare down electrical issues
8/4/21 Drained low spot at e-hill	9/8/22 Drained low spot at e-hill
11/5/21 Drained low spot at E-hill	9/8/22 PLC/Chart recorder issues
1/6/2022 Drained low spot at E-hill	9/20/22 RMC repair
2/4/2022 Drained low spot at E-hill	10/11/2023 Drained low spot at e-hill
4/5/2022 Drained low spot at E-hill	

FORM LFG-1

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

10/11/2024			**Inspected by : D. Cordisco**
Clear			**Temperature (deg. F): 45-50 deg. F**
			Humidity (%): 60
MONITORING TASK			**DATE**
1	**Flare Piping**		Checked Weekly
	Bolts secure	√	
	Paint	√	
2	**Manual Valves**		Checked Weekly
	Normally Open	√	
3	**Propane Gas**		Checked Weekly
	Available - (regulator open)	√	
4	**Nitrogen Gas**		Checked Weekly
	Open Valve- Check Quantity	√	
5	**Blowers**		Checked Daily - Greased 8/23/24
	Turn Manually (≤ 32◦F)	√	
6	**Alarms (Clear)**		Checked Weekly
	Combustible Gas Detectors	√	Checked Weekly FDNY 10/28/22
	Sharp Eye IR/UV	√	Checked weekly Replaced unit 301 on 10/2/2019 w/FDNY
	FACP - System Normal	√	(Annual FDNY Inspection by SG 10/28/22
	Power	√	Checked Weekly
7	**Gas Analyzer**		Weekly
	% Methane available (25-50%)	√	Weekly
	% Oxygen (≤ 5%)	√	Weekly
	check valve	√	Weekly
8	**PERIMETER, FENCE, GATES & LOCKS**		Checked Weekly
	Vandalism	√	Checked Weekly
	Debris	√	Checked Weekly
	Fence Damage	√	Checked Weekly
	Gate Alignment and Swing Action	√	Checked Weekly
	Fire Extinguishers	√	Checked Weekly (Inspected 10/6/21)
	Yard Hydrants (2)	√	Checked Weekly (Tested 10/6/21)
	Large Fire Boss	√	Checked Weekly
	Lock Lubrication and Function	√	Checked Weekly
9	**PLC Cabinet**		Checked Weekly
	Vandalism	√	Checked Weekly
	Power Supply	√	Checked Weekly
	Test Lamps	√	Checked Weekly
	Circular Chart	√	Checked Weekly
	Louvers Open	√	Checked Weekly
	"Auto"Start	√	Checked Weekly
	Purge Motor	√	Checked Weekly
	Louvers Close / Pilot	√	Checked Weekly
	Blowers Activated	√	Checked Weekly
	Shutdown Valve Open	√	Checked Weekly
	Manually Adjust Louvers (optional)	√	Checked Weekly
	Autodialer Activated	√	Checked Weekly

FORM DP-1

LANDFILL GAS MANAGEMENT SYSTEM

OCTOBER 2024

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken

Date: 10/17/2024

Inspected By: E. He

Signature: Elvis He

FORM LGM-1

FLARE STATION MONTHLY OPERATION SUMMARY

LANDFILL GAS MANAGEMENT

NOVEMBER 2024

BROOKFIELD AVENUE LANDFILL

Date	Day	Time	Vac (in. of H20)	Blower 301 (SCFM)	Blower 302 (SCFM)	Total SCFM	% CH4	% O2	Temperature (°F)	Blower 301 (hrs)	Blower 302 (hrs)	Blower Frequency (Hz)	Blower 301 (Amps)	Blower 302 (Amps)	Remarks
11/1/2024	Friday					0	12.0	2.4		44079	44015				
11/2/2024	Saturday					0	19.0	5.3		44089	44025				
11/3/2024	Sunday					0	6.0	10.3		44093	44029				
11/4/2024	Monday	9:55	-0.1	0	0	0	9.2	9	60	44105	44031	0.0	0.0	0.0	unable to restart
11/5/2024	Tuesday					0	14.1	0.8		44105	44031				
11/6/2024	Wednesday					147	34.6	3.2		44107	44033				
11/7/2024	Thursday					0	19.3	1.1		44120	44045				
11/8/2024	Friday					0	18.4	1.1		44120	44045				
11/9/2024	Saturday					0	19.5	1.1		44120	44045				
11/10/2024	Sunday					0	13.0	2.3		44120	44045				
11/11/2024	Monday					0	33.0	0.2		44120	44045				
11/12/2024	Tuesday					148	20.3	3.1		44120	44045				
11/13/2024	Wednesday	10:03	-0.3	0	0	0	20.1	7.6	83	44130	44045	0.0	0.0	0.0	Flare off upon arrival; unable to restart
11/14/2024	Thursday					0	14.2	0.2		44130	44055				
11/15/2024	Friday					0	18.4	0.1		44130	44055				
11/16/2024	Saturday					0	19.1	0.1		44130	44055				
11/17/2024	Sunday					0	19.8	0.1		44130	44055				
11/18/2024	Monday					143	31.4	2.5		44130	44055				
11/19/2024	Tuesday					0	21.4	0.1		44130	44055				
11/20/2024	Wednesday	10:05	-5.4	165	0	245	17.2	14.3	1748	44131	44056	26.6	5.9	6.0	Flare off upon arrival; restarted
11/21/2024	Thursday					146	33.2	2.3		44142	44067				
11/22/2024	Friday					0	26.5	0.1		44152	44077				
11/23/2024	Saturday					147	32.4	2.8		44164	44089				
11/24/2024	Sunday					0	21.4	0.1		44164	44089				
11/25/2024	Monday					0	33.5	2.3		44164	44089				
11/26/2024	Tuesday					0	5.8	0.4		44176	44101				
11/27/2024	Wednesday	12:40	-0.1	143	0	223	22.3	2.8	161	44176	44101	26.8	6.1	6.7	Flare off upon arrival; unable to restart
11/28/2024	Thursday					0	23.5	2.8		44176	44101				
11/29/2024	Friday					0	24.6	2.8		44176	44101				
11/30/2024	Saturday					0	22.6	2.8		44176	44101				
					AVG	40.0	20.9	2.8	TOTAL	97	86				
					TOTAL MONTHLY SCF										
						206,228									

COMMENTS

FORM LGM-2

MONTHLY MONITORING ACTIVITIES CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

November-24

Date: 11-27-2024	**Inspected by: D. Cordisco**
Clear	**Temperature: 50-55 degree. F**
Barometric Pressure (Hg): 30.01	

	MONITORING TASK	INSPECT	REMARKS
Gauges	**Blower Vacuum (in. WC)**		
	PDI-301	√	Checked Weekly
	PD!-302	√	Checked Weekly
	Flow Transmitter (SCFM)		
	FT-301	√	Checked Weekly
	FT-302	√	Checked Weekly
	Field Inlet Temperature (◦F)		
	TI-301	√	Checked Weekly
	TI-302	√	Checked Weekly
	Pressure Differential Indicator		
	PDI-301	√	Checked Weekly
	PDI-302	√	Checked Weekly
	Pressure Indicator		
	PI-301	√	Checked Weekly
	PI-302	√	Checked Weekly
	Blower Inlet Temperature (◦F)		
	TI-303	√	Checked Weekly
	TI-304	√	Checked Weekly
	Pressure Indicator		
	PI-303	√	Checked Weekly
	PI-304	√	Checked Weekly
	Blower Discharge Temperature (◦F)		
	TI-305	√	Checked Weekly
	TI-306	√	Checked Weekly
	Flow Transmitter Totalizer (SCFM)		
	FT-303	√	Checked Weekly
	FAU - TDL Gas Analyzer	√	Checked Weekly
	%CH4 (0-100%)	√	Checked Weekly
	CO2 (0-100%0	√	Checked Weekly
	O2 (0-25%)	√	Checked Weekly
CP	**Control Panel/ PLC Analog Data**		
	Landfill Vacuum (in. WC)	√	Checked Weekly
	Flow (SCFM)	√	Checked Weekly
	Blower 301 hrs.	√	Greased on 11/27/24
	Blower 302 hrs.	√	Greased on 11/27/24
	Flare Temperature (◦F)	√	Checked Weekly
	LFG % Methane	√	Checked Weekly
	LFG % Oxygen	√	Checked Weekly
	Area LEL	√	Checked Weekly
	Blower Frequency (Hz)	√	Checked Weekly
	Blower (Amps)	√	Checked Weekly

FORM LGM-3

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

27-Nov-24				Inspected By: D. Cordisco
INSPECTION TASK	**LOCATION**			**REMARKS**
Daily	**Blower 301**	**Blower 302**	**Flare**	
Visibly Inspect the Unit - repair leaks and loose wires	--	--	√	11/27/2024
Test Lamps by Pushing the Run Lamp and Alarm Shutdown	--	--	√	11/27/2024
Inspect Power Distribution System	--	--	√	11/27/2024
Weekly	**Blower 301**	**Blower 302**	**Flare**	
Rotate Shafts on Blowers	√	√	--	11/27/2024
			--	
			--	
			--	
			--	
			--	
Monthly	**Gas Well Vaults No.**			
Well Casings, Valves, Instruments, Piping	√			11/27/2024
Odors, High Gas Readings,	√			11/27/2024
Dead Vegetation, Settlement	√			11/27/2024
Vandalism, Damage, Destruction	√			11/27/2024
Settling, Deterioration of Base	√			11/27/2024
Fading of Labels, Nesting insects	√			11/27/2024
Check Condensate Drains	√			11/27/2024
Bolted Lids	√			11/27/2024
Quarterly	**Blower 301**	**Blower 302**	**Flare**	
Lubricate Blowers / Check by Testing Hand and Auto Position	√	√	--	11/27/2024
Inspect Ignitor Gap, Wiring,Pilot, Thermocouple Voltage	--	--	√	11/27/2024
Shut Down Valve FV-301	√	√	√	11/27/2024
Zero out Pressure, Delta Pressure, and Vacuum Gauges	√	√	√	11/27/2024
Remove Debris in 8" Blind Flange Inspection Port	√	√	√	11/27/2024
Test Louvers	√	√	√	11/27/2024
Test Pilot Fail Shutdown	√	√	√	11/27/2024
Test Flame Fail Shutdown	√	√	√	11/27/2024
Test Low Temperature Shutdown	√	√	√	11/27/2024
Semi- Annual	**Gas Well Vaults No.**			
Open Wellhead Vaults Check for Mechanical Issues	√			4/24/2024
Inspect All Fittings	√			4/24/2024
Open Condensate Drain Hatch and Inspect	√			4/24/2024
Annual	**Gas Well Vaults No.**	**Flare**		
Open and Close Throttling Valve	√	√		
Inspect Sampling Port, Quick Connect Fittings	√	√		9/27/2024
Inspect Air Flow Rates of all Landfill Pipe Sections	√	√		
Shut Flare Down:	√	√		9/27/2024
Check for Loose Bolts on Structure and Flanges	√	√		9/27/2024
Check Chart Recorder Configuration Sheets Against Actual Secttings to Confirm no Alterations	√	√		9/27/2024

COMMENTS

On 1-19-21 replaced new hoses from nitrogen tank to block valve. Also replaced heat trace surrounding the block valve due to faulty prior assembly.

5/5/21 Replaced missing bolt in B-10	4/12/22 Propane changed out.
5/5/21 Drained low spot at e-hill	6/22/22 Drained low spot e-hill
5/5/21 Replaced broken valve at B-11	8/11/22 Flare down electrical issues
8/4/21 Drained low spot at e-hill	9/8/22 Drained low spot at e-hill
11/5/21 Drained low spot at E-hill	9/8/22 PLC/Chart recorder issues
1/6/2022 Drained low spot at E-hill	9/20/22 RMC repair
2/4/2022 Drained low spot at E-hill	10/11/2023 Drained low spot at e-hill
4/5/2022 Drained low spot at E-hill	

FORM LFG-1

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

11/27/2024			**Inspected by : D. Cordisco**
Clear			**Temperature (deg. F): 50-55 deg. F**
			Humidity (%): 60
MONITORING TASK			**DATE**
1	**Flare Piping**		Checked Weekly
	Bolts secure	√	
	Paint	√	
2	**Manual Valves**		Checked Weekly
	Normally Open	√	
3	**Propane Gas**		Checked Weekly
	Available - (regulator open)	√	
4	**Nitrogen Gas**		Checked Weekly
	Open Valve- Check Quantity	√	
5	**Blowers**		Checked Daily - Greased 11/27/24
	Turn Manually (≤ 32◦F)	√	
6	**Alarms (Clear)**		Checked Weekly
	Combustible Gas Detectors	√	Checked Weekly FDNY 10/28/22
	Sharp Eye IR/UV	√	Checked weekly Replaced unit 301 on 10/2/2019 w/FDNY
	FACP - System Normal	√	(Annual FDNY Inspection by SG 10/28/22
	Power	√	Checked Weekly
7	**Gas Analyzer**		Weekly
	% Methane available (25-50%)	√	Weekly
	% Oxygen (≤ 5%)	√	Weekly
	check valve	√	Weekly
8	**PERIMETER, FENCE, GATES & LOCKS**		Checked Weekly
	Vandalism	√	Checked Weekly
	Debris	√	Checked Weekly
	Fence Damage	√	Checked Weekly
	Gate Alignment and Swing Action	√	Checked Weekly
	Fire Extinguishers	√	Checked Weekly (Inspected 10/6/21)
	Yard Hydrants (2)	√	Checked Weekly (Tested 10/6/21)
	Large Fire Boss	√	Checked Weekly
	Lock Lubrication and Function	√	Checked Weekly
9	**PLC Cabinet**		Checked Weekly
	Vandalism	√	Checked Weekly
	Power Supply	√	Checked Weekly
	Test Lamps	√	Checked Weekly
	Circular Chart	√	Checked Weekly
	Louvers Open	√	Checked Weekly
	"Auto"Start	√	Checked Weekly
	Purge Motor	√	Checked Weekly
	Louvers Close / Pilot	√	Checked Weekly
	Blowers Activated	√	Checked Weekly
	Shutdown Valve Open	√	Checked Weekly
	Manually Adjust Louvers (optional)	√	Checked Weekly
	Autodialer Activated	√	Checked Weekly

FORM DP-1

LANDFILL GAS MANAGEMENT SYSTEM

NOVEMBER 2024

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken

Date: 11/15/2024

Inspected By: Ivan Gonzalez

Signature: 

FORM LGM-1

FLARE STATION MONTHLY OPERATION SUMMARY

LANDFILL GAS MANAGEMENT

DECEMBER 2024

BROOKFIELD AVENUE LANDFILL

Date	Day	Time	Vac (in. of H20)	Blower 301 (SCFM)	Blower 302 (SCFM)	Total SCFM	% CH4	% O2	Temperature (°F)	Blower 301 (hrs)	Blower 302 (hrs)	Blower Frequency (Hz)	Blower 301 (Amps)	Blower 302 (Amps)	Remarks
12/1/2024	Sunday					0	22.3	2.8		44176	44101				
12/2/2024	Monday					0	22.3	2.8		44176	44101				
12/3/2024	Tuesday					0	22.3	2.8		44176	44101				
12/4/2024	Wednesday					0	22.3	2.8		44176	44101				
12/5/2024	Thursday	10:54	-5.1	164	0	208	43.2	4.8	1702	44178	44104	24.9	5.8	6.0	Flare on upon arrival
12/6/2024	Friday					0	22.3	2.8		44176	44101				
12/7/2024	Saturday					0	35.2	2.8		44176	44101				
12/8/2024	Sunday					0	17.2	0.6		44186	44111				
12/9/2024	Monday	9:01	-5.9	156	0	237	33.8	1.1	1634	44191	44117	26.6	6.1	6.5	Flare off upon arrival; restarted
12/10/2024	Tuesday					0	28.5	2.9		44186	44111				
12/11/2024	Wednesday					0	29.5	2.8		44186	44111				
12/12/2024	Thursday					0	31.5	2.7		44196	44121				
12/13/2024	Friday					0	32.5	2.4		44196	44121				
12/14/2024	Saturday					0	36.5	2.1		44196	44121				
12/15/2024	Sunday					0	19.5	2.5		44206	44132				
12/16/2024	Monday	10:13	0.3	0	0	0	24.2	0.3	382	44206	44132	0.0	0.0	0.0	Flare off upon arrival; unable to restart
12/17/2024	Tuesday					0	22.3	2.8		44206	44132				
12/18/2024	Wednesday					0	22.3	2.8		44206	44132				
12/19/2024	Thursday					0	22.3	2.8		44206	44132				
12/20/2024	Friday					0	11.6	0.6		44206	44132				
12/21/2024	Saturday					0	17.6	0.8		44206	44132				
12/22/2024	Sunday					0	22.6	2.8		44206	44132				
12/23/2024	Monday					0	25.4	2.0		44206	44132				
12/24/2024	Tuesday	12:38	0.6	0	0	0	14.3	0.0	91	44206	44132	0.0	0.0	0.0	Flare off upon arrival; unable to restart
12/25/2024	Wednesday					0	29.5	1.3		44206	44132				
12/26/2024	Thursday					0	17.2	0.6		44206	44132				
12/27/2024	Friday					0	6.2	1.1		44206	44132				
12/28/2024	Saturday					143	32.0	2.5		44221	44147				
12/29/2024	Sunday					143	31.0	2.7		44235	44161				
12/30/2024	Monday					139	31.4	2.9		44250	44176				
12/31/2024	Tuesday	8:32	-0.5	0	0	0	32.2	1.2	168	44265	44190	0.0	0	0.0	Flare off upon arrival
					AVG	29.0	25.0	2.2	TOTAL	74	75				
						TOTAL MONTHLY SCF									
						129,630									

COMMENTS

FORM LGM-2

MONTHLY MONITORING ACTIVITIES CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

December-24

Date: 12-9-2024	**Inspected by: D. Cordisco**
Clear	**Temperature: 40-45 degree. F**
Barometric Pressure (Hg): 30.05	

	MONITORING TASK	INSPECT	REMARKS
Gauges	**Blower Vacuum (in. WC)**		
	PDI-301	√	Checked Weekly
	PD!-302	√	Checked Weekly
	Flow Transmitter (SCFM)		
	FT-301	√	Checked Weekly
	FT-302	√	Checked Weekly
	Field Inlet Temperature (◦F)		
	TI-301	√	Checked Weekly
	TI-302	√	Checked Weekly
	Pressure Differential Indicator		
	PDI-301	√	Checked Weekly
	PDI-302	√	Checked Weekly
	Pressure Indicator		
	PI-301	√	Checked Weekly
	PI-302	√	Checked Weekly
	Blower Inlet Temperature (◦F)		
	TI-303	√	Checked Weekly
	TI-304	√	Checked Weekly
	Pressure Indicator		
	PI-303	√	Checked Weekly
	PI-304	√	Checked Weekly
	Blower Discharge Temperature (◦F)		
	TI-305	√	Checked Weekly
	TI-306	√	Checked Weekly
	Flow Transmitter Totalizer (SCFM)		
	FT-303	√	Checked Weekly
	FAU - TDL Gas Analyzer	√	Checked Weekly
	%CH4 (0-100%)	√	Checked Weekly
	CO2 (0-100%0	√	Checked Weekly
	O2 (0-25%)	√	Checked Weekly
CP	**Control Panel/ PLC Analog Data**		
	Landfill Vacuum (in. WC)	√	Checked Weekly
	Flow (SCFM)	√	Checked Weekly
	Blower 301 hrs.	√	Greased on 11/27/24
	Blower 302 hrs.	√	Greased on 11/27/24
	Flare Temperature (◦F)	√	Checked Weekly
	LFG % Methane	√	Checked Weekly
	LFG % Oxygen	√	Checked Weekly
	Area LEL	√	Checked Weekly
	Blower Frequency (Hz)	√	Checked Weekly
	Blower (Amps)	√	Checked Weekly

FORM LGM-3
INSPECTION CHECKLIST
LANDFILL GAS MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

9-Dec-24				Inspected By: D. Cordisco
INSPECTION TASK	**LOCATION**			**REMARKS**
Daily	**Blower 301**	**Blower 302**	**Flare**	
Visibly Inspect the Unit - repair leaks and loose wires	--	--	√	12/9/2024
Test Lamps by Pushing the Run Lamp and Alarm Shutdown	--	--	√	12/9/2024
Inspect Power Distribution System	--	--	√	12/9/2024
Weekly	**Blower 301**	**Blower 302**	**Flare**	
Rotate Shafts on Blowers	√	√	--	12/9/2024
			--	
			--	
			--	
			--	
			--	
Monthly	**Gas Well Vaults No.**			
Well Casings, Valves, Instruments, Piping	√			12/9/2024
Odors, High Gas Readings,	√			12/9/2024
Dead Vegetation, Settlement	√			12/9/2024
Vandalism, Damage, Destruction	√			12/9/2024
Settling, Deterioration of Base	√			12/9/2024
Fading of Labels, Nesting insects	√			12/9/2024
Check Condensate Drains	√			12/9/2024
Bolted Lids	√			12/9/2024
Quarterly	**Blower 301**	**Blower 302**	**Flare**	
Lubricate Blowers / Check by Testing Hand and Auto Position	√	√	--	11/27/2024
Inspect Ignitor Gap, Wiring,Pilot, Thermocouple Voltage	--	--	√	11/27/2024
Shut Down Valve FV-301	√	√	√	11/27/2024
Zero out Pressure, Delta Pressure, and Vacuum Gauges	√	√	√	11/27/2024
Remove Debris in 8" Blind Flange Inspection Port	√	√	√	11/27/2024
Test Louvers	√	√	√	11/27/2024
Test Pilot Fail Shutdown	√	√	√	11/27/2024
Test Flame Fail Shutdown	√	√	√	11/27/2024
Test Low Temperature Shutdown	√	√	√	11/27/2024
Semi- Annual	**Gas Well Vaults No.**			
Open Wellhead Vaults Check for Mechanical Issues	√			12/9/2024
Inspect All Fittings	√			12/9/2024
Open Condensate Drain Hatch and Inspect	√			12/9/2024
Annual	**Gas Well Vaults No.**	**Flare**		
Open and Close Throttling Valve	√	√		
Inspect Sampling Port, Quick Connect Fittings	√	√		12/9/2024
Inspect Air Flow Rates of all Landfill Pipe Sections	√	√		
Shut Flare Down:	√	√		12/9/2024
Check for Loose Bolts on Structure and Flanges	√	√		12/9/2024
Check Chart Recorder Configuration Sheets Against Actual Secttings to Confirm no Alterations	√	√		12/9/2024

COMMENTS

On 1-19-21 replaced new hoses from nitrogen tank to block valve. Also replaced heat trace surrounding the block valve due to faulty prior assembly.

5/5/21 Replaced missing bolt in B-10	4/12/22 Propane changed out.
5/5/21 Drained low spot at e-hill	6/22/22 Drained low spot e-hill
5/5/21 Replaced broken valve at B-11	8/11/22 Flare down electrical issues
8/4/21 Drained low spot at e-hill	9/8/22 Drained low spot at e-hill
11/5/21 Drained low spot at E-hill	9/8/22 PLC/Chart recorder issues
1/6/2022 Drained low spot at E-hill	9/20/22 RMC repair
2/4/2022 Drained low spot at E-hill	10/11/2023 Drained low spot at e-hill
4/5/2022 Drained low spot at E-hill	

FORM LFG-1

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

12/9/2024			**Inspected by : D. Cordisco**
Clear			**Temperature (deg. F): 50-55 deg. F**
			Humidity (%): 60
MONITORING TASK			**DATE**
1	**Flare Piping**		Checked Weekly
	Bolts secure	√	
	Paint	√	
2	**Manual Valves**		Checked Weekly
	Normally Open	√	
3	**Propane Gas**		Checked Weekly
	Available - (regulator open)	√	
4	**Nitrogen Gas**		Checked Weekly
	Open Valve- Check Quantity	√	
5	**Blowers**		Checked Daily - Greased 11/27/24
	Turn Manually (≤ 32◦F)	√	
6	**Alarms (Clear)**		Checked Weekly
	Combustible Gas Detectors	√	Checked Weekly FDNY 10/28/22
	Sharp Eye IR/UV	√	Checked weekly Replaced unit 301 on 10/2/2019 w/FDNY
	FACP - System Normal	√	(Annual FDNY Inspection by SG 10/28/22
	Power	√	Checked Weekly
7	**Gas Analyzer**		Weekly
	% Methane available (25-50%)	√	Weekly
	% Oxygen (≤ 5%)	√	Weekly
	check valve	√	Weekly
8	**PERIMETER, FENCE, GATES & LOCKS**		Checked Weekly
	Vandalism	√	Checked Weekly
	Debris	√	Checked Weekly
	Fence Damage	√	Checked Weekly
	Gate Alignment and Swing Action	√	Checked Weekly
	Fire Extinguishers	√	Checked Weekly (Inspected 10/6/21)
	Yard Hydrants (2)	√	Checked Weekly (Tested 10/6/21)
	Large Fire Boss	√	Checked Weekly
	Lock Lubrication and Function	√	Checked Weekly
9	**PLC Cabinet**		Checked Weekly
	Vandalism	√	Checked Weekly
	Power Supply	√	Checked Weekly
	Test Lamps	√	Checked Weekly
	Circular Chart	√	Checked Weekly
	Louvers Open	√	Checked Weekly
	"Auto"Start	√	Checked Weekly
	Purge Motor	√	Checked Weekly
	Louvers Close / Pilot	√	Checked Weekly
	Blowers Activated	√	Checked Weekly
	Shutdown Valve Open	√	Checked Weekly
	Manually Adjust Louvers (optional)	√	Checked Weekly
	Autodialer Activated	√	Checked Weekly

FORM DP-1

LANDFILL GAS MANAGEMENT SYSTEM

DECEMBER 2024

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken

Date: 12/18/2024

Inspected By: Ivan Gonzalez

Signature: 

FORM LGM-1

FLARE STATION MONTHLY OPERATION SUMMARY

LANDFILL GAS MANAGEMENT

JANUARY 2025

BROOKFIELD AVENUE LANDFILL

Date	Day	Time	Vac (in. of H20)	Blower 301 (SCFM)	Blower 302 (SCFM)	Total SCFM	% CH4	% O2	Temperature (°F)	Blower 301 (hrs)	Blower 302 (hrs)	Blower Frequency (Hz)	Blower 301 (Amps)	Blower 302 (Amps)	Remarks
1/1/2025	Wednesday					0	18.2	1.4		44281	44206				
1/2/2025	Thursday					0	10.8	5.5		44291	44216				
1/3/2025	Friday					0	7.0	2.3		44291	44216				
1/4/2025	Saturday					0	5.0	3.8		44291	44216				
1/5/2025	Sunday					0	3.6	5.7		44291	44216				
1/6/2025	Monday					0	6.9	1.0		44291	44217				
1/7/2025	Tuesday	10:44	-0.8	0	0	0	34.1	1.6	32	44291	44217	0.0	0	0.0	Did Not Run Flare
1/8/2025	Wednesday					0	8.4	1.0		44291	44217				
1/9/2025	Thursday					0	12.3	4.5		44291	44217				
1/10/2025	Friday					0	3.4	15.4		44291	44217				
1/11/2025	Saturday					0	0.0	0.0		0	0				Panel Connection Timeout
1/12/2025	Sunday					0	0.0	0.0		0	0				Panel Connection Timeout
1/13/2025	Monday					0	0.0	0.0		0	0				Panel Connection Timeout
1/14/2025	Tuesday	10:40	-0.2	0	0	0	40.7	1.7	35	44291	44217	0.0	0	0.0	Did Not Run Flare
1/15/2025	Wednesday					0	0.0	0.0		0	0				Panel Connection Timeout
1/16/2025	Thursday					0	0.0	0.0		0	0				Panel Connection Timeout
1/17/2025	Friday					0	0.0	0.0		0	0				Panel Connection Timeout
1/18/2025	Saturday					0	0.0	0.0		0	0				Panel Connection Timeout
1/19/2025	Sunday					0	0.0	0.0		0	0				Panel Connection Timeout
1/20/2025	Monday					0	0.0	0.0		0	0				Panel Connection Timeout
1/21/2025	Tuesday					0	0.0	0.0		0	0				Panel Connection Timeout
1/22/2025	Wednesdy	10:27	-5.6	155	0	232	42.9	0.5	1723	44292	44217	25.5	5.9	6.1	Flare off upon arrival; restarted
1/23/2025	Thursday					0	0.0	0.0		0	0				Panel Connection Timeout
1/24/2025	Friday					0	17.9	3.6		44325	44251				
1/25/2025	Saturday					0	0.0	0.0		0	0				
1/26/2025	Sunday					0	0.0	0.0		0	0				
1/27/2025	Monday					0	17.3	1.0		44337	44262				
1/28/2025	Tuesday					0	8.6	13.4		44337	44262				
1/29/2025	Wednesdy	10:32	-1.4	176	0	251	50.9	4.4	1700	44337	44262	26.8	5.9	6.1	Flare off upon arrival; restarted
1/30/2025	Thursday					0	0.0	0.0		0	0				
1/31/2025	Friday					0	0.0	0.0		0	0				
					AVG	16.1	9.6	2.2	TOTAL	56	56				
					TOTAL MONTHLY SCF										
						54,096									

COMMENTS

FORM LGM-2

MONTHLY MONITORING ACTIVITIES CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

January-25

Date: 01-22-2025	**Inspected by: D. Cordisco**
Clear	**Temperature: 15-20 degree. F**
Barometric Pressure (Hg): 30.50	

	MONITORING TASK	INSPECT	REMARKS
Gauges	**Blower Vacuum (in. WC)**		
	PDI-301	√	Checked Weekly
	PD!-302	√	Checked Weekly
	Flow Transmitter (SCFM)		
	FT-301	√	Checked Weekly
	FT-302	√	Checked Weekly
	Field Inlet Temperature (◦F)		
	TI-301	√	Checked Weekly
	TI-302	√	Checked Weekly
	Pressure Differential Indicator		
	PDI-301	√	Checked Weekly
	PDI-302	√	Checked Weekly
	Pressure Indicator		
	PI-301	√	Checked Weekly
	PI-302	√	Checked Weekly
	Blower Inlet Temperature (◦F)		
	TI-303	√	Checked Weekly
	TI-304	√	Checked Weekly
	Pressure Indicator		
	PI-303	√	Checked Weekly
	PI-304	√	Checked Weekly
	Blower Discharge Temperature (◦F)		
	TI-305	√	Checked Weekly
	TI-306	√	Checked Weekly
	Flow Transmitter Totalizer (SCFM)		
	FT-303	√	Checked Weekly
	FAU - TDL Gas Analyzer	√	Checked Weekly
	%CH4 (0-100%)	√	Checked Weekly
	CO2 (0-100%0	√	Checked Weekly
	O2 (0-25%)	√	Checked Weekly
CP	**Control Panel/ PLC Analog Data**		
	Landfill Vacuum (in. WC)	√	Checked Weekly
	Flow (SCFM)	√	Checked Weekly
	Blower 301 hrs.	√	Checked Weekly
	Blower 302 hrs.	√	Checked Weekly
	Flare Temperature (◦F)	√	Checked Weekly
	LFG % Methane	√	Checked Weekly
	LFG % Oxygen	√	Checked Weekly
	Area LEL	√	Checked Weekly
	Blower Frequency (Hz)	√	Checked Weekly
	Blower (Amps)	√	Checked Weekly

FORM LGM-3

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

22-Jan-25				Inspected By: D. Cordisco
INSPECTION TASK	**LOCATION**			**REMARKS**
Daily	**Blower 301**	**Blower 302**	**Flare**	
Visibly Inspect the Unit - repair leaks and loose wires	--	--	√	1/22/2025
Test Lamps by Pushing the Run Lamp and Alarm Shutdown	--	--	√	1/22/2025
Inspect Power Distribution System	--	--	√	1/22/2025
Weekly	**Blower 301**	**Blower 302**	**Flare**	
Rotate Shafts on Blowers	√	√	--	1/22/2025
			--	
			--	
			--	
			--	
			--	
Monthly	**Gas Well Vaults No.**			
Well Casings, Valves, Instruments, Piping	√			1/22/2025
Odors, High Gas Readings,	√			1/22/2025
Dead Vegetation, Settlement	√			1/22/2025
Vandalism, Damage, Destruction	√			1/22/2025
Settling, Deterioration of Base	√			1/22/2025
Fading of Labels, Nesting insects	√			1/22/2025
Check Condensate Drains	√			1/22/2025
Bolted Lids	√			1/22/2025
Quarterly	**Blower 301**	**Blower 302**	**Flare**	
Lubricate Blowers / Check by Testing Hand and Auto Position	√	√	--	11/27/2027
Inspect Ignitor Gap, Wiring,Pilot, Thermocouple Voltage	--	--	√	11/27/2027
Shut Down Valve FV-301	√	√	√	11/27/2027
Zero out Pressure, Delta Pressure, and Vacuum Gauges	√	√	√	11/27/2027
Remove Debris in 8" Blind Flange Inspection Port	√	√	√	11/27/2027
Test Louvers	√	√	√	11/27/2027
Test Pilot Fail Shutdown	√	√	√	11/27/2027
Test Flame Fail Shutdown	√	√	√	11/27/2027
Test Low Temperature Shutdown	√	√	√	11/27/2027
Semi- Annual	**Gas Well Vaults No.**			
Open Wellhead Vaults Check for Mechanical Issues	√			12/9/2024
Inspect All Fittings	√			12/9/2024
Open Condensate Drain Hatch and Inspect	√			12/9/2024
Annual	**Gas Well Vaults No.**	**Flare**		
Open and Close Throttling Valve	√	√		
Inspect Sampling Port, Quick Connect Fittings	√	√		12/9/2024
Inspect Air Flow Rates of all Landfill Pipe Sections	√	√		
Shut Flare Down:	√	√		12/9/2024
Check for Loose Bolts on Structure and Flanges	√	√		12/9/2024
Check Chart Recorder Configuration Sheets Against Actual Secttings to Confirm no Alterations	√	√		12/9/2024

COMMENTS

On 1-19-21 replaced new hoses from nitrogen tank to block valve. Also replaced heat trace surrounding the block valve due to faulty prior assembly.

5/5/21 Replaced missing bolt in B-10	4/12/22 Propane changed out.
5/5/21 Drained low spot at e-hill	6/22/22 Drained low spot e-hill
5/5/21 Replaced broken valve at B-11	8/11/22 Flare down electrical issues
8/4/21 Drained low spot at e-hill	9/8/22 Drained low spot at e-hill
11/5/21 Drained low spot at E-hill	9/8/22 PLC/Chart recorder issues
1/6/2022 Drained low spot at E-hill	9/20/22 RMC repair
2/4/2022 Drained low spot at E-hill	10/11/2023 Drained low spot at e-hill
4/5/2022 Drained low spot at E-hill	

FORM LFG-1

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

1/22/2025			**Inspected by : D. Cordisco**
Clear			**Temperature (deg. F): 15-20 deg. F**
			Humidity (%): 60
MONITORING TASK			**DATE**
1	**Flare Piping**		Checked Weekly
	Bolts secure	√	
	Paint	√	
2	**Manual Valves**		Checked Weekly
	Normally Open	√	
3	**Propane Gas**		Checked Weekly
	Available - (regulator open)	√	
4	**Nitrogen Gas**		Checked Weekly
	Open Valve- Check Quantity	√	
5	**Blowers**		Checked Daily - Greased 11/27/24
	Turn Manually (≤ 32◦F)	√	
6	**Alarms (Clear)**		Checked Weekly
	Combustible Gas Detectors	√	Checked Weekly FDNY 10/28/22
	Sharp Eye IR/UV	√	Checked weekly Replaced unit 301 on 10/2/2019 w/FDNY
	FACP - System Normal	√	(Annual FDNY Inspection by SG 10/28/22
	Power	√	Checked Weekly
7	**Gas Analyzer**		Weekly
	% Methane available (25-50%)	√	Weekly
	% Oxygen (≤ 5%)	√	Weekly
	check valve	√	Weekly
8	**PERIMETER, FENCE, GATES & LOCKS**		Checked Weekly
	Vandalism	√	Checked Weekly
	Debris	√	Checked Weekly
	Fence Damage	√	Checked Weekly
	Gate Alignment and Swing Action	√	Checked Weekly
	Fire Extinguishers	√	Checked Weekly (Inspected 10/6/21)
	Yard Hydrants (2)	√	Checked Weekly (Tested 10/6/21)
	Large Fire Boss	√	Checked Weekly
	Lock Lubrication and Function	√	Checked Weekly
9	**PLC Cabinet**		Checked Weekly
	Vandalism	√	Checked Weekly
	Power Supply	√	Checked Weekly
	Test Lamps	√	Checked Weekly
	Circular Chart	√	Checked Weekly
	Louvers Open	√	Checked Weekly
	"Auto"Start	√	Checked Weekly
	Purge Motor	√	Checked Weekly
	Louvers Close / Pilot	√	Checked Weekly
	Blowers Activated	√	Checked Weekly
	Shutdown Valve Open	√	Checked Weekly
	Manually Adjust Louvers (optional)	√	Checked Weekly
	Autodialer Activated	√	Checked Weekly

FORM DP-1

LANDFILL GAS MANAGEMENT SYSTEM

JANUARY 2025

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken

Date: 1/17/2025

Inspected By: Claire Winter

Signature: Claire Winter

FORM LGM-1

FLARE STATION MONTHLY OPERATION SUMMARY

LANDFILL GAS MANAGEMENT

FEBRUARY 2025

BROOKFIELD AVENUE LANDFILL

Date	Day	Time	Vac (in. of H20)	Blower 301 (SCFM)	Blower 302 (SCFM)	Total SCFM	% CH4	% O2	Temperature (°F)	Blower 301 (hrs)	Blower 302 (hrs)	Blower Frequency (Hz)	Blower 301 (Amps)	Blower 302 (Amps)	Remarks
2/1/2025	Saturday					0	0.0	0.0		0	0				
2/2/2025	Sunday					0	0.0	0.0		0	0				
2/3/2025	Monday					0	7.9	0.0		44350	44275				
2/4/2025	Tuesday					0	2.9	16.6		44350	44275				
2/5/2025	Wednesdy	10:05	-1.6	156	0	226	32.4	16.1	1630	44350	44276	26.0	6.0	6.3	Flare off upon arrival; restarted
2/6/2025	Thursday					0	18.8	3.0		44366	44292				
2/7/2025	Friday					0	0.0	0.0		0	0				Plannel connection time out
2/8/2025	Saturday					0	0.0	0.0		0	0				
2/9/2025	Sunday					0	0.0	0.0		0	0				
2/10/2025	Monday					0	0.0	0.0		0	0				Plannel connection time out
2/11/2025	Tuesday	8:36	-5.7	163	0	243	29.1	3.3	1443	44379	44305	26.6	6.2	6.6	Flare off upon arrival; restarted
2/12/2025	Wednesday					0	5.5	3.7		44380	44305				
2/13/2025	Thursday					0	16.0	0.3		44380	44305				
2/14/2025	Friday					0	3.9	17.3		44380	44305				
2/15/2025	Saturday					0	0.0	0.0		0	0				
2/16/2025	Sunday					0	0.0	0.0		0	0				
2/17/2025	Monday					0	0.0	0.0		0	0				Plannel connection time out
2/18/2025	Tuesday					0	0.0	0.0		0	0				Plannel connection time out
2/19/2025	Wednesdy	16:57	-5.4	156	0	201	32.5	2.6	1713	44386	44311	24.2	5.7	5.9	Flare off upon arrival; restarted
2/20/2025	Thursday					0	0.0	0.0		0	0				Plannel connection time out
2/21/2025	Friday					0	0.0	0.0		0	0				Plannel connection time out
2/22/2025	Saturday					0	0.0	0.0		0	0				
2/23/2025	Sunday					0	0.0	0.0		0	0				
2/24/2025	Monday					0	0.0	0.0		0	0				Plannel connection time out
2/25/2025	Tuesday					0	21.9	2.0		44413	44339				
2/26/2025	Wednesday					0	19.7	2.4		44429	44354				
2/27/2025	Thursday					0	22.4	2.0		44439	44365				
2/28/2025	Friday	9:08	-4.0	146	0	211	39.4	0.9	1785	44456	44365	24.6	5.7	5.8	Flare on upon arrival
					AVG	31.5	9.0	2.5	TOTAL	106	90				
					TOTAL MONTHLY SCF										
						200,113									

COMMENTS

FORM LGM-2

MONTHLY MONITORING ACTIVITIES CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

February-25

Date: 02-11-2025	**Inspected by: D. Cordisco**
Clear	**Temperature: 25-30 degree. F**
Barometric Pressure (Hg): 30.46	

	MONITORING TASK	INSPECT	REMARKS
Gauges	**Blower Vacuum (in. WC)**		
	PDI-301	√	Checked Weekly
	PD!-302	√	Checked Weekly
	Flow Transmitter (SCFM)		
	FT-301	√	Checked Weekly
	FT-302	√	Checked Weekly
	Field Inlet Temperature (◦F)		
	TI-301	√	Checked Weekly
	TI-302	√	Checked Weekly
	Pressure Differential Indicator		
	PDI-301	√	Checked Weekly
	PDI-302	√	Checked Weekly
	Pressure Indicator		
	PI-301	√	Checked Weekly
	PI-302	√	Checked Weekly
	Blower Inlet Temperature (◦F)		
	TI-303	√	Checked Weekly
	TI-304	√	Checked Weekly
	Pressure Indicator		
	PI-303	√	Checked Weekly
	PI-304	√	Checked Weekly
	Blower Discharge Temperature (◦F)		
	TI-305	√	Checked Weekly
	TI-306	√	Checked Weekly
	Flow Transmitter Totalizer (SCFM)		
	FT-303	√	Checked Weekly
	FAU - TDL Gas Analyzer	√	Checked Weekly
	%CH4 (0-100%)	√	Checked Weekly
	CO2 (0-100%0	√	Checked Weekly
	O2 (0-25%)	√	Checked Weekly
CP	**Control Panel/ PLC Analog Data**		
	Landfill Vacuum (in. WC)	√	Checked Weekly
	Flow (SCFM)	√	Checked Weekly
	Blower 301 hrs.	√	Checked Weekly
	Blower 302 hrs.	√	Checked Weekly
	Flare Temperature (◦F)	√	Checked Weekly
	LFG % Methane	√	Checked Weekly
	LFG % Oxygen	√	Checked Weekly
	Area LEL	√	Checked Weekly
	Blower Frequency (Hz)	√	Checked Weekly
	Blower (Amps)	√	Checked Weekly

FORM LGM-3

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

11-Feb-25				Inspected By: D. Cordisco
INSPECTION TASK	**LOCATION**			**REMARKS**
Daily	**Blower 301**	**Blower 302**	**Flare**	
Visibly Inspect the Unit - repair leaks and loose wires	--	--	√	2/11/2025
Test Lamps by Pushing the Run Lamp and Alarm Shutdown	--	--	√	2/11/2025
Inspect Power Distribution System	--	--	√	2/11/2025
Weekly	**Blower 301**	**Blower 302**	**Flare**	
Rotate Shafts on Blowers	√	√	--	2/11/2025
			--	
			--	
			--	
			--	
			--	
Monthly	**Gas Well Vaults No.**			
Well Casings, Valves, Instruments, Piping	√			2/11/2025
Odors, High Gas Readings,	√			2/11/2025
Dead Vegetation, Settlement	√			2/11/2025
Vandalism, Damage, Destruction	√			2/11/2025
Settling, Deterioration of Base	√			2/11/2025
Fading of Labels, Nesting insects	√			2/11/2025
Check Condensate Drains	√			2/11/2025
Bolted Lids	√			2/11/2025
Quarterly	**Blower 301**	**Blower 302**	**Flare**	
Lubricate Blowers / Check by Testing Hand and Auto Position	√	√	--	11/27/2027
Inspect Ignitor Gap, Wiring,Pilot, Thermocouple Voltage	--	--	√	11/27/2027
Shut Down Valve FV-301	√	√	√	11/27/2027
Zero out Pressure, Delta Pressure, and Vacuum Gauges	√	√	√	11/27/2027
Remove Debris in 8" Blind Flange Inspection Port	√	√	√	11/27/2027
Test Louvers	√	√	√	11/27/2027
Test Pilot Fail Shutdown	√	√	√	11/27/2027
Test Flame Fail Shutdown	√	√	√	11/27/2027
Test Low Temperature Shutdown	√	√	√	11/27/2027
Semi- Annual	**Gas Well Vaults No.**			
Open Wellhead Vaults Check for Mechanical Issues	√			12/9/2024
Inspect All Fittings	√			12/9/2024
Open Condensate Drain Hatch and Inspect	√			12/9/2024
Annual	**Gas Well Vaults No.**	**Flare**		
Open and Close Throttling Valve	√	√		
Inspect Sampling Port, Quick Connect Fittings	√	√		12/9/2024
Inspect Air Flow Rates of all Landfill Pipe Sections	√	√		
Shut Flare Down:	√	√		12/9/2024
Check for Loose Bolts on Structure and Flanges	√	√		12/9/2024
Check Chart Recorder Configuration Sheets Against Actual Secttings to Confirm no Alterations	√	√		12/9/2024

COMMENTS

On 1-19-21 replaced new hoses from nitrogen tank to block valve. Also replaced heat trace surrounding the block valve due to faulty prior assembly.

5/5/21 Replaced missing bolt in B-10	4/12/22 Propane changed out.
5/5/21 Drained low spot at e-hill	6/22/22 Drained low spot e-hill
5/5/21 Replaced broken valve at B-11	8/11/22 Flare down electrical issues
8/4/21 Drained low spot at e-hill	9/8/22 Drained low spot at e-hill
11/5/21 Drained low spot at E-hill	9/8/22 PLC/Chart recorder issues
1/6/2022 Drained low spot at E-hill	9/20/22 RMC repair
2/4/2022 Drained low spot at E-hill	10/11/2023 Drained low spot at e-hill
4/5/2022 Drained low spot at E-hill	

FORM LFG-1

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

2/11/2025			**Inspected by : D. Cordisco**
Clear			**Temperature (deg. F): 25-30 deg. F**
			Humidity (%): 60
MONITORING TASK			**DATE**
1	**Flare Piping**		Checked Weekly
	Bolts secure	√	
	Paint	√	
2	**Manual Valves**		Checked Weekly
	Normally Open	√	
3	**Propane Gas**		Checked Weekly
	Available - (regulator open)	√	
4	**Nitrogen Gas**		Checked Weekly
	Open Valve- Check Quantity	√	
5	**Blowers**		Checked Daily - Greased 11/27/24
	Turn Manually (≤ 32◦F)	√	
6	**Alarms (Clear)**		Checked Weekly
	Combustible Gas Detectors	√	Checked Weekly FDNY 10/28/22
	Sharp Eye IR/UV	√	Checked weekly Replaced unit 301 on 10/2/2019 w/FDNY
	FACP - System Normal	√	(Annual FDNY Inspection by SG 10/28/22
	Power	√	Checked Weekly
7	**Gas Analyzer**		Weekly
	% Methane available (25-50%)	√	Weekly
	% Oxygen (≤ 5%)	√	Weekly
	check valve	√	Weekly
8	**PERIMETER, FENCE, GATES & LOCKS**		Checked Weekly
	Vandalism	√	Checked Weekly
	Debris	√	Checked Weekly
	Fence Damage	√	Checked Weekly
	Gate Alignment and Swing Action	√	Checked Weekly
	Fire Extinguishers	√	Checked Weekly (Inspected 10/6/21)
	Yard Hydrants (2)	√	Checked Weekly (Tested 10/6/21)
	Large Fire Boss	√	Checked Weekly
	Lock Lubrication and Function	√	Checked Weekly
9	**PLC Cabinet**		Checked Weekly
	Vandalism	√	Checked Weekly
	Power Supply	√	Checked Weekly
	Test Lamps	√	Checked Weekly
	Circular Chart	√	Checked Weekly
	Louvers Open	√	Checked Weekly
	"Auto"Start	√	Checked Weekly
	Purge Motor	√	Checked Weekly
	Louvers Close / Pilot	√	Checked Weekly
	Blowers Activated	√	Checked Weekly
	Shutdown Valve Open	√	Checked Weekly
	Manually Adjust Louvers (optional)	√	Checked Weekly
	Autodialer Activated	√	Checked Weekly

FORM DP-1

LANDFILL GAS MANAGEMENT SYSTEM

FEBRUARY 2025

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
2/11/25	B Hill	Coupling broken on well B09	Rapired with new coupling
2/11/25	D Hill	Broken well vault lid	N/A

Date: 2/21/2025

Inspected By: Zara Castillo

Signature: Zara Castillo

FORM LGM-1

FLARE STATION MONTHLY OPERATION SUMMARY

LANDFILL GAS MANAGEMENT

MARCH 2025

BROOKFIELD AVENUE LANDFILL

Date	Day	Time	Vac (in. of H20)	Blower 301 (SCFM)	Blower 302 (SCFM)	Total SCFM	% CH4	% O2	Temperature (°F)	Blower 301 (hrs)	Blower 302 (hrs)	Blower Frequency (Hz)	Blower 301 (Amps)	Blower 302 (Amps)	Remarks
3/1/2025	Saturday					0	0.0	0.0		0	0				
3/2/2025	Sunday					0	0.0	0.0		0	0				
3/3/2025	Monday	10:04	-0.3	0	0	0	14.1	6.8	100	44486	44412	0.0	0	0.0	Did not run flare
3/4/2025	Tuesday					0	13.8	1.7		44486	44412				
3/5/2025	Wednesday					0	17.0	0.0		44486	44412				
3/6/2025	Thursday					0	22.3	0.5		44486	44412				
3/7/2025	Friday					0	19.2	2.4		44486	44412				
3/8/2025	Saturday					0	0.0	0.0		0	0				
3/9/2025	Sunday					0	0.0	0.0		0	0				
3/10/2025	Monday					0	10.6	1.7		44486	44412				
3/11/2025	Tuesday					0	0.0	0.0		0	0				
3/12/2025	Wednesday	9:54	0.0	0	0	0	29.1	1.5	50	44517	44412	0.0	0.0	0.0	Did not run flare
3/13/2025	Thursday					0	16	1.5		44517	44443				
3/14/2025	Friday					0	17.3	4.3		44517	44443				
3/15/2025	Saturday					0	0.0	0.0		0	0				
3/16/2025	Sunday					0	0.0	0.0		0	0				
3/17/2025	Monday					0	24.6	1.8		44518	44443				
3/18/2025	Tuesday					0	15.3	3.3		44532	44458				
3/19/2025	Wednesday	11:07	-5.8	153	0	224	30.2	1.6	1537	44547	44473	26.4	6.0	6.2	Flare off upon arrival; restarted
3/20/2025	Thursday					0	0.0	0.0		44547	44472				
3/21/2025	Friday					0	7.2	15.2		44547	44473				
3/22/2025	Saturday					0	0.0	0.0		0	0				
3/23/2025	Sunday					0	0.0	0.0		0	0				
3/24/2025	Monday					0	13.4	0.3		44547	44473				
3/25/2025	Tuesday					0	19.9	2.1		44566	44491				
3/26/2025	Wednesday					0	15.5	2.8		44566	44491				
3/27/2025	Thursday	12:36	0.0	0	0	0	23.6	2.0	59	44593	44508	0.0	0	0.0	Did not run flare
3/28/2025	Friday					0	19.0	2.6		0	0				
3/29/2025	Saturday					0	0.0	0.0		0	0				
3/30/2025	Sunday					0	0.0	0.0		0	0				
3/31/2025	Monday					0	24.3	0.0		44593	44518				
					AVG	7.2	11.4	1.7	TOTAL	107	106				
						TOTAL MONTHLY SCF									
						46,390									

COMMENTS

FORM LGM-2

MONTHLY MONITORING ACTIVITIES CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

March-25

Date: 03-19-2025	**Inspected by: D. Cordisco**
Clear	**Temperature: 50-55 degree. F**
Barometric Pressure (Hg): 30.13	

	MONITORING TASK	INSPECT	REMARKS
Gauges	**Blower Vacuum (in. WC)**		
	PDI-301	√	Checked Weekly
	PD!-302	√	Checked Weekly
	Flow Transmitter (SCFM)		
	FT-301	√	Checked Weekly
	FT-302	√	Checked Weekly
	Field Inlet Temperature (◦F)		
	TI-301	√	Checked Weekly
	TI-302	√	Checked Weekly
	Pressure Differential Indicator		
	PDI-301	√	Checked Weekly
	PDI-302	√	Checked Weekly
	Pressure Indicator		
	PI-301	√	Checked Weekly
	PI-302	√	Checked Weekly
	Blower Inlet Temperature (◦F)		
	TI-303	√	Checked Weekly
	TI-304	√	Checked Weekly
	Pressure Indicator		
	PI-303	√	Checked Weekly
	PI-304	√	Checked Weekly
	Blower Discharge Temperature (◦F)		
	TI-305	√	Checked Weekly
	TI-306	√	Checked Weekly
	Flow Transmitter Totalizer (SCFM)		
	FT-303	√	Checked Weekly
	FAU - TDL Gas Analyzer	√	Checked Weekly
	%CH4 (0-100%)	√	Checked Weekly
	CO2 (0-100%0	√	Checked Weekly
	O2 (0-25%)	√	Checked Weekly
CP	**Control Panel/ PLC Analog Data**		
	Landfill Vacuum (in. WC)	√	Checked Weekly
	Flow (SCFM)	√	Checked Weekly
	Blower 301 hrs.	√	Checked Weekly
	Blower 302 hrs.	√	Checked Weekly
	Flare Temperature (◦F)	√	Checked Weekly
	LFG % Methane	√	Checked Weekly
	LFG % Oxygen	√	Checked Weekly
	Area LEL	√	Checked Weekly
	Blower Frequency (Hz)	√	Checked Weekly
	Blower (Amps)	√	Checked Weekly

FORM LGM-3

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

19-Mar-25				Inspected By: D. Cordisco
INSPECTION TASK	**LOCATION**			**REMARKS**
Daily	**Blower 301**	**Blower 302**	**Flare**	
Visibly Inspect the Unit - repair leaks and loose wires	--	--	√	3/19/2025
Test Lamps by Pushing the Run Lamp and Alarm Shutdown	--	--	√	3/19/2025
Inspect Power Distribution System	--	--	√	3/19/2025
Weekly	**Blower 301**	**Blower 302**	**Flare**	
Rotate Shafts on Blowers	√	√	--	3/19/2025
			--	
			--	
			--	
			--	
			--	
Monthly	**Gas Well Vaults No.**			
Well Casings, Valves, Instruments, Piping	√			2/11/2025
Odors, High Gas Readings,	√			3/19/2025
Dead Vegetation, Settlement	√			3/19/2025
Vandalism, Damage, Destruction	√			3/19/2025
Settling, Deterioration of Base	√			3/19/2025
Fading of Labels, Nesting insects	√			3/19/2025
Check Condensate Drains	√			3/19/2025
Bolted Lids	√			3/19/2025
Quarterly	**Blower 301**	**Blower 302**	**Flare**	
Lubricate Blowers / Check by Testing Hand and Auto Position	√	√	--	3/19/2025
Inspect Ignitor Gap, Wiring,Pilot, Thermocouple Voltage	--	--	√	3/19/2025
Shut Down Valve FV-301	√	√	√	3/19/2025
Zero out Pressure, Delta Pressure, and Vacuum Gauges	√	√	√	3/19/2025
Remove Debris in 8" Blind Flange Inspection Port	√	√	√	3/19/2025
Test Louvers	√	√	√	3/19/2025
Test Pilot Fail Shutdown	√	√	√	3/19/2025
Test Flame Fail Shutdown	√	√	√	3/19/2025
Test Low Temperature Shutdown	√	√	√	3/19/2025
Semi- Annual	**Gas Well Vaults No.**			
Open Wellhead Vaults Check for Mechanical Issues	√			12/9/2024
Inspect All Fittings	√			12/9/2024
Open Condensate Drain Hatch and Inspect	√			12/9/2024
Annual	**Gas Well Vaults No.**	**Flare**		
Open and Close Throttling Valve	√	√		
Inspect Sampling Port, Quick Connect Fittings	√	√		12/9/2024
Inspect Air Flow Rates of all Landfill Pipe Sections	√	√		
Shut Flare Down:	√	√		12/9/2024
Check for Loose Bolts on Structure and Flanges	√	√		12/9/2024
Check Chart Recorder Configuration Sheets Against Actual Secttings to Confirm no Alterations	√	√		12/9/2024

COMMENTS

On 1-19-21 replaced new hoses from nitrogen tank to block valve. Also replaced heat trace surrounding the block valve due to faulty prior assembly.

5/5/21 Replaced missing bolt in B-10	4/12/22 Propane changed out.
5/5/21 Drained low spot at e-hill	6/22/22 Drained low spot e-hill
5/5/21 Replaced broken valve at B-11	8/11/22 Flare down electrical issues
8/4/21 Drained low spot at e-hill	9/8/22 Drained low spot at e-hill
11/5/21 Drained low spot at E-hill	9/8/22 PLC/Chart recorder issues
1/6/2022 Drained low spot at E-hill	9/20/22 RMC repair
2/4/2022 Drained low spot at E-hill	10/11/2023 Drained low spot at e-hill
4/5/2022 Drained low spot at E-hill	

FORM LFG-1

INSPECTION CHECKLIST

LANDFILL GAS MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

3/19/2025			**Inspected by : D. Cordisco**
Clear			**Temperature (deg. F): 50-55 deg. F**
			Humidity (%): 60
	MONITORING TASK		**DATE**
1	**Flare Piping**		Checked Weekly
	Bolts secure	√	
	Paint	√	
2	**Manual Valves**		Checked Weekly
	Normally Open	√	
3	**Propane Gas**		Checked Weekly
	Available - (regulator open)	√	
4	**Nitrogen Gas**		Checked Weekly
	Open Valve- Check Quantity	√	
5	**Blowers**		Checked Daily - Greased 3/19/25
	Turn Manually (≤ 32◦F)	√	
6	**Alarms (Clear)**		Checked Weekly
	Combustible Gas Detectors	√	Checked Weekly FDNY 10/28/22
	Sharp Eye IR/UV	√	Checked weekly Replaced unit 301 on 10/2/2019 w/FDNY
	FACP - System Normal	√	(Annual FDNY Inspection by SG 10/28/22
	Power	√	Checked Weekly
7	**Gas Analyzer**		Weekly
	% Methane available (25-50%)	√	Weekly
	% Oxygen (≤ 5%)	√	Weekly
	check valve	√	Weekly
8	**PERIMETER, FENCE, GATES & LOCKS**		Checked Weekly
	Vandalism	√	Checked Weekly
	Debris	√	Checked Weekly
	Fence Damage	√	Checked Weekly
	Gate Alignment and Swing Action	√	Checked Weekly
	Fire Extinguishers	√	Checked Weekly (Inspected 10/6/21)
	Yard Hydrants (2)	√	Checked Weekly (Tested 10/6/21)
	Large Fire Boss	√	Checked Weekly
	Lock Lubrication and Function	√	Checked Weekly
9	**PLC Cabinet**		Checked Weekly
	Vandalism	√	Checked Weekly
	Power Supply	√	Checked Weekly
	Test Lamps	√	Checked Weekly
	Circular Chart	√	Checked Weekly
	Louvers Open	√	Checked Weekly
	"Auto"Start	√	Checked Weekly
	Purge Motor	√	Checked Weekly
	Louvers Close / Pilot	√	Checked Weekly
	Blowers Activated	√	Checked Weekly
	Shutdown Valve Open	√	Checked Weekly
	Manually Adjust Louvers (optional)	√	Checked Weekly
	Autodialer Activated	√	Checked Weekly

FORM DP-1

LANDFILL GAS MANAGEMENT SYSTEM

MARCH 2025

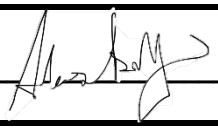
DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
1/22/25	Flare	Propane empty	Propane replaced & flare
2/11/25	B Hill	Coupling broken on well B09	Rapired with new coupling
2/11/25	D Hill	Broken well vault lid	N/A

Date: 3/18/2025

Inspected By: Abigail Donnelly

Signature: 

May 10, 2024
File No. 07220079.00

Mr. Wes Lindemuth
TRC
575 Arthur Kill Road
Staten Island, NY 10308

Subject: Brookfield Avenue Landfill Gas Collection System
Operations and Maintenance Report April 2024

Dear Wes:

SCS Field Services (SCS-FS) visited the Brookfield Avenue Landfill (Landfill) in April 2024 to perform Operations and Maintenance (O&M) on the landfill gas (LFG) collection system for TRC. The following report summarizes the work performed and presents the monitoring data collected.

LFG Wellfield

During the site visits, SCS-FS monitored LFG extraction wells (EW). The EW's were monitored for gas quality (methane, carbon dioxide, oxygen, and balance gas (assumed to be primarily nitrogen)), static pressure, flow rate, and gas temperature using a Landtec GEM-5000 infrared landfill gas analyzer (GEM-5000). The wellfield monitoring data are presented in ***Attachment 1***.

SCS-FS notes that the methane content at many of the extraction wells, as indicated by the portable analyzer, is higher than that typically encountered at municipal solid waste landfills. SCS-FS suspects that other components, such as long-chain hydrocarbons or hydrogen, may be present in the LFG and interfering with the instrument's methane reading. While monitoring the wellfield, SCS-FS uses a charcoal filter on the inlet sample tubing of the GEM-5000 to help reduce the interference from non-methane components.

Blower/Flare Station

SCS-FS monitored the ground flare during each site visit. The flare was monitored for gas quality and inlet pressure using the GEM-5000. LFG flow rates and flare stack temperatures were recorded from station instrumentation. The data collected are presented in ***Attachment 2***.

Perimeter Probe and Other Monitoring

On April 30, SCS-FS monitored the perimeter probes for the presence of methane using the GEM-5000. On April 30, SCS-FS performed quarterly monitoring of the Eltingville Pumping Station for combustible gas using a Ventis MX4 Multi-Gas Monitor. The monitoring was performed by walking through the interior rooms of the pump station floors with the gas monitor. No combustible gas was

detected in the pump station. Perimeter probe and pump station gas monitoring data are presented in *Attachment 3*.

SCS-FS appreciates the opportunity to provide our services. Please contact either of the undersigned should you require further information or assistance.

Sincerely,

Mike Marks
Senior Project Superintendent
SCS Field Services

Scott Schoffner
Regional Manager
SCS Field Services

Attachments

ATTACHMENT 1

WELLFIELD MONITORING DATA

Brookfield Ave Landfill - Well Data - 04/01/2024 to 04/30/2024

Point Name	Record Date	CH4 (% by vol)	CO2 (% by vol)	O2 (% by vol)	Bal Gas (% by vol)	Init Temp (F)	Adj Temp (F)	Init Static Pressure ("H2O)	Adj Static Pressure ("H20)	Init Flow (scfm)	Adj Flow (scfm)	Baro Pressure	Comments
EW-A1	4/24/2024 8:54:20 AM	0.0	0.2	21.0	78.8	70.0	70.0	-0.13	-0.12	0.0	0.0	29.66	Valve 100% Closed
EW-A10	4/24/2024 9:25:29 AM	12.1	20.9	13.5	53.5	62.0	62.0	-0.15	-0.12	0.4	0.4	29.70	Decreased Flow/Vacuum
EW-A11	4/24/2024 9:28:00 AM	5.7	16.7	15.7	61.9	62.0	62.0	-0.11	-0.10	0.5	0.4	29.70	Valve 100% Closed
EW-A12	4/24/2024 9:30:33 AM	0.1	0.9	20.3	78.7	62.0	62.0	-0.09	-0.08	0.4	0.4	29.70	Valve 100% Closed
EW-A13	4/24/2024 9:32:41 AM	0.3	1.1	20.2	78.4	62.0	62.0	-0.19	-0.15	0.3	0.4	29.71	Valve 100% Closed
EW-A14	4/24/2024 9:37:24 AM	47.6	27.8	1.3	23.3	80.0	80.0	-0.07	-0.08	0.5	0.5	29.70	Increased Flow/Vacuum
EW-A15	4/24/2024 9:44:40 AM	45.8	32.1	1.3	20.8	65.0	65.0	-0.08	-0.09	0.4	0.4	29.70	
EW-A16	4/24/2024 9:47:10 AM	48.7	32.3	1.0	18.0	70.0	70.0	-0.09	-0.08	0.5	0.5	29.71	Increased Flow/Vacuum
EW-A17	4/24/2024 9:49:48 AM	48.5	31.0	0.6	19.9	63.0	63.0	-0.11	-0.10	0.5	0.5	29.71	Increased Flow/Vacuum
EW-A2	4/24/2024 8:57:15 AM	0.0	0.2	20.9	78.9	65.0	65.0	-0.06	-0.08	0.0	0.0	29.66	Valve 100% Closed
EW-A3	4/24/2024 9:06:32 AM	47.1	30.4	1.2	21.3	62.0	62.0	-0.10	-0.09	0.2	0.2	29.68	Increased Flow/Vacuum
EW-A4	4/24/2024 9:00:34 AM	44.6	26.6	2.7	26.1	65.0	65.0	-0.10	-0.10	0.3	0.3	29.67	Increased Flow/Vacuum
EW-A5	4/24/2024 9:08:13 AM	46.5	29.6	1.8	22.1	67.0	67.0	-0.06	-0.07	0.1	0.1	29.68	Increased Flow/Vacuum
EW-A6	4/24/2024 9:11:08 AM	2.3	1.7	18.2	77.8	65.0	65.0	-0.08	-0.08	0.1	0.1	29.50	Valve 100% Closed
EW-A7	4/24/2024 9:15:07 AM	0.8	0.8	20.1	78.3	68.0	68.0	-0.08	-0.09	0.0	0.1	29.69	Valve 100% Closed
EW-A8	4/24/2024 9:18:36 AM	46.8	31.5	1.4	20.3	62.0	62.0	-0.06	-0.08	0.3	0.3	29.69	Increased Flow/Vacuum
EW-A9	4/24/2024 9:22:08 AM	45.6	32.7	1.2	20.5	62.0	62.0	-0.11	-0.17	0.5	1.5	29.69	Increased Flow/Vacuum
EW-B1	4/18/2024 8:54:19 AM	30.8	18.3	0.0	50.9	50.0	50.0	-4.40	-4.39	7.0	7.1	29.90	Decreased Flow/Vacuum
EW-B10	4/18/2024 8:37:49 AM	5.3	7.4	2.7	84.6	50.0	50.0	-0.48	-0.42	1.9	1.8	29.88	Valve 100% Closed
EW-B11	4/18/2024 9:33:30 AM	2.6	6.0	20.3	71.1	52.0	52.0	-0.07	-0.07	0.0	0.0	29.91	Valve 100% Closed
EW-B12	4/18/2024 8:10:15 AM	74.4	12.4	0.6	12.6	50.0	50.0	-4.32	-4.28	7.8	7.7	29.86	Valve 100% Open
EW-B13	4/18/2024 8:45:16 AM	71.0	16.8	0.3	11.9	60.0	60.0	-4.31	-4.25	7.5	7.5	29.89	Valve 100% Open
EW-B2	4/18/2024 9:02:00 AM	1.1	5.0	18.5	75.4	50.0	50.0	-0.12	-0.13	0.7	0.7	29.88	Valve 100% Closed
EW-B3	4/18/2024 9:29:43 AM	3.2	7.8	17.8	71.2	52.0	52.0	-0.39	-0.29	0.0	0.0	29.91	Valve 100% Closed
EW-B4	4/18/2024 8:20:49 AM	64.4	12.9	3.0	19.7	50.0	50.0	-4.27	-4.28	7.6	7.6	29.87	Valve 100% Open
EW-B5	4/18/2024 9:10:57 AM	37.7	8.3	14.8	39.2	58.0	58.0	-4.21	-4.20	7.0	7.0	29.88	Increased Flow/Vacuum
EW-B6	4/18/2024 9:22:03 AM	45.0	16.0	2.1	36.9	55.0	55.0	-4.42	-4.38	7.2	7.2	29.90	Valve 100% Open
EW-B7	4/18/2024 9:15:54 AM	2.4	5.1	16.1	76.4	58.0	58.0	-0.40	-0.41	1.9	1.9	29.88	Valve 100% Closed
EW-B8	4/18/2024 8:26:45 AM	53.0	19.5	0.1	27.4	50.0	50.0	-4.36	-4.33	7.2	7.3	29.88	Increased Flow/Vacuum
EW-B9	4/18/2024 8:31:49 AM	1.9	7.0	20.1	71.0	58.0	58.0	-0.40	-0.40	1.8	1.8	29.88	Valve 100% Closed
EW-C1	4/24/2024 11:21:25 AM	1.3	8.6	17.3	72.8	70.0	70.0	-0.07	-0.07	0.7	0.7	29.76	Valve 100% Closed
EW-C10	4/24/2024 10:58:24 AM	48.8	34.2	0.3	16.7	68.0	68.0	-0.09	-0.07	0.5	0.5	29.75	
EW-C11	4/24/2024 10:55:54 AM	47.7	33.5	0.7	18.1	68.0	68.0	-0.06	-0.05	0.6	0.6	29.74	Increased Flow/Vacuum
EW-C12	4/24/2024 10:54:05 AM	47.6	31.0	1.8	19.6	65.0	65.0	-0.05	-0.05	0.5	0.5	29.74	Increased Flow/Vacuum
EW-C13	4/24/2024 10:50:57 AM	1.5	1.3	19.1	78.1	63.0	63.0	-0.07	-0.07	0.4	0.4	29.74	Valve 100% Closed
EW-C14	4/18/2024 10:45:09 AM	15.9	16.6	0.2	67.3	50.0	50.0	-3.21	-3.16	5.5	5.7	29.91	Valve 100% Closed
EW-C15	4/24/2024 10:49:35 AM	45.2	31.9	0.7	22.2	65.0	65.0	-0.02	-0.03	0.5	0.5	29.73	Increased Flow/Vacuum
EW-C16	4/24/2024 10:48:18 AM	48.4	29.7	0.9	21.0	68.0	68.0	-0.02	-0.04	0.5	0.5	29.74	Increased Flow/Vacuum
EW-C17	4/24/2024 10:45:49 AM	0.1	0.3	21.1	78.5	68.0	68.0	-0.06	-0.06	0.4	0.5	29.73	Valve 100% Closed
EW-C18	4/24/2024 10:42:23 AM	0.1	0.3	21.0	78.6	65.0	65.0	-0.01	-0.03	0.5	0.5	29.72	Valve 100% Closed
EW-C19	4/24/2024 10:39:15 AM	0.1	0.2	21.1	78.6	68.0	68.0	-0.04	-0.05	0.4	0.4	29.73	Valve 100% Closed
EW-C2	4/24/2024 11:17:01 AM	1.7	10.8	16.8	70.7	68.0	68.0	-0.05	-0.06	0.6	0.6	29.74	Valve 100% Closed
EW-C20	4/18/2024 12:38:06 PM	1.5	1.2	19.8	77.5	70.0	70.0	-0.11	-0.09	0.2	0.2	29.97	Valve 100% Closed
EW-C21	4/18/2024 12:34:01 PM	19.5	14.8	3.8	61.9	45.0	45.0	-0.08	-0.08	0.0	0.0	29.97	Decreased Flow/Vacuum
EW-C22	4/18/2024 10:58:00 AM	2.4	6.9	19.1	71.6	60.0	60.0	-0.93	-0.91	3.0	2.9	29.91	Valve 100% Closed
EW-C23	4/18/2024 10:51:50 AM	45.3	17.1	0.2	37.4	60.0	60.0	-2.81	-2.78	5.6	5.4	29.92	Increased Flow/Vacuum
EW-C24	4/18/2024 10:22:38 AM	2.0	3.0	21.5	73.5	65.0	65.0	-0.09	-0.07	0.0	0.0	29.91	Valve 100% Closed



Brookfield Ave Landfill - Well Data - 04/01/2024 to 04/30/2024

Point Name	Record Date	CH4 (% by vol)	CO2 (% by vol)	O2 (% by vol)	Bal Gas (% by vol)	Init Temp (F)	Adj Temp (F)	Init Static Pressure ("H2O)	Adj Static Pressure ("H20)	Init Flow (scfm)	Adj Flow (scfm)	Baro Pressure	Comments
EW-C25	4/18/2024 10:27:02 AM	6.0	3.4	17.2	73.4	60.0	60.0	-1.02	-0.99	3.1	3.1	29.91	Valve 100% Closed
EW-C26	4/18/2024 10:37:30 AM	62.2	18.7	0.0	19.1	50.0	50.0	-2.88	-2.88	5.9	5.9	29.92	Valve 100% Open
EW-C27	4/18/2024 9:57:54 AM	67.6	17.6	2.3	12.5	60.0	60.0	-3.71	-3.62	6.9	6.9	29.91	Valve 100% Open
EW-C28	4/18/2024 10:07:25 AM	4.3	9.2	17.7	68.8	65.0	68.0	-0.24	-0.18	0.0	0.0	29.91	Valve 100% Closed
EW-C29	4/18/2024 12:01:48 PM	0.6	3.9	19.0	76.5	65.0	65.0	-0.06	-0.06	0.0	0.0	29.94	Valve 100% Closed
EW-C3	4/24/2024 11:14:06 AM	2.9	13.8	16.2	67.1	70.0	70.0	-0.04	-0.04	0.6	0.6	29.75	Valve 100% Closed
EW-C30	4/18/2024 10:13:09 AM	47.2	14.0	5.0	33.8	60.0	60.0	-2.45	-2.51	5.4	5.6	29.91	Decreased Flow/Vacuum
EW-C31	4/18/2024 10:18:21 AM	0.7	3.0	21.6	74.7	60.0	60.0	-0.91	-0.91	3.0	3.0	29.91	Valve 100% Closed
EW-C33	4/18/2024 11:57:38 AM	0.7	4.5	18.4	76.4	68.0	68.0	-0.06	-0.07	0.0	0.0	29.94	Valve 100% Closed
EW-C4	4/24/2024 11:09:59 AM	4.3	15.2	15.7	64.8	65.0	65.0	-0.02	-0.03	0.6	0.6	29.74	Valve 100% Closed
EW-C5	4/24/2024 11:08:46 AM	6.3	18.7	14.5	60.5	56.0	56.0	-0.07	-0.06	0.6	0.6	29.75	Decreased Flow/Vacuum
EW-C6	4/24/2024 11:06:18 AM	18.7	25.8	9.9	45.6	65.0	65.0	-0.06	-0.06	0.8	0.7	29.74	
EW-C7	4/24/2024 11:04:21 AM	37.9	31.8	2.7	27.6	68.0	68.0	-0.06	-0.06	0.6	0.6	29.73	Decreased Flow/Vacuum
EW-C8	4/24/2024 11:02:39 AM	48.5	33.5	0.4	17.6	68.0	68.0	-0.03	-0.04	0.5	0.6	29.74	Increased Flow/Vacuum
EW-C9	4/24/2024 11:00:18 AM	49.0	33.8	0.3	16.9	62.0	62.0	-0.05	-0.05	0.5	0.5	29.74	Increased Flow/Vacuum
EW-D1	4/2/2024 9:53:34 AM	43.7	29.5	2.4	24.4	65.0	65.0	-0.14	-0.11	0.2	0.3	29.85	
EW-D10	4/2/2024 10:16:20 AM	42.3	27.1	2.5	28.1	54.0	54.0	-0.10	-0.09	0.5	0.5	29.86	
EW-D11	4/2/2024 10:17:48 AM	46.4	29.8	1.8	22.0	74.0	74.0	-0.10	-0.09	0.4	0.4	29.86	
EW-D12	4/2/2024 9:29:20 AM	44.3	32.2	1.9	21.6	65.0	65.0	-0.05	-0.05	0.2	0.2	29.85	
EW-D13	4/2/2024 9:36:04 AM	42.8	31.5	2.5	23.2	54.0	54.0	-0.04	-0.04	0.5	0.4	29.85	
EW-D14	4/2/2024 10:25:03 AM	46.0	28.9	1.6	23.5	50.0	50.0	-0.06	-0.06	0.2	0.3	29.87	
EW-D15	4/2/2024 10:29:05 AM	35.6	30.1	3.9	30.4	74.0	74.0	-0.19	-0.15	0.5	0.5	29.88	
EW-D16	4/2/2024 10:47:59 AM	0.2	2.6	20.4	76.8	54.0	54.0	-0.11	-0.09	0.5	0.5	29.91	
EW-D17	4/2/2024 10:51:32 AM	0.5	3.1	20.3	76.1	70.0	70.0	-0.12	-0.09	0.8	0.7	29.91	
EW-D2	4/2/2024 9:56:04 AM	31.8	26.6	5.9	35.7	56.0	56.0	-0.25	-0.15	0.5	0.4	29.84	
EW-D3	4/2/2024 9:59:03 AM	10.9	18.8	14.2	56.1	55.0	55.0	-0.09	-0.07	0.2	0.3	29.86	
EW-D4	4/2/2024 10:02:44 AM	4.5	14.7	16.7	64.1	40.0	40.0	-0.09	-0.08	0.2	0.3	29.86	
EW-D5	4/2/2024 9:46:47 AM	42.6	25.9	2.9	28.6	54.0	54.0	-0.12	-0.09	0.4	0.4	29.85	
EW-D6	4/2/2024 9:21:28 AM	0.5	3.0	20.8	75.7	50.0	50.0	-0.04	-0.05	0.1	0.1	29.85	
EW-D7	4/2/2024 9:23:48 AM	0.6	3.1	20.7	75.6	65.0	65.0	-0.13	-0.10	0.2	0.2	29.85	
EW-D8	4/2/2024 10:05:51 AM	1.8	8.8	17.9	71.5	78.0	78.0	-0.01	-0.03	0.3	0.4	29.86	
EW-D9	4/2/2024 10:12:18 AM	44.4	29.1	2.1	24.4	65.0	65.0	-0.05	-0.05	0.5	0.5	29.86	
EW-E1	4/8/2024 9:26:40 AM	0.5	2.8	20.3	76.4	65.0	65.0	-0.04	-0.04	0.2	0.2	30.04	
EW-E10	4/8/2024 10:42:15 AM	0.2	7.4	19.1	73.3	65.0	65.0	-0.04	-0.04	0.8	0.7	30.10	
EW-E11	4/8/2024 9:54:16 AM	45.8	31.6	1.7	20.9	51.0	51.0	-0.07	-0.06	0.5	0.5	30.06	
EW-E12	4/8/2024 10:28:55 AM	0.6	9.1	19.1	71.2	65.0	65.0	-0.05	-0.06	0.8	0.7	30.09	
EW-E13	4/8/2024 9:57:50 AM	45.6	28.7	2.4	23.3	72.0	72.0	-0.10	-0.08	0.5	0.5	30.06	
EW-E14	4/8/2024 10:40:05 AM	0.4	7.6	19.2	72.8	51.0	51.0	-0.19	-0.14	0.7	0.7	30.08	
EW-E15	4/8/2024 10:01:45 AM	45.1	29.6	2.1	23.2	62.0	62.0	-0.08	-0.07	0.5	0.5	30.07	
EW-E16	4/8/2024 10:24:42 AM	1.1	11.0	18.5	69.4	62.0	62.0	-0.10	-0.08	0.5	0.5	30.08	
EW-E17	4/8/2024 10:03:34 AM	31.6	27.3	5.8	35.3	65.0	65.0	-0.06	-0.06	0.4	0.4	30.08	
EW-E18	4/8/2024 10:05:29 AM	19.5	23.1	10.8	46.6	65.0	65.0	-0.12	-0.09	0.3	0.4	30.07	
EW-E19	4/8/2024 10:10:52 AM	9.2	18.1	15.0	57.7	65.0	65.0	-0.12	-0.09	0.3	0.4	30.08	
EW-E2	4/24/2024 10:02:01 AM	47.9	29.4	1.4	21.3	70.0	70.0	-0.12	-0.11	0.5	0.5	29.75	Increased Flow/Vacuum
EW-E20	4/8/2024 10:16:15 AM	5.3	15.7	16.4	62.6	65.0	65.0	-0.07	-0.07	0.6	0.6	30.08	
EW-E21	4/8/2024 10:20:37 AM	2.1	12.5	17.7	67.7	65.0	65.0	-0.13	-0.10	0.5	0.5	30.08	
EW-E3	4/8/2024 9:32:47 AM	0.3	2.6	20.3	76.8	55.0	55.0	-0.06	-0.06	0.4	0.4	30.05	



Brookfield Ave Landfill - Well Data - 04/01/2024 to 04/30/2024

Point Name	Record Date	CH4 (% by vol)	CO2 (% by vol)	O2 (% by vol)	Bal Gas (% by vol)	Init Temp (F)	Adj Temp (F)	Init Static Pressure ("H2O)	Adj Static Pressure ("H20)	Init Flow (scfm)	Adj Flow (scfm)	Baro Pressure	Comments
EW-E4	4/24/2024 10:04:42 AM	46.0	28.7	1.7	23.6	62.0	62.0	-0.05	-0.05	0.6	0.5	29.76	
EW-E5	4/8/2024 9:35:43 AM	0.1	2.2	20.4	77.3	65.0	65.0	-0.15	-0.11	0.6	0.5	30.06	
EW-E6	4/24/2024 10:06:54 AM	0.6	8.9	17.4	73.1	65.0	65.0	-0.06	-0.06	0.5	0.5	29.63	Valve 100% Closed
EW-E7	4/8/2024 9:40:09 AM	0.1	2.1	20.4	77.4	62.0	62.0	-0.10	-0.09	0.7	0.6	30.06	
EW-E8	4/24/2024 10:09:55 AM	0.7	5.1	19.4	74.8	65.0	65.0	-0.19	-0.13	0.8	0.7	29.76	Valve 100% Closed
EW-E9	4/8/2024 9:43:00 AM	0.0	1.7	20.5	77.8	65.0	65.0	-0.09	-0.08	0.5	0.5	30.06	



ATTACHMENT 2

BLOWER/FLARE STATION MONITORING DATA

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Date and Time	2024-04-02 09:05:00	Wind Speed (mph)	5
Technician	M Marks	Wind Direction	North
Ambient Temperature (deg F)	50	Barometric Pressure (in. Hg)	2988
Weather	Raining	GEM I.D.	332

BLOWER INLET		
Blower # 1 Status	On	Hours = 41643
Blower # 2 Status	On	Hours = 41569
Methane (%vol)	30.2	
Carbon Dioxide (%vol)	15.1	
Oxygen (%vol)	1.3	
Balance Gas (%vol)	53.4	
Blower Inlet Pressure (in.WC.)	-5	
Gas temperature (deg F)	66	
Inlet Flowrate (scfm)	203	
GC CH4 (%vol)	33	
GC O2 (%vol)	1.3	

FLARE		
Flare Inlet Pressure (in.WC.)	3	
Nitrogen Bottle Pressure (PSI)	800	
Propane Level (percent)	100	
Flare Stack Temperature (deg F)	1567	

COMMENTS

KEY

deg F = degrees Fahrenheit
in.W.C. = inches water column
scfm = standard cubic feet per minute
mph = Miles Per Hour
%vol = percent by volume
in. Hg = inches Mercury
PSI = pounds per square inch
NA = Not Available

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Date and Time	2024-04-08 09:00:00	Wind Speed (mph)	5
Technician	M Marks	Wind Direction	North
Ambient Temperature (deg F)	45	Barometric Pressure (in. Hg)	2998
Weather	Partly Cloudy	GEM I.D.	3342

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BLOWER INLET		
Blower # 1 Status	On	Hours = 4178
Blower # 2 Status	On	Hours = 41706
Methane (%vol)	27.0	
Carbon Dioxide (%vol)	14.8	
Oxygen (%vol)	1.8	
Balance Gas (%vol)	56.4	
Blower Inlet Pressure (in.WC.)	-5	
Gas temperature (deg F)	55	
Inlet Flowrate (scfm)	188	
GC CH4 (%vol)	27	
GC O2 (%vol)	1.8	

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FLARE		
Flare Inlet Pressure (in.WC.)	3	
Nitrogen Bottle Pressure (PSI)	800	
Propane Level (percent)	100	
Flare Stack Temperature (deg F)	1622	

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COMMENTS

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KEY

deg F = degrees Fahrenheit

in.W.C. = inches water column

scfm = standard cubic feet per minute

mph = Miles Per Hour

%vol = percent by volume

in. Hg = inches Mercury

PSI = pounds per square inch

NA = Not Available

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Date and Time	2024-04-18 12:33:00	Wind Speed (mph)	10
Technician	Mike Marks	Wind Direction	North
Ambient Temperature (deg F)	49	Barometric Pressure (in. Hg)	2988
Weather	Raining	GEM I.D.	332

BLOWER INLET		
Blower # 1 Status	On	Hours = 42024
Blower # 2 Status	On	Hours = 41949
Methane (%vol)	27.9	
Carbon Dioxide (%vol)	11.0	
Oxygen (%vol)	2.5	
Balance Gas (%vol)	58.9	
Blower Inlet Pressure (in.WC.)	-4	
Gas temperature (deg F)	70	
Inlet Flowrate (scfm)	189	
GC CH4 (%vol)	28	
GC O2 (%vol)	2.4	

FLARE		
Flare Inlet Pressure (in.WC.)	4	
Nitrogen Bottle Pressure (PSI)	700	
Propane Level (percent)	100	
Flare Stack Temperature (deg F)	1667	

COMMENTS

KEY

deg F = degrees Fahrenheit
in.W.C. = inches water column
scfm = standard cubic feet per minute
mph = Miles Per Hour
%vol = percent by volume
in. Hg = inches Mercury
PSI = pounds per square inch
NA = Not Available

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Date and Time	2024-04-24 11:52:00	Wind Speed (mph)	10
Technician	Marks	Wind Direction	North
Ambient Temperature (deg F)	65	Barometric Pressure (in. Hg)	2988
Weather	Partly Cloudy	GEM I.D.	332

BLOWER INLET		
Blower # 1 Status	On	Hours = 42167
Blower # 2 Status	On	Hours = 42093
Methane (%vol)	26.1	
Carbon Dioxide (%vol)	14.1	
Oxygen (%vol)	1.6	
Balance Gas (%vol)	58.2	
Blower Inlet Pressure (in.WC.)	-5	
Gas temperature (deg F)	67	
Inlet Flowrate (scfm)	190	
GC CH4 (%vol)	26.1	
GC O2 (%vol)	1.4	

FLARE		
Flare Inlet Pressure (in.WC.)	3	
Nitrogen Bottle Pressure (PSI)	900	
Propane Level (percent)	100	
Flare Stack Temperature (deg F)	1677	

COMMENTS

KEY

deg F = degrees Fahrenheit
in.W.C. = inches water column
scfm = standard cubic feet per minute
mph = Miles Per Hour
%vol = percent by volume
in. Hg = inches Mercury
PSI = pounds per square inch
NA = Not Available

□R□□□□□□D□□□□□□□□□D□□□
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Date and Time	2024-04-30 08:45:00	Wind Speed (mph)	9
Technician	Doug Cordisco	Wind Direction	East
Ambient Temperature (deg F)	57	Barometric Pressure (in. Hg)	29.94
Weather	Cloudy	GEM I.D.	G506082

BLOWER INLET		
Blower # 1 Status	On	Hours = 42198
Blower # 2 Status	On	Hours = 42123
Methane (%vol)	25.8	
Carbon Dioxide (%vol)	18.7	
Oxygen (%vol)	0.6	
Balance Gas (%vol)	54.8	
Blower Inlet Pressure (in.WC.)	-5.66	
Gas temperature (deg F)	56.2	
Inlet Flowrate (scfm)	187	
GC CH4 (%vol)	30.2	
GC O2 (%vol)	1.0	

FLARE		
Flare Inlet Pressure (in.WC.)	0.99	
Nitrogen Bottle Pressure (PSI)	300	
Propane Level (percent)	40	
Flare Stack Temperature (deg F)	1709	

COMMENTS

NA

KEY

deg F = degrees Fahrenheit
in.W.C. = inches water column
scfm = standard cubic feet per minute
mph = Miles Per Hour
%vol = percent by volume
in. Hg = inches Mercury
PSI = pounds per square inch
NA = Not Available

ATTACHMENT 3

PERIMETER PROBE MONITORING DATA

BROOKFIELD AVENUE LANDFILL

QUARTERLY PERIMETER PROBES

GAS MONITORING RESULTS

Q-2 (Apr) 2024

Date: 4/30/2024

		Concentration by %					
No.	Sample Location	Methane	CO2	Oxygen	LEL %	Time	Comments
	EAST						
1	LFG-E- 1	0	0.7	20.7	0	9:19	
2	LFG-E- 2	0	3.1	16.9	0	9:22	
3	LFG-E- 3	0	2.7	15.8	0	9:26	
4	LFG-E- 4	0	0.7	20.7	0	9:28	
5	LFG-E- 5	0	1.1	19.6	0	9:31	
6	LFG-E- 6	0	0.8	19.3	0	9:44	
7	LFG-E- 7	0	2	18	0	9:48	
8	LFG-E- 8	0	1.4	18.8	0	9:50	
9	LFG-E- 9	0	0.8	20.4	0	9:53	
10	LFG-E- 10	0	6.4	10.2	0	9:55	
11	LFG-E- 11	0	1.1	19.6	0	9:58	
12	LFG-E- 12	0	0.3	21.6	0	10:02	
13	LFG-E- 13	0	1.2	18	0	10:05	
14	LFG-E- 14	0	0.4	21.1	0	10:07	
15	LFG-E- 15	0	0.2	21.6	0	10:09	
16	LFG-E- 16	0	1.8	19.5	0	8:52	
17	LFG-E- 17	0.3	3.3	20.2	6	8:59	
18	LFG-E- 18	1.7	1.1	19.7	34	9:03	
19	LFG-E- 18	0	0.7	21.2	0	9:05	North
20	LFG-E- 18	0	0.3	21.4	0	9:07	East
21	LFG-E- 18	0	0.3	21.4	0	9:08	South
22	LFG-E- 18	0	0.2	21.4	0	9:09	West
23	LFG-E- 19	48.8	12.7	6.5	976	9:11	
24	LFG-E- 19	0	1	21.3	0	9:13	North
25	LFG-E- 19	0	0.5	21.4	0	9:15	East
26	LFG-E- 19	0	0.4	21.4	0	9:16	South
27	LFG-E- 19	0	0.3	21.4	0	9:17	West
	WEST						
28	LFG-W- 1	0	2.7	14.3	0	9:39	
29	LFG-W- 2	0	1.1	21.7	0	10:52	
30	LFG-W- 3	0	6.2	7.5	0	10:55	
31	LFG-W- 4	0	2.1	18	0	10:57	
32	LFG-W- 5	0	0.6	21.8	0	11:06	
33	LFG-W- 6	0	0.2	21.7	0	10:24	
34	LFG-W- 7	0	3.1	16.8	0	10:26	
35	LFG-W- 8	0	0.3	21.6	0	10:20	
36	LFG-W- 9	0	0.4	20.3	0	10:18	
37	LFG-W- 10	0	0.2	21.4	0	10:15	
38	LFG-W- 11	68.5	16.2	2.1	1370	10:50	
39	LFG-W- 12	70.2	14.4	3.1	1404	10:39	
40	LFG-W- 12	0	0.5	21.9	0	10:42	North
41	LFG-W- 12	0	0.2	22	0	10:44	South
42	LFG-W- 12	0	0.2	22	0	10:46	East
43	LFG-W- 13	0	3.8	18.2	0	10:37	

BROOKFIELD AVENUE LANDFILL

QUARTERLY ELTINGVILLE PUMPING STATION
GAS MONITORING RESULTS

April 2024

Date: 4/30/2024 **Equipment:** Ventis MX4 Multi-Gas Monitor
Time Calibrated: 7:15

Sample Location	Floor ID	Concentration by %		Time of Day	Comments
		Methane	LEL %		
Dry Well	Main Floor	0.0	0	7:50	
	Sub Floor 1	0.0	0	7:55	
	Sub Floor 2	0.0	0	8:00	
Wet Well	Main Floor	0.0	0	7:30	
	Sub Floor 1	0.0	0	7:35	
	Sub Floor 2	0.0	0	7:40	
Generator Room	Main Floor	0.0	0	7:25	

Notes:

1 Methane monitoring was performed by walking along the interior of the building as well as other locations throughout each floor.

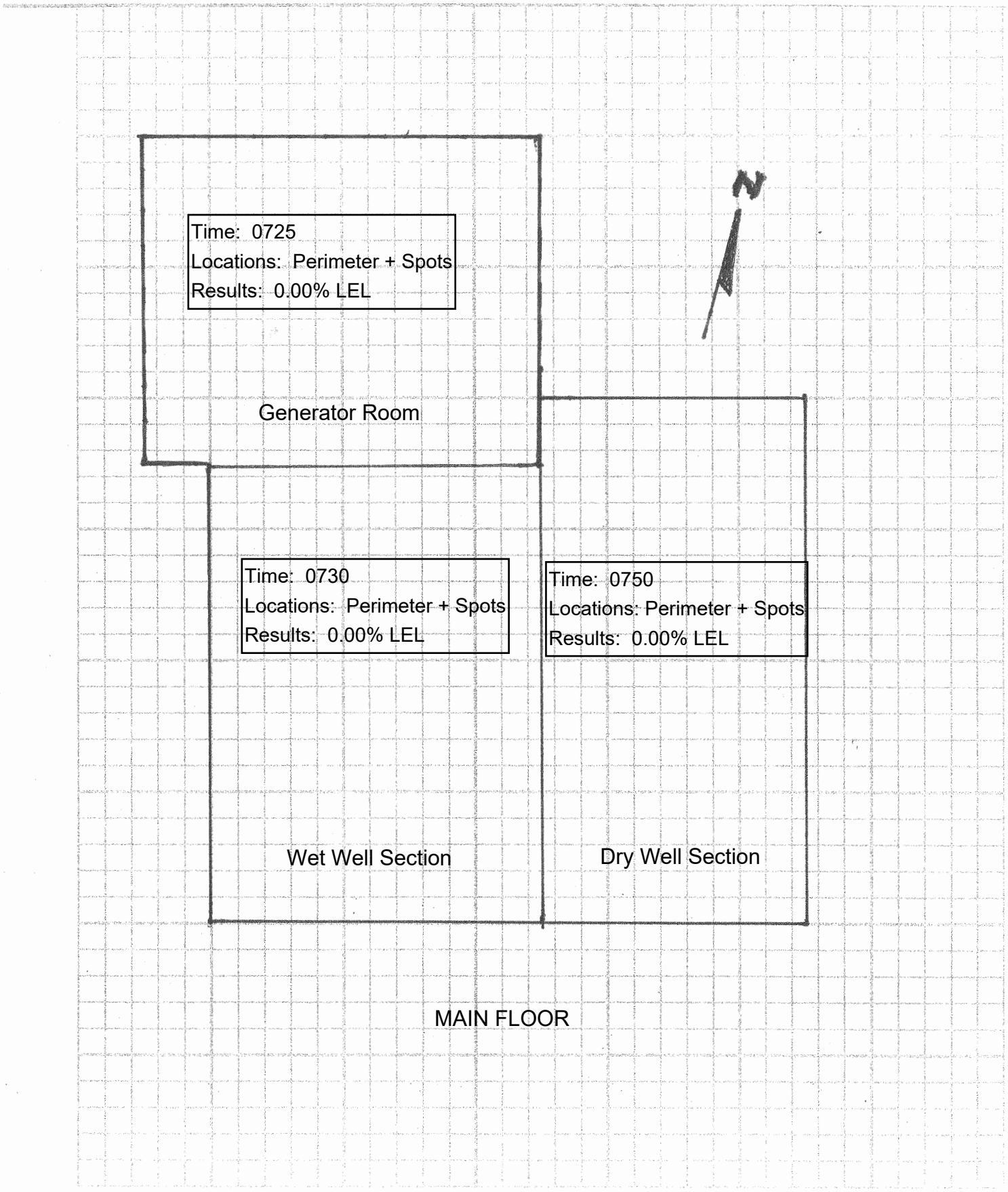
2 If methane readings were encountered, a description of the location would be included in the table above and a sketch of the building showing the location would be attached to this table.

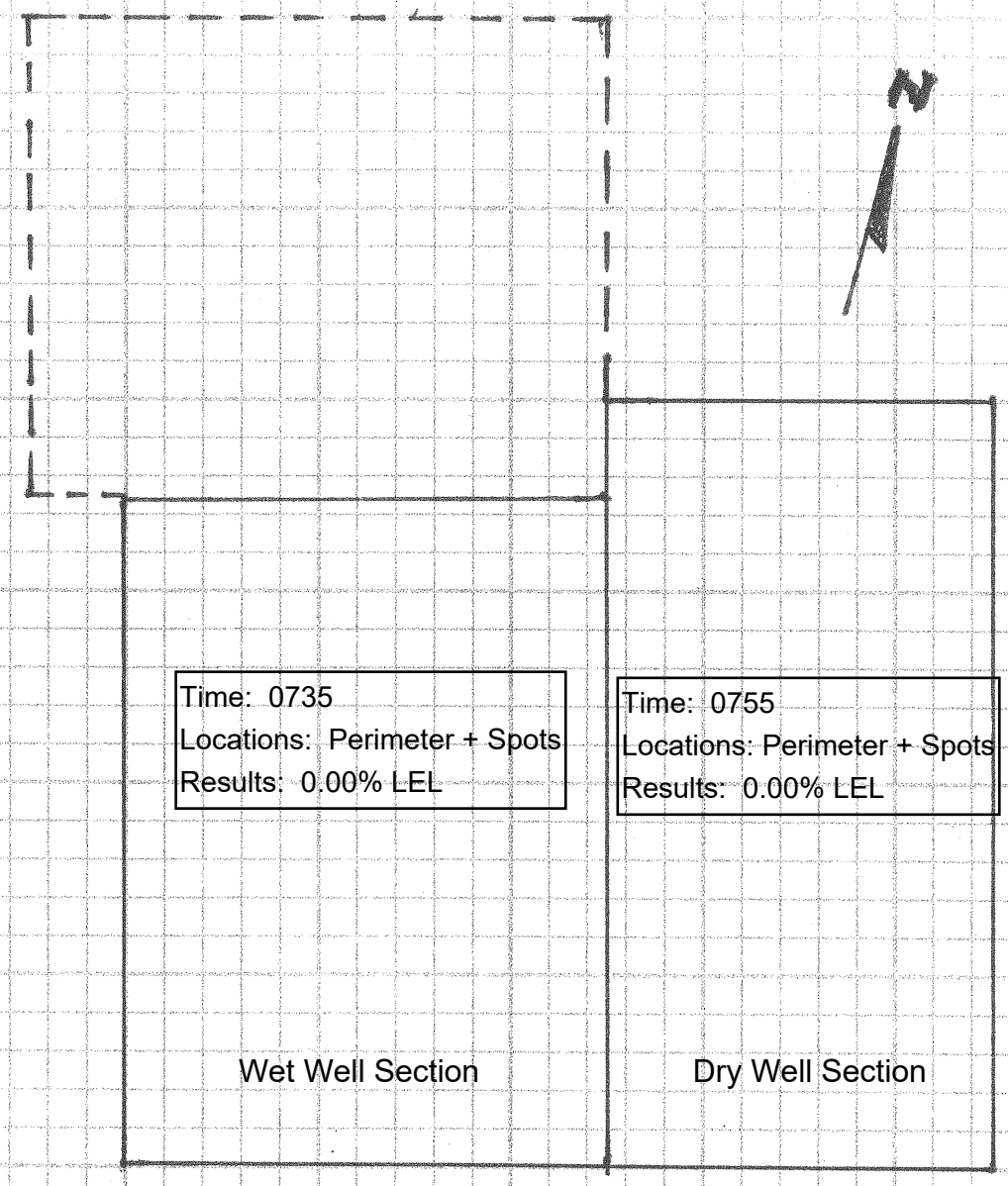
ELTINGVILLE PUMP STATION

Date: 04/30/24

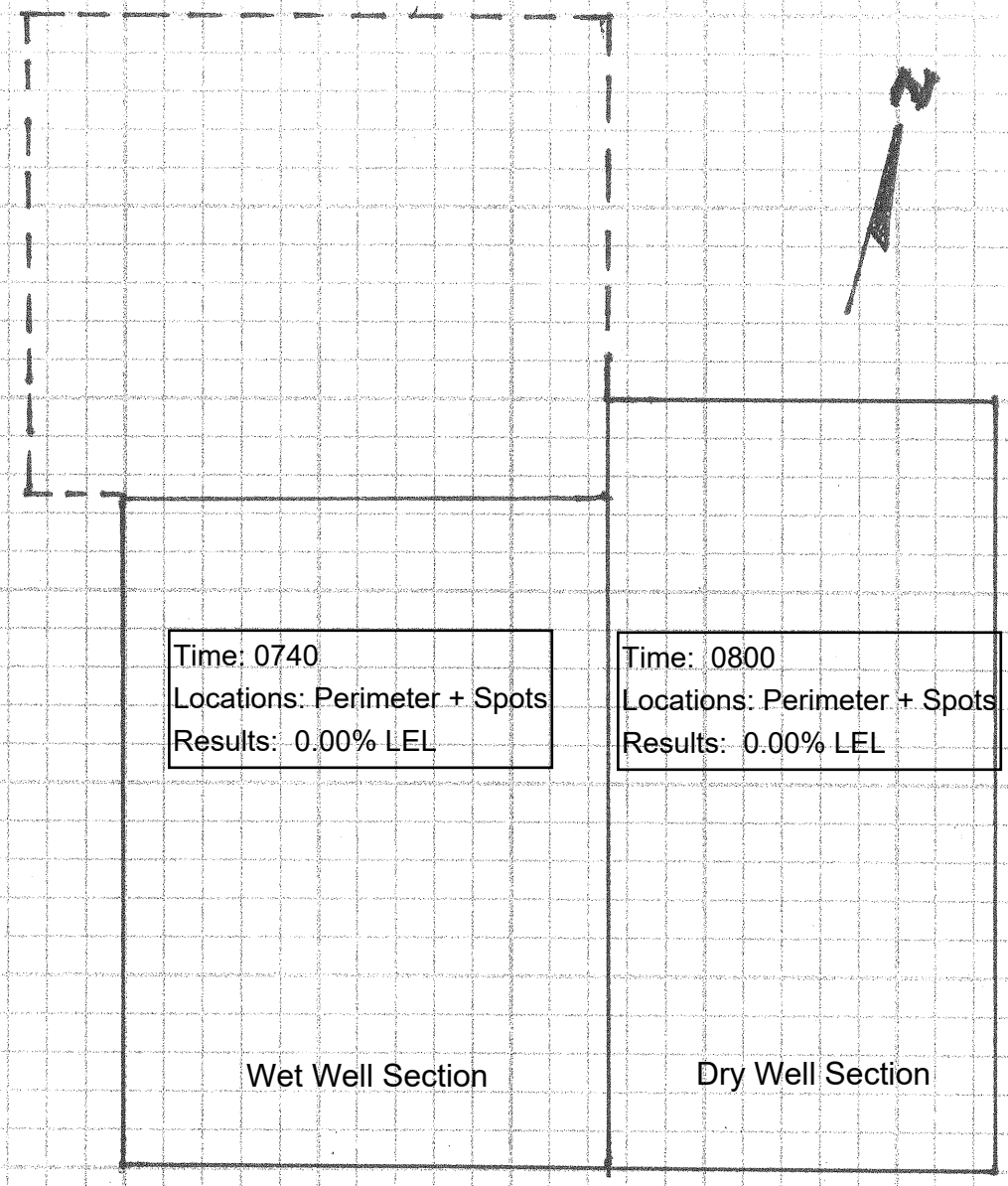
Methane Monitoring Results

Equipment:
Ventis MX4 Multi-Gas Monitor
Calibrated: 0715




N
Time: 0735
Locations: Perimeter + Spots
Results: 0.00% LEL
Time: 0755
Locations: Perimeter + Spots
Results: 0.00% LEL
Wet Well Section
Dry Well Section

SUB FLOOR 1


N
Time: 0740
Locations: Perimeter + Spots
Results: 0.00% LEL
Time: 0800
Locations: Perimeter + Spots
Results: 0.00% LEL
Wet Well Section
Dry Well Section

SUB FLOOR 2

October 7, 2024
File No. 07220079.00

Mr. Wes Lindemuth
TRC
575 Arthur Kill Road
Staten Island, NY 10308

Subject: Brookfield Avenue Landfill Gas Collection System
Operations and Maintenance Report September 2024

Dear Wes:

SCS Field Services (SCS-FS) visited the Brookfield Avenue Landfill (Landfill) in September 2024 to perform Operations and Maintenance (O&M) on the landfill gas (LFG) collection system for TRC. The following report summarizes the work performed and presents the monitoring data collected.

LFG Wellfield

During the site visits, SCS-FS monitored LFG extraction wells (EW). The EW's were monitored for gas quality (methane, carbon dioxide, oxygen, and balance gas (assumed to be primarily nitrogen)), static pressure, flow rate, and gas temperature using a Landtec GEM-5000 infrared landfill gas analyzer (GEM-5000). The wellfield monitoring data are presented in ***Attachment 1***.

SCS-FS notes that the methane content at many of the extraction wells, as indicated by the portable analyzer, is higher than that typically encountered at municipal solid waste landfills. SCS-FS suspects that other components, such as long-chain hydrocarbons or hydrogen, may be present in the LFG and interfering with the instrument's methane reading. While monitoring the wellfield, SCS-FS uses a charcoal filter on the inlet sample tubing of the GEM-5000 to help reduce the interference from non-methane components.

Blower/Flare Station

SCS-FS monitored the ground flare during each site visit. The flare was monitored for gas quality and inlet pressure using the GEM-5000. LFG flow rates and flare stack temperatures were recorded from station instrumentation. The data collected are presented in ***Attachment 2***.

Perimeter Probe and Other Monitoring

On September 27, SCS-FS monitored the perimeter probes for the presence of methane using the GEM-5000. On August 8, SCS-FS performed quarterly monitoring of the Eltingville Pumping Station for combustible gas using a Ventis MX4 Multi-Gas Monitor. The monitoring was performed by walking through the interior rooms of the pump station floors with the gas monitor. No combustible gas was detected in the pump station. Perimeter probe and pump station gas monitoring data are presented in ***Attachment 3***.

SCS-FS appreciates the opportunity to provide our services. Please contact either of the undersigned should you require further information or assistance.

Sincerely,

Doug Cordisco
Senior Field Technician
SCS Field Services

Scott Schoffner
Regional Manager
SCS Field Services

Attachments

ATTACHMENT 1

WELLFIELD MONITORING DATA

Brookfield Ave Landfill - Well Data - 09/01/2024 to 09/30/2024

Point Name	Record Date	CH4 (% by vol)	CO2 (% by vol)	O2 (% by vol)	Bal Gas (% by vol)	Init Temp (F)	Adj Temp (F)	Init Static Pressure ("H2O)	Adj Static Pressure ("H20)	Init Flow (scfm)	Adj Flow (scfm)	Baro Pressure	Comments
EW-A1	9/30/2024 10:23:50 AM	0.1	0.3	20.4	79.2	80.0	80.0	-0.06	-0.06	2.2	2.2	30.09	Valve 100% Closed
EW-A10	9/30/2024 10:30:14 AM	28.1	12.3	10.3	49.3	76.0	76.0	-0.06	-0.07	2.3	2.3	30.08	Decreased Flow/Vacuum
EW-A11	9/17/2024 10:56:42 AM	1.2	9.2	18.2	71.4	75.7	75.7	-15.54	0.06	8.6	0.5	30.17	Valve 100% Closed
EW-A12	9/17/2024 11:35:21 AM	59.3	6.7	10.8	23.2	78.0	78.2	-23.61	0.21		0.0	30.19	Valve 100% Open
EW-A13	9/17/2024 10:57:24 AM	0.5	5.9	19.1	74.5	76.2	76.3	-26.05	-0.01		0.7	30.17	Valve 100% Closed
EW-A14	9/17/2024 11:03:14 AM	56.3	17.9	0.1	25.7	76.6	77.1	0.24	0.27	0.0	0.0	30.18	Decreased Flow/Vacuum
EW-A15	9/17/2024 10:55:58 AM	3.4	12.0	16.8	67.8	76.2	75.9	-9.77	0.11	7.7	0.4	30.18	Valve 100% Closed
EW-A16	9/17/2024 1:03:23 PM	17.5	16.5	0.0	66.0	84.2	84.2	0.19	0.21	0.0	0.0	30.16	Valve 100% Closed
EW-A17	9/17/2024 1:05:17 PM	2.3	10.2	18.2	69.3	84.4	84.4	-23.33	-23.33			30.16	Valve 100% Closed
EW-A2	9/17/2024 10:18:04 AM	26.6	21.5	0.0	51.9	81.6	81.6	-26.13	0.24		0.0	30.19	Increased Flow/Vacuum
EW-A3	9/17/2024 10:53:39 AM	30.7	14.9	0.3	54.1	80.6	80.6	-21.96	0.23		0.0	30.18	Increased Flow/Vacuum
EW-A4	9/17/2024 11:09:08 AM	1.9	7.0	18.4	72.7	77.9	78.0	-33.96	-9.99		0.8	30.18	Valve 100% Closed
EW-A5	9/17/2024 11:12:53 AM	61.1	6.9	0.9	31.1	78.9	78.7	0.09	0.08	0.1	0.1	30.18	Decreased Flow/Vacuum
EW-A6	9/17/2024 10:58:24 AM	0.1	2.1	20.0	77.8	76.1	76.1	-24.65	-0.02		0.6	30.17	Valve 100% Closed
EW-A7	9/17/2024 10:09:59 AM	61.7	22.5	0.1	15.7	75.3	75.3	-13.96	0.28	0.0	0.0	30.20	Valve 100% Closed
EW-A8	9/17/2024 10:26:24 AM	33.7	14.8	0.0	51.5	75.4	75.4	-6.83	0.29	0.0	0.0	30.18	Valve 100% Closed
EW-A9	9/17/2024 11:16:48 AM	35.2	10.3	9.9	44.6	83.7	83.7	-0.07	0.09		0.5	30.17	Valve 100% Closed
EW-B1	9/13/2024 1:48:03 PM	3.1	3.4	14.8	78.7	78.0	78.0	-0.21	-0.12	2.3	2.3	30.25	Valve 100% Closed
EW-B10	9/13/2024 2:27:04 PM	23.5	2.2	14.0	60.3	72.0	72.0	-1.70	-1.68	2.4	2.4	30.24	Valve 100% Open
EW-B11	9/13/2024 2:47:16 PM	20.3	6.7	10.2	62.8	83.0	83.0	0.02	0.03	2.3	2.3	30.25	Valve 100% Closed
EW-B12	9/13/2024 2:29:29 PM	22.8	2.7	14.2	60.3	9.0	89.0	-1.81	-1.72	2.6	2.4	30.21	Valve 100% Open
EW-B13	9/13/2024 2:28:09 PM	21.5	2.3	14.0	62.2	80.0	80.0	-1.67	-1.66	2.4	2.4	30.21	Valve 100% Open
EW-B2	9/13/2024 1:44:59 PM	3.5	3.2	14.8	78.5	80.0	80.0	-0.03	-0.03	2.2	2.2	30.26	Valve 100% Closed
EW-B3	9/13/2024 2:42:53 PM	24.4	11.0	8.7	55.9	77.0	77.0	0.04	0.05	2.2	2.2	30.21	Valve 100% Closed
EW-B4	9/13/2024 1:50:18 PM	3.2	2.5	14.9	79.4	82.0	82.0	-0.09	-0.07	2.3	2.3	30.25	Valve 100% Closed
EW-B5	9/13/2024 2:25:06 PM	21.5	2.8	13.8	61.9	76.0	76.0	-2.00	-1.94	2.4	2.3	30.26	Valve 100% Open
EW-B6	9/13/2024 2:41:06 PM	19.5	9.0	10.3	61.2	92.0	92.0	0.02	0.03	2.3	2.4	30.26	Valve 100% Closed
EW-B7	9/13/2024 2:45:18 PM	20.0	8.0	10.2	61.8	83.5	83.5	0.02	0.03	2.3	2.3	30.25	Valve 100% Closed
EW-B8	9/13/2024 2:02:17 PM	18.4	5.9	14.2	61.5	78.0	78.0	-1.70	-1.69	2.3	2.3	30.26	Decreased Flow/Vacuum
EW-B9	9/13/2024 2:06:07 PM	29.5	10.2	9.6	50.7	88.0	88.0	-0.01	0.00	2.4	2.4	30.26	Valve 100% Closed
EW-C1	9/30/2024 10:37:44 AM	0.2	1.0	18.9	79.9	65.0	65.0	-0.25	-0.24	2.3	2.3	30.09	Valve 100% Closed
EW-C10	9/30/2024 10:42:06 AM	14.6	5.8	11.4	68.2	67.4	67.0	-0.16	-0.15	2.3	2.3	30.08	Valve 100% Closed
EW-C11	9/30/2024 10:51:47 AM	0.2	0.6	19.1	80.1	80.0	80.0	-0.12	-0.12	2.3	2.3	30.08	Valve 100% Closed
EW-C12	9/30/2024 2:20:07 PM	5.5	4.5	11.5	78.5	78.0	78.0	-0.09	-0.06	2.3	2.3	30.06	Valve 100% Closed
EW-C13	9/30/2024 11:05:45 AM	0.7	2.0	16.9	80.4	68.0	68.0	-0.14	-0.13	2.3	2.3	30.08	Valve 100% Closed
EW-C14	9/30/2024 1:54:34 PM	18.1	8.3	12.7	60.9	78.0	78.0	-0.96	-0.61	2.3	2.3	30.03	Decreased Flow/Vacuum
EW-C15	9/30/2024 11:22:42 AM	14.9	5.9	14.1	65.1	60.0	60.0	-0.13	-0.13	2.3	2.3	30.08	Valve 100% Closed
EW-C16	9/30/2024 11:27:46 AM	13.8	5.7	12.5	68.0	78.0	78.0	-0.16	-0.15	2.4	2.3	30.10	Valve 100% Closed
EW-C17	9/30/2024 11:36:09 AM	25.0	10.0	10.4	54.6	100.0	100.0	-0.16	-0.14	2.3	2.3	30.10	Decreased Flow/Vacuum
EW-C18	9/30/2024 11:46:53 AM	0.0	0.3	20.3	79.4	74.0	74.0	-0.08	-0.06	2.3	2.3	30.10	Valve 100% Closed
EW-C19	9/30/2024 1:29:28 PM	0.1	0.3	21.0	78.6	85.0	85.0	-0.11	-0.09	2.2	2.2	30.10	Valve 100% Closed
EW-C2	9/30/2024 10:47:00 AM	0.1	0.5	19.5	79.9	67.0	67.0	-0.28	-0.24	2.3	2.3	30.08	Valve 100% Closed
EW-C20	9/30/2024 1:37:39 PM	0.1	1.5	17.5	80.9	78.0	78.0	-0.06	-0.05	2.3	2.3	30.05	Valve 100% Closed
EW-C21	9/30/2024 1:41:30 PM	32.7	8.8	10.4	48.1	72.0	72.0	-0.09	-0.09	2.4	2.4	30.05	Valve 100% Closed
EW-C22	9/30/2024 1:45:50 PM	34.8	6.9	10.4	47.9	82.0	82.0	-0.15	-0.13	2.4	2.4	30.05	Decreased Flow/Vacuum
EW-C23	9/30/2024 1:49:25 PM	29.8	6.5	10.4	53.3	77.0	77.0	-0.11	-0.07	2.4	2.4	30.06	Decreased Flow/Vacuum
EW-C24	9/30/2024 12:06:20 PM	15.0	7.4	12.7	64.9	70.0	70.0	-0.17	-0.16	2.3	2.3	30.09	Valve 100% Closed



Brookfield Ave Landfill - Well Data - 09/01/2024 to 09/30/2024

Point Name	Record Date	CH4 (% by vol)	CO2 (% by vol)	O2 (% by vol)	Bal Gas (% by vol)	Init Temp (F)	Adj Temp (F)	Init Static Pressure ("H2O)	Adj Static Pressure ("H20)	Init Flow (scfm)	Adj Flow (scfm)	Baro Pressure	Comments
EW-C25	9/30/2024 12:01:46 PM	20.7	7.1	11.3	60.9	78.0	78.0	-0.15	-0.14	2.3	2.3	30.10	Valve 100% Closed
EW-C26	9/30/2024 11:57:37 AM	20.1	7.1	13.0	59.8	78.0	78.0	-1.05	-1.03	2.3	2.3	30.11	Decreased Flow/Vacuum
EW-C27	9/30/2024 12:30:40 PM	12.1	5.2	15.7	67.0	78.0	78.0	-1.30	-1.30	2.3	2.3	30.09	Decreased Flow/Vacuum
EW-C28	9/30/2024 12:26:21 PM	23.3	5.9	13.1	57.7	80.0	80.0	-1.34	-1.31	2.4	2.3	30.10	Decreased Flow/Vacuum
EW-C29	9/30/2024 12:20:00 PM	25.1	7.0	12.5	55.4	75.5	75.0	-1.13	-0.69	2.4	2.3	30.10	Decreased Flow/Vacuum
EW-C3	9/30/2024 10:56:09 AM	24.2	6.9	12.4	56.5	70.0	70.0	-1.22	-1.22	2.4	2.5	30.09	Decreased Flow/Vacuum
EW-C30	9/30/2024 12:15:08 PM	27.2	8.0	11.5	53.3	78.0	78.0	-0.18	-0.17	2.3	2.3	30.10	Decreased Flow/Vacuum
EW-C31	9/30/2024 12:11:25 PM	0.0	0.2	20.7	79.1	80.0	80.0	-0.14	-0.15	2.2	2.2	30.09	Valve 100% Closed
EW-C33	9/30/2024 1:33:40 PM	29.5	5.7	11.0	53.8	71.0	71.0	-0.08	-0.07	2.4	2.4	30.06	Valve 100% Closed
EW-C4	9/30/2024 11:10:02 AM	22.6	10.2	10.8	56.4	65.0	65.0	-0.24	-0.24	2.4	2.4	30.09	Valve 100% Closed
EW-C5	9/30/2024 11:14:05 AM	19.8	7.9	12.2	60.1	65.0	65.0	-1.07	-0.51	2.3	2.3	30.09	Decreased Flow/Vacuum
EW-C6	9/30/2024 11:18:03 AM	16.1	8.0	11.5	64.4	70.0	70.0	-0.14	-0.15	2.3	2.3	30.10	Valve 100% Closed
EW-C7	9/30/2024 11:30:52 AM	15.6	7.3	12.9	64.2	75.0	75.0	-0.16	-0.15	2.3	2.3	30.11	Valve 100% Closed
EW-C8	9/30/2024 11:39:52 AM	11.4	5.8	13.3	69.5	78.0	78.0	-0.14	-0.13	2.3	2.3	30.11	Valve 100% Closed
EW-C9	9/30/2024 11:43:45 AM	15.3	6.4	12.6	65.7	78.0	78.0	-0.16	-0.14	2.3	2.3	30.11	Valve 100% Closed
EW-D1	9/3/2024 10:58:03 AM	31.9	17.3	1.5	49.3	88.0	0.0	-0.78	-0.78	2.9	3.2	30.33	Valve 100% Open
EW-D10	9/3/2024 12:39:27 PM	11.1	7.4	10.4	71.1	80.0	80.0	-0.77	-0.77	2.8	2.8	30.32	Valve 100% Closed
EW-D11	9/3/2024 12:45:05 PM	17.3	7.1	9.1	66.5	76.0	76.0	-0.82	-0.81	3.0	2.9	30.33	Valve 100% Closed
EW-D12	9/13/2024 12:15:44 PM	15.9	7.8	12.6	63.7	76.1	76.0	-1.17	-0.22	2.3	2.3	30.26	Decreased Flow/VacuumValve 100% Closed
EW-D13	9/3/2024 11:49:16 AM	23.9	12.4	1.6	62.1	88.0	8.0	-1.54	-1.53	4.0	4.4	30.34	Valve 100% Closed
EW-D14	9/3/2024 11:41:42 AM	0.0	2.2	18.5	79.3	72.0	72.0	-0.85	-0.86	3.0	3.1	30.34	Valve 100% Open
EW-D15	9/13/2024 12:20:46 PM	10.7	7.8	14.0	67.5	68.0	68.0	-0.04	-0.04	2.2	2.2	30.24	Valve 100% Closed
EW-D16	9/3/2024 12:51:36 PM	0.0	1.2	19.7	79.1	87.0	87.0	-0.92	-0.92	2.9	2.9	30.33	Valve 100% Open
EW-D17	9/3/2024 1:01:44 PM	0.2	3.1	13.5	83.2	75.0	75.0	-1.20	-1.16	3.3	3.3	30.33	Valve 100% Closed
EW-D2	9/3/2024 11:11:59 AM	26.3	17.1	0.6	56.0	77.0	77.0	-2.15	-2.12	4.8	4.8	30.32	Valve 100% Open
EW-D3	9/3/2024 11:31:59 AM	12.2	15.3	3.9	68.6	90.0	90.0	-0.96	-0.92	3.1	3.0	30.33	Valve 100% Open
EW-D4	9/13/2024 12:44:17 PM	9.7	7.0	12.7	70.6	86.0	86.0	-0.09	-0.10	2.3	2.3	30.28	Valve 100% Closed
EW-D5	9/13/2024 12:36:28 PM	12.5	6.8	13.8	66.9	80.1	80.0	-0.14	-0.14	2.2	2.2	30.28	Valve 100% Closed
EW-D6	9/13/2024 12:28:09 PM	17.1	8.1	11.5	63.3	84.7	84.2	-0.18	-0.16	2.3	2.3	30.29	Valve 100% Closed
EW-D7	9/3/2024 12:11:45 PM	0.1	2.7	19.5	77.7	76.0	76.0	-0.22	-0.17	0.8	0.7	30.33	Valve 100% Closed
EW-D8	9/3/2024 12:20:38 PM	35.9	15.3	0.6	48.2	8.4	84.0	-3.10	-3.02	6.3	5.8	30.33	
EW-D9	9/3/2024 11:20:47 AM	1.7	1.5	18.2	78.6	88.0	88.0	-0.83	-0.83	3.1	2.9	30.33	Increased Flow/Vacuum
EW-E1	9/3/2024 9:35:39 AM	41.2	11.1	3.2	44.5	75.0	75.0	-0.31	-0.31	2.2	2.3	30.30	Valve 100% Closed
EW-E10	9/13/2024 11:23:08 AM	20.0	6.0	9.8	64.2	77.0	75.7	0.00	0.01	2.3	2.3	30.28	Decreased Flow/Vacuum
EW-E11	9/3/2024 9:57:50 AM	0.0	1.4	19.8	78.8	80.0	80.0	-0.02	-0.01	0.7	0.7	30.28	Valve 100% Open
EW-E12	9/13/2024 11:36:12 AM	19.5	3.1	10.6	66.8	70.0	70.0	0.01	0.01	2.3	2.3	30.29	Valve 100% Closed
EW-E13	9/3/2024 10:03:34 AM	0.0	0.6	19.7	79.7	78.0	78.0	-0.27	-0.27	1.8	1.8	30.31	Valve 100% Closed
EW-E14	9/3/2024 10:34:17 AM	0.7	4.7	16.4	78.2	85.0	85.0	-0.92	-0.88	2.8	2.8	30.29	Valve 100% Closed
EW-E15	9/3/2024 10:10:14 AM	0.2	0.5	19.4	79.9	8.0	80.0	-0.06	-0.05	0.8	0.7	30.31	Increased Flow/Vacuum
EW-E16	9/3/2024 10:24:37 AM	33.8	7.3	5.1	53.8	73.0	73.0	-0.29	-0.26	1.8	1.8	30.30	Valve 100% Closed
EW-E17	9/13/2024 11:55:52 AM	30.6	9.1	9.5	50.8	68.2	69.0	-0.02	-0.02	2.4	2.4	30.30	Decreased Flow/Vacuum
EW-E18	9/13/2024 11:38:41 AM	20.5	7.3	9.9	62.3	74.5	74.5	0.01	0.01	2.3	2.3	30.25	Valve 100% Closed
EW-E19	9/13/2024 11:37:40 AM	19.7	6.3	9.9	64.1	72.2	71.4	0.01	0.02	2.3	2.3	30.25	Decreased Flow/VacuumValve 100% Closed
EW-E2	9/13/2024 10:57:29 AM	0.0	0.1	20.7	79.2	75.0	75.0	-0.05	-0.04	2.3	2.3	30.25	Valve 100% Closed
EW-E20	9/13/2024 11:24:14 AM	19.8	7.0	9.8	63.4	76.0	76.0	0.01	0.01	2.4	2.3	30.24	Decreased Flow/Vacuum
EW-E21	9/13/2024 11:05:28 AM	12.3	8.0	13.0	66.7	67.0	67.0	0.04	0.04	2.3	2.3	30.27	Decreased Flow/Vacuum
EW-E3	9/3/2024 9:37:22 AM	0.8	2.7	19.2	77.3	70.0	70.0	-0.37	-0.35	2.1	2.1	30.31	Valve 100% Closed



Brookfield Ave Landfill - Well Data - 09/01/2024 to 09/30/2024

Point Name	Record Date	CH4 (% by vol)	CO2 (% by vol)	O2 (% by vol)	Bal Gas (% by vol)	Init Temp (F)	Adj Temp (F)	Init Static Pressure ("H2O)	Adj Static Pressure ("H20)	Init Flow (scfm)	Adj Flow (scfm)	Baro Pressure	Comments
EW-E4	9/13/2024 10:59:33 AM	0.0	0.1	20.5	79.4	75.5	75.5	-0.05	-0.04	2.3	2.3	30.23	Valve 100% Closed
EW-E5	9/3/2024 9:42:57 AM	20.2	13.9	3.0	62.9	75.0	75.0	-0.42	-0.39	2.1	2.1	30.28	Valve 100% Closed
EW-E6	9/13/2024 11:14:20 AM	22.5	7.9	9.6	60	86.4	86	0.02	0.03	2.3	2.3	30.28	Decreased Flow/Vacuum
EW-E7	9/3/2024 9:49:03 AM	61.6	27	0.2	11.2	80	80	-0.45	-0.42	2.2	2.2	30.31	Valve 100% Closed
EW-E8	9/13/2024 11:15:15 AM	24.3	8.6	8.9	58.2	79.4	77.1	0.02	0.03	2.3	2.3	30.23	Decreased Flow/Vacuum
EW-E9	9/13/2024 11:59:43 AM	30.5	8.9	9.5	51.1	68	68	-0.03	-0.01	2.4	2.4	30.28	Decreased Flow/VacuumValve 100% Closed



ATTACHMENT 2

BLOWER/FLARE STATION MONITORING DATA

BROOKFIELD AVENUE LANDFILL
BLOWER / FLARE DATA SHEET

Date and Time	2024-09-03 09:09:00	Wind Speed (mph)	5
Technician	MG	Wind Direction	North
Ambient Temperature (deg F)	54	Barometric Pressure (in. Hg)	30.29
Weather	Clear	GEM I.D.	G508981

BLOWER INLET		
Blower # 1 Status	Off	Hours = 0
Blower # 2 Status	Off	Hours = 0
Methane (%vol)	28.8	
Carbon Dioxide (%vol)	9.5	
Oxygen (%vol)	5.9	
Balance Gas (%vol)	55.9	
Blower Inlet Pressure (in.WC.)	0	
Gas temperature (deg F)	0	
Inlet Flowrate (scfm)	0	
GC CH4 (%vol)	21.4	
GC O2 (%vol)	08.4	
Blower 301 amps	0	
Blower 302 amps	0	
Blower frequency (Hz)	0	
Blower 301 SCFM	0	
Blower 302 SCFM	0	

FLARE		
Flare Inlet Pressure (in.WC.)	0	
Nitrogen Bottle Pressure (PSI)	1800	
Propane Level (percent)	60	
Flare Stack Temperature (deg F)	241	

COMMENTS

Flare not running. Attempted several resets. Alarm Flare Fail

KEY

deg F = degrees Fahrenheit
%vol = percent by volume
in.W.C. = inches water column
in. Hg = inches Mercury
scfm = standard cubic feet per minute
PSI = pounds per square inch
mph = Miles Per Hour
NA = Not Available

BROOKFIELD AVENUE LANDFILL
BLOWER / FLARE DATA SHEET

Date and Time	2024-09-13 10:03:00	Wind Speed (mph)	2
Technician	Migel Ascencio	Wind Direction	North
Ambient Temperature (deg F)	73	Barometric Pressure (in. Hg)	30.26
Weather	Clear	GEM I.D.	G506970

BLOWER INLET		
Blower # 1 Status	Off	Hours = 43744
Blower # 2 Status	On	Hours = 43670
Methane (%vol)	0.0	
Carbon Dioxide (%vol)	0.1	
Oxygen (%vol)	20.5	
Balance Gas (%vol)	79.4	
Blower Inlet Pressure (in.WC.)	-2.40	
Gas temperature (deg F)	91.8	
Inlet Flowrate (scfm)	207	
GC CH4 (%vol)	30.7	
GC O2 (%vol)	02.9	
Blower 301 amps	5.8	
Blower 302 amps	5.8	
Blower frequency (Hz)	25.8	
Blower 301 SCFM	139	
Blower 302 SCFM	0	

FLARE		
Flare Inlet Pressure (in.WC.)	5.6	
Nitrogen Bottle Pressure (PSI)	1700	
Propane Level (percent)	60	
Flare Stack Temperature (deg F)	1676	

COMMENTS

Flare is down.

KEY

deg F = degrees Fahrenheit
%vol = percent by volume
in.W.C. = inches water column
in. Hg = inches Mercury
scfm = standard cubic feet per minute
PSI = pounds per square inch
mph = Miles Per Hour
NA = Not Available

BROOKFIELD AVENUE LANDFILL
BLOWER / FLARE DATA SHEET

Date and Time	2024-09-17 13:20:00	Wind Speed (mph)	6
Technician	MG	Wind Direction	East
Ambient Temperature (deg F)	75	Barometric Pressure (in. Hg)	30.19
Weather	Partly Cloudy	GEM I.D.	G508981

BLOWER INLET		
Blower # 1 Status	Off	Hours = 0
Blower # 2 Status	Off	Hours = 0
Methane (%vol)	34.4	
Carbon Dioxide (%vol)	19.4	
Oxygen (%vol)	1.6	
Balance Gas (%vol)	44.6	
Blower Inlet Pressure (in.WC.)	0	
Gas temperature (deg F)	84	
Inlet Flowrate (scfm)	0	
GC CH4 (%vol)	53.5	
GC O2 (%vol)	8.7	
Blower 301 amps	0	
Blower 302 amps	0	
Blower frequency (Hz)	0	
Blower 301 SCFM	0	
Blower 302 SCFM	0	

FLARE		
Flare Inlet Pressure (in.WC.)	0	
Nitrogen Bottle Pressure (PSI)	1800	
Propane Level (percent)	45	
Flare Stack Temperature (deg F)	91	

COMMENTS

Flare off. Restart attempt failed.

KEY

deg F = degrees Fahrenheit
%vol = percent by volume
in.W.C. = inches water column
in. Hg = inches Mercury
scfm = standard cubic feet per minute
PSI = pounds per square inch
mph = Miles Per Hour
NA = Not Available

BROOKFIELD AVENUE LANDFILL
BLOWER / FLARE DATA SHEET

Date and Time	2024-09-27 09:27:00	Wind Speed (mph)	7
Technician	Doug Cordisco	Wind Direction	East
Ambient Temperature (deg F)	66	Barometric Pressure (in. Hg)	30.02
Weather	Cloudy	GEM I.D.	G506082

BLOWER INLET		
Blower # 1 Status	On	Hours = 43857
Blower # 2 Status	On	Hours = 43783
Methane (%vol)	28.8	
Carbon Dioxide (%vol)	19.6	
Oxygen (%vol)	2.2	
Balance Gas (%vol)	49.4	
Blower Inlet Pressure (in.WC.)	-5.06	
Gas temperature (deg F)	74.5	
Inlet Flowrate (scfm)	187	
GC CH4 (%vol)	28.1	
GC O2 (%vol)	4.3	
Blower 301 amps	5.7	
Blower 302 amps	5.7	
Blower frequency (Hz)	24.7	
Blower 301 SCFM	131	
Blower 302 SCFM	0	

FLARE		
Flare Inlet Pressure (in.WC.)	1.28	
Nitrogen Bottle Pressure (PSI)	1600	
Propane Level (percent)	75	
Flare Stack Temperature (deg F)	1697	

COMMENTS

Flare running on arrival

KEY

deg F = degrees Fahrenheit
%vol = percent by volume
in.W.C. = inches water column
in. Hg = inches Mercury
scfm = standard cubic feet per minute
PSI = pounds per square inch
mph = Miles Per Hour
NA = Not Available

BROOKFIELD AVENUE LANDFILL
BLOWER / FLARE DATA SHEET

Date and Time	2024-09-30 09:56:00	Wind Speed (mph)	7
Technician	Chase Mazalusky	Wind Direction	East
Ambient Temperature (deg F)	64	Barometric Pressure (in. Hg)	30.05
Weather	Partly Cloudy	GEM I.D.	506970

BLOWER INLET		
Blower # 1 Status	On	Hours = 43892
Blower # 2 Status	On	Hours = 43818
Methane (%vol)	16.4	
Carbon Dioxide (%vol)	6.3	
Oxygen (%vol)	13.9	
Balance Gas (%vol)	63.4	
Blower Inlet Pressure (in.WC.)	-2.79	
Gas temperature (deg F)	71.8	
Inlet Flowrate (scfm)	159	
GC CH4 (%vol)	37.2	
GC O2 (%vol)	5.0	
Blower 301 amps	5.9	
Blower 302 amps	6.0	
Blower frequency (Hz)	26.5	
Blower 301 SCFM	227	
Blower 302 SCFM	227	

FLARE		
Flare Inlet Pressure (in.WC.)	-0.08	
Nitrogen Bottle Pressure (PSI)	1650	
Propane Level (percent)	75%	
Flare Stack Temperature (deg F)	1681	

COMMENTS

Auto restarted flare

KEY

deg F = degrees Fahrenheit
%vol = percent by volume
in.W.C. = inches water column
in. Hg = inches Mercury
scfm = standard cubic feet per minute
PSI = pounds per square inch
mph = Miles Per Hour
NA = Not Available

ATTACHMENT 3

PERIMETER PROBE MONITORING DATA

BROOKFIELD AVENUE LANDFILL

QUARTERLY PERIMETER PROBES

GAS MONITORING RESULTS

Q-3 (Sep) 2024

Date: 9/27/2024

		Concentration by %					
No.	Sample Location	Methane	CO2	Oxygen	LEL %	Time	Comments
	EAST						
1	LFG-E- 1	0	1.4	19.2	0	11:35	
2	LFG-E- 2	0	2.1	19.4	0	11:38	
3	LFG-E- 3	0	5.1	14	0	11:42	
4	LFG-E- 4	0	3.1	17.3	0	11:47	
5	LFG-E- 5	0	3.5	16.3	0	11:49	
6	LFG-E- 6	0.1	2.6	17.4	2	10:39	
7	LFG-E- 7	0	5.2	14.3	0	10:45	
8	LFG-E- 8	0	2.1	18.2	0	10:49	
9	LFG-E- 9	0	0.2	21.3	0	10:53	
10	LFG-E- 10	0	2	18.8	0	10:57	
11	LFG-E- 11	0	2.2	19.3	0	11:00	
12	LFG-E- 12	0	0.8	21	0	11:20	
13	LFG-E- 13	0	5.3	14.3	0	11:22	
14	LFG-E- 14	0	3	17.4	0	11:25	
15	LFG-E- 15	0	0.5	20.6	0	11:27	
16	LFG-E- 16	1.1	6.6	10.6	22	10:05	
17	LFG-E- 17	0.3	5	14.1	6	10:08	
18	LFG-E- 18	42.1	10.2	8.8	842	10:11	
19	LFG-E- 18	0	0.3	21.4	0	10:16	North
20	LFG-E- 18	0	0.2	21.4	0	10:19	East
21	LFG-E- 18	0	0.1	21.3	0	10:22	South
22	LFG-E- 18	0	0.1	21.3	0	10:24	West
23	LFG-E- 19	17.5	15.6	3.1	350	10:26	
24	LFG-E- 19	0	0.5	21.2	0	10:28	North
25	LFG-E- 19	0	0.1	21.3	0	10:32	East
26	LFG-E- 19	0	0.1	21.3	0	10:35	South
27	LFG-E- 19	0	0.1	21.3	0	10:36	West
	WEST						
28	LFG-W- 1	0	0.7	19.2	0	9:22	
29	LFG-W- 2	0	5.1	14.4	0	12:40	
30	LFG-W- 3	0	9.5	12.8	0	12:36	
31	LFG-W- 4	0	0.1	21.5	0	12:33	
32	LFG-W- 5	0	0.1	21.5	0	12:29	
33	LFG-W- 6	0	4.1	17.2	0	12:48	
34	LFG-W- 7	0	5.4	15.9	0	12:51	
35	LFG-W- 8	0	1.2	19.8	0	12:09	
36	LFG-W- 9	0	0.3	21.6	0	12:07	
37	LFG-W- 10	0	1.3	20.6	0	12:03	
38	LFG-W- 11	60.9	23.9	3.2	1218	11:59	
39	LFG-W- 12	70.8	25.3	0.8	1416	12:16	
40	LFG-W- 12	0	0.2	21.6	0	12:20	North
41	LFG-W- 12	0	0.1	21.6	0	12:23	South
42	LFG-W- 12	0	0.1	21.6	0	12:24	East
43	LFG-W- 13	0	0.2	21.5	0	12:13	

BROOKFIELD AVENUE LANDFILL

QUARTERLY ELTINGVILLE PUMPING STATION
GAS MONITORING RESULTS

August 2024

Date: 8/8/2024 **Equipment:** Ventis MX4 Multi-Gas Monitor
Time Calibrated: 8:30

Sample Location	Floor ID	Concentration by %		Time of Day	Comments
		Methane	LEL %		
Dry Well	Main Floor	0.0	0	9:40	
	Sub Floor 1	0.0	0	9:45	
	Sub Floor 2	0.0	0	9:55	
Wet Well	Main Floor	0.0	0	9:10	
	Sub Floor 1	0.0	0	9:20	
	Sub Floor 2	0.0	0	9:30	
Generator Room	Main Floor	0.0	0	9:00	

Notes:

1 Methane monitoring was performed by walking along the interior of the building as well as other locations throughout each floor.

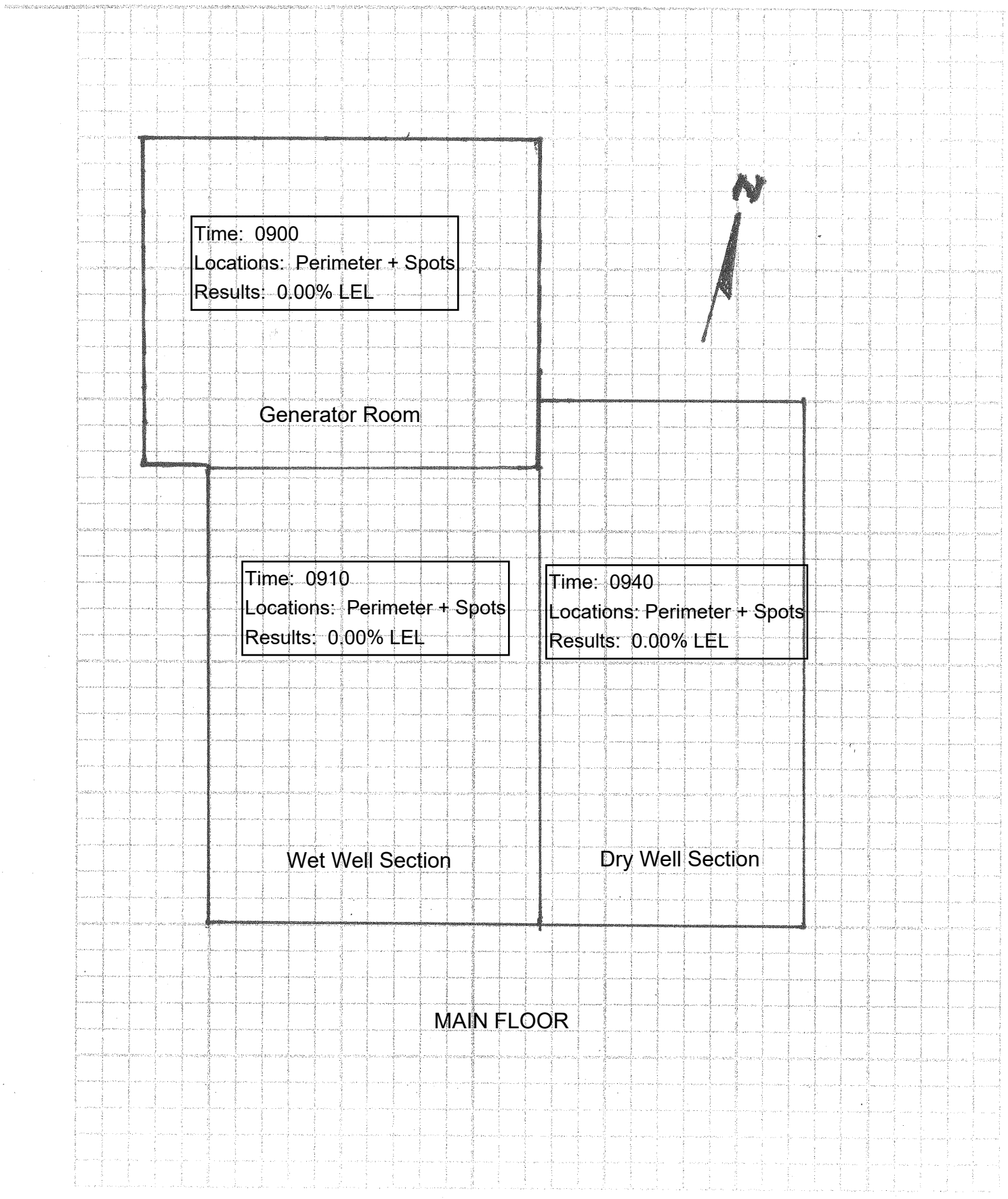
2 If methane readings were encountered, a description of the location would be included in the table above and a sketch of the building showing the location would be attached to this table.

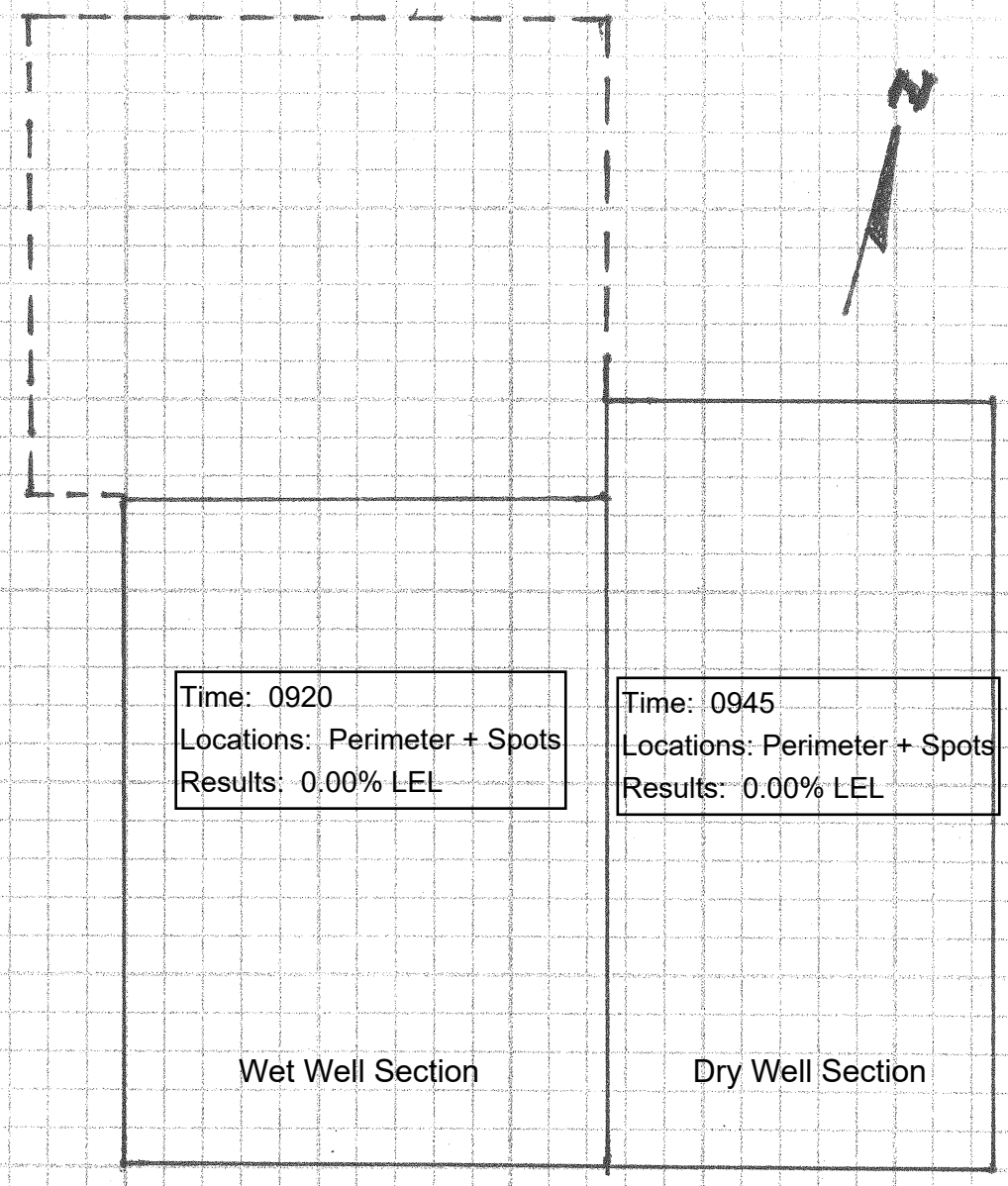
ELTINGVILLE PUMP STATION

Date: 8/8/24

Methane Monitoring Results

Equipment:
Ventis MX4 Multi-Gas Monitor
Calibrated: 0830

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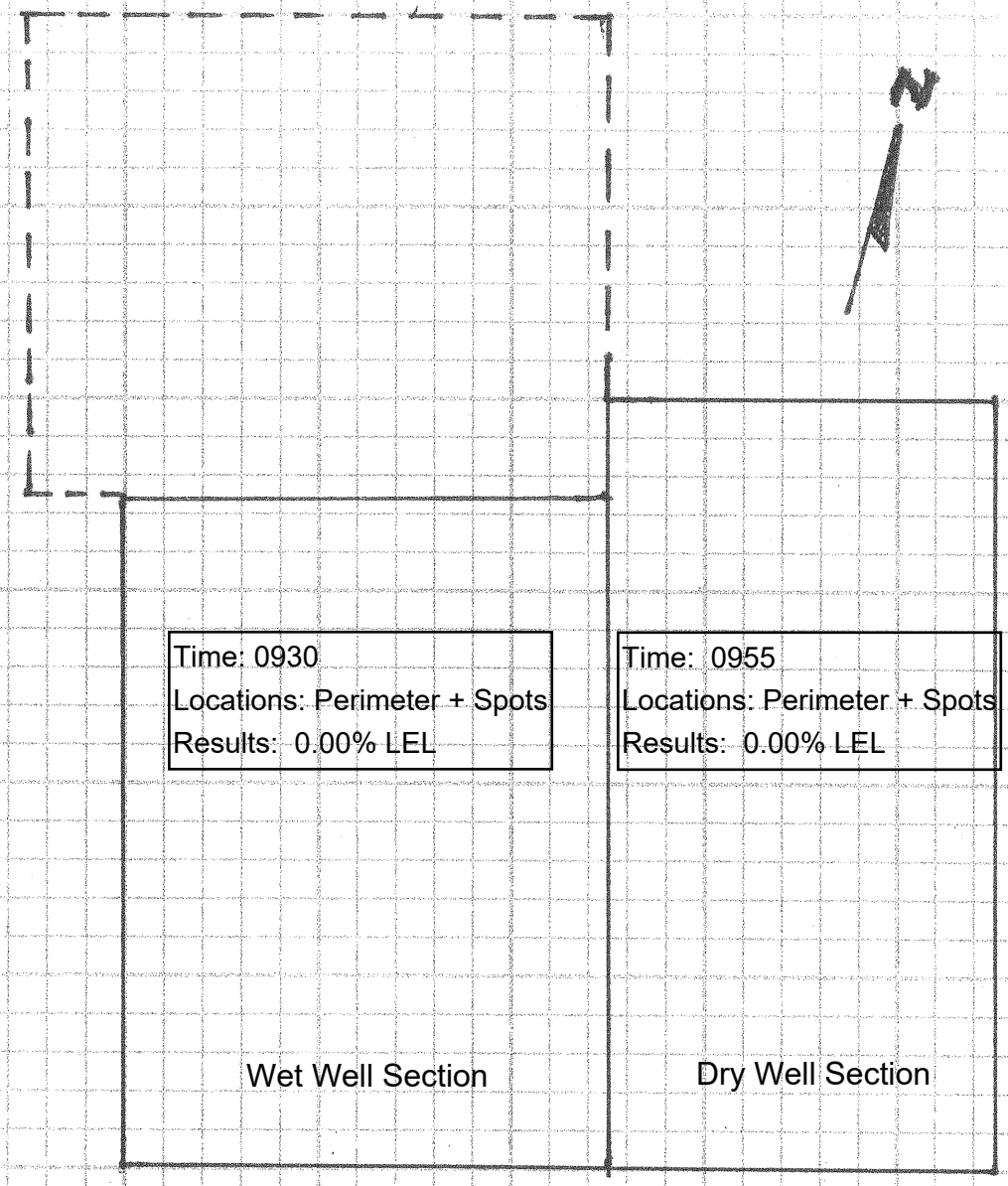
Time: 0920
Locations: Perimeter + Spots
Results: 0.00% LEL
Time: 0945
Locations: Perimeter + Spots
Results: 0.00% LEL
Wet Well Section
Dry Well Section

SUB FLOOR 1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Time: 0930
Locations: Perimeter + Spots
Results: 0.00% LEL
Time: 0955
Locations: Perimeter + Spots
Results: 0.00% LEL
Wet Well Section
Dry Well Section

SUB FLOOR 2

December 3, 2024
File No. 07220079.00

Mr. Wes Lindemuth
TRC
575 Arthur Kill Road
Staten Island, NY 10308

Subject: Brookfield Avenue Landfill Gas Collection System
Operations and Maintenance Report November 2024

Dear Wes:

SCS Field Services (SCS-FS) visited the Brookfield Avenue Landfill (Landfill) in November 2024 to perform Operations and Maintenance (O&M) on the landfill gas (LFG) collection system for TRC. The following report summarizes the work performed and presents the monitoring data collected.

LFG Wellfield

During the site visits, SCS-FS monitored LFG extraction wells (EW). The EW's were monitored for gas quality (methane, carbon dioxide, oxygen, and balance gas (assumed to be primarily nitrogen)), static pressure, flow rate, and gas temperature using a Landtec GEM-5000 infrared landfill gas analyzer (GEM-5000). The wellfield monitoring data are presented in ***Attachment 1***.

SCS-FS notes that the methane content at many of the extraction wells, as indicated by the portable analyzer, is higher than that typically encountered at municipal solid waste landfills. SCS-FS suspects that other components, such as long-chain hydrocarbons or hydrogen, may be present in the LFG and interfering with the instrument's methane reading. While monitoring the wellfield, SCS-FS uses a charcoal filter on the inlet sample tubing of the GEM-5000 to help reduce the interference from non-methane components.

Blower/Flare Station

SCS-FS monitored the ground flare during each site visit. The flare was monitored for gas quality and inlet pressure using the GEM-5000. LFG flow rates and flare stack temperatures were recorded from station instrumentation. The data collected are presented in ***Attachment 2***.

Perimeter Probe and Other Monitoring

On November 13, SCS-FS monitored the perimeter probes for the presence of methane using the GEM-5000. On November 13, SCS-FS performed quarterly monitoring of the Eltingville Pumping Station for combustible gas using a Ventis MX4 Multi-Gas Monitor. The monitoring was performed by walking through the interior rooms of the pump station floors with the gas monitor. No combustible gas was detected in the pump station. Perimeter probe and pump station gas monitoring data are presented in ***Attachment 3***.

SCS-FS appreciates the opportunity to provide our services. Please contact either of the undersigned should you require further information or assistance.

Sincerely,

Doug Cordisco
Senior Field Technician
SCS Field Services

Scott Schoffner
Regional Manager
SCS Field Services

Attachments

ATTACHMENT 1

WELLFIELD MONITORING DATA

Brookfield Ave Landfill - Well Data - 11/01/2024 to 11/30/2024

Point Name	Record Date	CH4 (% by vol)	CO2 (% by vol)	O2 (% by vol)	Bal Gas (% by vol)	Init Temp (F)	Adj Temp (F)	Init Static Pressure ("H2O)	Adj Static Pressure ("H20)	Init Flow (scfm)	Adj Flow (scfm)	Baro Pressure	Comments
EW-A1	11/27/2024 1:19:53 PM	5.0	16.6	0.4	78.0	74.6	74.6	0.22	0.22	0.0	0.0	30.00	Valve 100% Closed
EW-A10	11/27/2024 8:09:23 AM	44.5	19.2	0.2	36.1	45.0	45.2	-0.04	-0.04	0.0	0.0	30.07	Decreased Flow/Vacuum
EW-A11	11/27/2024 8:56:28 AM	0.0	0.3	21.7	78.0	40.0	40.0	-0.07	-0.04	0.0	0.0	30.08	Valve 100% Closed
EW-A12	11/27/2024 8:40:35 AM	24.4	18.6	0.7	56.3	50.0	50.0	-0.11	-0.06	0.0	0.0	30.01	Decreased Flow/Vacuum
EW-A13	11/27/2024 8:48:51 AM	0.5	1.4	18.4	79.7	40.0	40.0	-0.04	-0.02	0.0	0.0	30.07	Valve 100% Closed
EW-A14	11/27/2024 7:59:49 AM	42.3	30.4	7.2	20.1	52.7	53.4	0.02	0.02	0.0	0.0	30.06	
EW-A15	11/27/2024 9:13:14 AM	0.0	0.6	21.1	78.3	62.1	62.1	0.01	-0.01	0.0	0.0	30.07	Valve 100% Closed
EW-A16	11/27/2024 9:34:30 AM	2.5	6.2	10.7	80.6	48.6	48.6	-0.03	-0.03	0.0	0.0	30.06	Decreased Flow/Vacuum
EW-A17	11/27/2024 9:19:00 AM	0.0	0.5	21.1	78.4	45.0	45.0	-0.01	0.01	0.0	0.0	30.07	Valve 100% Closed
EW-A2	11/27/2024 1:34:08 PM	27.7	19.6	1.9	50.8	72.5	72.5	0.08	0.11	0.0	0.0	30.02	Decreased Flow/Vacuum
EW-A3	11/27/2024 1:36:24 PM	16.0	14.1	12.2	57.7	60.0	60.0	0.04	0.02	0.0	0.0	30.01	Valve 100% Closed
EW-A4	11/27/2024 12:19:39 PM	0.0	4.6	15.2	80.2	58.3	58.3	0.18	0.18	0.0	0.0	30.05	Valve 100% Closed
EW-A5	11/27/2024 8:37:55 AM	24.5	18.6	0.9	56.0	60.0	60.0	0.01	0.00	0.0	0.0	30.06	Decreased Flow/Vacuum
EW-A6	11/27/2024 8:18:04 AM	7.2	2.1	14.1	76.6	40.0	40.0	-0.08	-0.03	0.0	0.0	30.07	Decreased Flow/VacuumValve 100% Closed
EW-A7	11/27/2024 1:24:43 PM	22.9	12.8	0.9	63.4	63.1	63.0	0.22	0.23	0.0	0.0	30.02	Decreased Flow/VacuumValve 100% Closed
EW-A8	11/27/2024 1:26:43 PM	23.1	9.5	2.9	64.5	60.0	60.0	0.25	0.25	0.0	0.0	30.03	Valve 100% Closed
EW-A9	11/27/2024 9:22:46 AM	0.0	0.6	21.1	78.3	40.0	40.0	0.04	0.04	0.0	0.0	30.08	Valve 100% Closed
EW-B1	11/20/2024 2:29:17 PM	49.4	21.2	3.8	25.6	74.3	74.0	-4.04	-4.04	6.9	6.8	29.77	Decreased Flow/Vacuum
EW-B10	11/20/2024 3:34:47 PM	50.0	7.4	6.6	36.0	86.8	86.8	-3.85	-3.85	6.7	6.9	29.74	Decreased Flow/Vacuum
EW-B11	11/20/2024 3:22:51 PM	37.0	9.9	0.0	53.1	64.1	64.1	-0.02	0.06	0.0	0.0	29.74	Valve 100% Closed
EW-B12	11/20/2024 3:11:19 PM	56.5	12.8	4.9	25.8	60.0	60.0	-3.88	-3.89	7.0	7.0	29.74	Valve 100% Open
EW-B13	11/20/2024 3:02:20 PM	62.1	21.3	1.1	15.5	60.7	60.7	-0.73	-0.68	2.8	2.8	29.75	Valve 100% Open
EW-B2	11/20/2024 2:21:13 PM	59.0	20.8	0.0	20.2	65.8	65.5	0.00	0.02	0.0	0.0	29.76	Valve 100% Open
EW-B3	11/20/2024 3:50:35 PM	58.3	10.6	0.3	30.8	76.4	77.3	-0.02	-0.06	0.2	0.5	29.73	Increased Flow/Vacuum
EW-B4	11/20/2024 2:37:56 PM	63.4	23.8	0.0	12.8	76.5	75.7	0.10	0.12	0.0	0.0	29.75	Increased Flow/Vacuum
EW-B5	11/20/2024 3:39:37 PM	48.8	7.3	6.7	37.2	79.4	78.7	-3.88	-3.84	6.9	6.8	29.73	Decreased Flow/Vacuum
EW-B6	11/20/2024 3:58:24 PM	62.6	23.5	0.2	13.7	72.4	72.4	0.16	0.18	0.0	0.0	29.73	Increased Flow/Vacuum
EW-B7	11/20/2024 3:47:25 PM	57.5	13.0	0.0	29.5	79.9	79.0	0.17	0.16	0.0	0.0	29.73	Valve 100% Open
EW-B8	11/20/2024 2:47:21 PM	42.1	15.0	4.9	38.0	88.2	88.5	-3.96	-0.41	6.7	2.2	29.75	Decreased Flow/Vacuum
EW-B9	11/20/2024 2:53:35 PM	50.6	17.4	0.0	32.0	65.2	65.2	-0.83	-0.88	3.4	3.6	29.75	Valve 100% Closed
EW-C1	11/27/2024 12:16:34 PM	0.0	4.5	15.7	79.8	65.4	65.4	0.18	0.18	0.0	0.0	30.05	Valve 100% Closed
EW-C10	11/27/2024 12:06:09 PM	44.1	21.0	0.0	34.9	60.0	60.0	0.25	0.25	0.0	0.0	30.04	Valve 100% Closed
EW-C11	11/27/2024 11:56:17 AM	0.0	1.8	19.7	78.5	60.2	60.0	0.15	0.16	0.0	0.0	30.05	Valve 100% Closed
EW-C12	11/27/2024 11:45:24 AM	45.8	19.2	11.5	23.5	50.0	51.4	0.24	0.24	0.0	0.0	30.05	Valve 100% Closed
EW-C13	11/27/2024 11:40:12 AM	0.0	4.2	14.6	81.2	40.0	40.0	-0.05	0.00	0.0	0.0	30.05	Valve 100% Closed
EW-C14	11/27/2024 10:55:24 AM	37.0	18.3	2.5	42.2	49.0	49.0	0.14	0.11	0.0	0.0	30.05	Decreased Flow/Vacuum
EW-C15	11/27/2024 11:10:52 AM	44.4	18.1	2.4	35.1	46.0	46.0	0.15	0.16	0.0	0.0	30.06	Valve 100% Closed
EW-C16	11/27/2024 2:55:33 PM	3.2	6.9	8.0	81.9	42.8	42.8	0.42	0.40	0.0	0.0	30.00	Valve 100% Closed
EW-C17	11/27/2024 2:43:34 PM	58.4	21.6	0.4	19.6	64.8	64.8	0.37	0.35	0.0	0.0	30.00	Increased Flow/Vacuum
EW-C18	11/27/2024 2:28:25 PM	0.0	0.2	21.8	78.0	40.0	40.0	0.03	0.02	0.0	0.0	30.01	Valve 100% Closed
EW-C19	11/27/2024 9:41:20 AM	8.3	9.2	5.3	77.2	40.5	40.5	-0.02	-0.02	0.0	0.0	30.06	Valve 100% Closed
EW-C2	11/27/2024 11:57:45 AM	0.0	1.3	19.0	79.7	60.0	60.0	0.23	0.23	0.0	0.0	30.05	Valve 100% Closed
EW-C20	11/27/2024 10:13:17 AM	16.8	12.1	8.7	62.4	36.4	36.4	0.02	0.02	0.0	0.0	30.07	Valve 100% Closed
EW-C21	11/27/2024 10:25:11 AM	24.2	16.6	5.2	54.0	48.5	48.5	-0.05	-0.02	0.0	0.0	30.06	Decreased Flow/Vacuum
EW-C22	11/27/2024 10:38:07 AM	25.1	16.1	4.9	53.9	71.4	71.4	0.00	0.06	0.0	0.0	30.06	Decreased Flow/Vacuum
EW-C23	11/27/2024 10:52:43 AM	40.8	19.5	0.3	39.4	55.9	55.9	0.18	0.21	0.0	0.0	30.05	Decreased Flow/Vacuum
EW-C24	11/27/2024 3:10:23 PM	63.4	17.7	0.5	18.4	72.0	72.0	0.14	0.08	0.0	0.0	30.00	Decreased Flow/Vacuum
EW-C25	11/27/2024 2:51:51 PM	22.6	28.4	14.1	34.9	60.0	60.0	0.02	0.11	0.0	0.0	30.01	Valve 100% Closed



Brookfield Ave Landfill - Well Data - 11/01/2024 to 11/30/2024

Point Name	Record Date	CH4 (% by vol)	CO2 (% by vol)	O2 (% by vol)	Bal Gas (% by vol)	Init Temp (F)	Adj Temp (F)	Init Static Pressure ("H2O)	Adj Static Pressure ("H20)	Init Flow (scfm)	Adj Flow (scfm)	Baro Pressure	Comments
EW-C26	11/27/2024 2:56:42 PM	0.6	1.3	22.2	75.9	54.7	54.7	0.05	0.02	0.0	0.0	30.00	Valve 100% Closed
EW-C27	11/27/2024 10:07:51 AM	17.8	12.4	6.3	63.5	51.0	51.0	0.04	0.03	0.0	0.0	30.06	Decreased Flow/Vacuum
EW-C28	11/27/2024 3:12:26 PM	62.8	14.6	1.2	21.4	58.9	59.4	-0.03	-0.01	0.0	0.0	30.00	Valve 100% Closed
EW-C29	11/27/2024 3:01:04 PM	0.0	1.4	22.0	76.6	39.8	39.8	0.01	0.01	0.0	0.0	29.99	Valve 100% Closed
EW-C3	11/27/2024 11:50:31 AM	17.6	7.9	10.7	63.8	54.6	54.6	0.03	0.03	0.0	0.0	30.04	Valve 100% Closed
EW-C30	11/27/2024 3:06:18 PM	47.4	20.2	0.4	32.0	54.3	54.3	0.23	0.30	0.0	0.0	29.99	Decreased Flow/Vacuum
EW-C31	11/27/2024 2:58:41 PM	0.0	0.2	14.2	85.6	40.0	40.0	0.00	0.00	0.0	0.0	30.00	Valve 100% Closed
EW-C33	11/27/2024 9:52:45 AM	54.6	12.6	0.2	32.6	46.8	46.8	0.00	0.00	0.0	0.0	30.05	
EW-C4	11/27/2024 11:43:53 AM	46.3	11.8	11.8	30.1	58.6	58.6	0.25	0.26	0.0	0.0	30.06	Valve 100% Closed
EW-C5	11/27/2024 11:35:24 AM	49.6	22.6	0.0	27.8	52.0	52.0	0.23	0.24	0.0	0.0	30.05	Decreased Flow/VacuumValve 100% Closed
EW-C6	11/27/2024 11:23:32 AM	37.3	17.4	0.7	44.6	60.0	60.0	0.19	0.20	0.0	0.0	30.07	Valve 100% Closed
EW-C7	11/27/2024 2:49:17 PM	40.6	23.7	0.5	35.2	57.4	57.4	0.30	0.32	0.0	0.0	30.01	Valve 100% Closed
EW-C8	11/27/2024 2:36:07 PM	37.8	18.9	0.5	42.8	56.9	56.9	0.42	0.41	0.0	0.0	30.01	Valve 100% Closed
EW-C9	11/27/2024 2:23:23 PM	34.5	17.4	0.5	47.6	71.2	71.2	0.41	0.41	0.0	0.0	30.00	Valve 100% Closed
EW-D1	11/4/2024 12:53:46 PM	36.1	14.7	0.3	48.9	64.0	64.0	0.53	0.56	0.0	0.0	30.48	Valve 100% Closed
EW-D10	11/4/2024 12:40:18 PM	33.9	17.4	0.0	48.7	67.2	67.2	0.51	0.55	0.0	0.0	30.48	Valve 100% Closed
EW-D11	11/20/2024 1:01:15 PM	34.5	14.1	0.9	50.5	66.7	66.7	0.18	0.22	0.0	0.0	29.76	Valve 100% Closed
EW-D12	11/20/2024 11:24:17 AM	46.1	24.3	0.0	29.6	76.4	76.4	0.06	0.04	0.0	0.0	29.77	Valve 100% Closed
EW-D13	11/27/2024 7:57:40 AM	80.0	17.8	0.1	2.1	43.8	43.8	-0.06	-0.06	0.5	0.5	30.07	Increased Flow/Vacuum
EW-D14	11/20/2024 1:33:44 PM	34.6	23.0	0.0	42.4	69.3	69.3	0.11	0.13	0.0	0.0	29.77	Valve 100% Closed
EW-D15	11/20/2024 1:27:55 PM	35.8	23.0	0.0	41.2	70.0	70.0	0.11	0.13	0.0	0.0	29.77	Valve 100% Closed
EW-D16	11/20/2024 1:18:27 PM	45.9	22.9	0.0	31.2	70.0	70.0	0.11	0.14	0.0	0.0	29.77	Decreased Flow/VacuumValve 100% Closed
EW-D17	11/20/2024 1:09:21 PM	41.4	22.8	0.1	35.7	72.4	72.4	-0.01	-0.02	0.0	0.0	29.77	Valve 100% Closed
EW-D2	11/4/2024 12:50:27 PM	21.3	12.1	0.4	66.2	62.0	62.0	0.43	0.42	0.0	0.0	30.47	Decreased Flow/Vacuum
EW-D3	11/4/2024 12:46:09 PM	26.8	16.8	0.1	56.3	62.0	62.0	0.48	0.52	0.0	0.0	30.48	Valve 100% Closed
EW-D4	11/4/2024 12:34:56 PM	33.6	21.4	0.1	44.9	70.0	70.0	0.47	0.49	0.0	0.0	30.49	Decreased Flow/VacuumValve 100% Closed
EW-D5	11/4/2024 12:29:32 PM	47.9	22.2	0.2	29.7	60.0	60.0	0.51	0.50	0.0	0.0	30.49	Valve 100% Closed
EW-D6	11/4/2024 12:25:35 PM	43.1	18.4	0.1	38.4	61.0	61.0	0.36	0.42	0.0	0.0	30.48	Valve 100% Closed
EW-D7	11/20/2024 1:55:07 PM	15.2	17.6	0.0	67.2	73.1	73.1	0.19	0.22	0.0	0.0	29.77	Valve 100% Closed
EW-D8	11/20/2024 2:05:57 PM	41.8	17.8	3.0	37.4	70.0	70.0	-2.60	-2.53	5.3	5.3	29.75	Decreased Flow/Vacuum
EW-D9	11/4/2024 12:43:37 PM	37.8	14.0	0.3	47.9	60.0	60.0	0.56	0.57	0.0	0.0	30.48	Valve 100% Closed
EW-E1	11/4/2024 10:14:57 AM	3.9	12.2	0.2	83.7	60.0	60.0	0.03	0.10	0.0	0.0	30.50	Decreased Flow/Vacuum
EW-E10	11/4/2024 11:57:09 AM	38.2	15.2	0.0	46.6	58.0	58.0	0.26	0.32	0.0	0.0	30.24	Decreased Flow/Vacuum
EW-E11	11/4/2024 10:34:35 AM	11.2	14.7	1.4	72.7	61.0	61.0	-0.02	0.02	0.0	0.0	30.49	Decreased Flow/Vacuum
EW-E12	11/4/2024 11:49:20 AM	0.0	6.2	14.5	79.3	65.0	65.0	-0.84	-0.83	2.9	2.9	30.49	Valve 100% Closed
EW-E13	11/4/2024 10:38:11 AM	2.6	9.2	5.4	82.8	78.0	78.0	0.15	0.16	0.0	0.0	30.50	Valve 100% Closed
EW-E14	11/4/2024 10:58:39 AM	0.2	4.2	17.8	77.8	62.0	62.0	-0.84	-0.84	2.9	2.9	30.50	Valve 100% Closed
EW-E15	11/4/2024 10:41:41 AM	10.3	12.5	0.2	77.0	60.0	62.0	-0.03	0.00	0.0	0.0	30.51	Decreased Flow/Vacuum
EW-E16	11/4/2024 11:01:55 AM	31.4	16.5	0.1	52.0	64.0	64.0	0.15	0.20	0.0	0.0	30.50	Decreased Flow/Vacuum
EW-E17	11/4/2024 10:45:54 AM	59.5	19.8	0.0	20.7	64.8	64.8	0.06	0.10	0.0	0.0	30.50	Increased Flow/Vacuum
EW-E18	11/4/2024 10:52:22 AM	47.1	13.1	0.1	39.7	60.0	60.0	0.16	0.18	0.0	0.0	30.48	Increased Flow/Vacuum
EW-E19	11/4/2024 11:43:05 AM	10.2	7.7	0.4	81.7	64.0	64.0	0.31	0.30	0.0	0.0	30.49	Valve 100% Closed
EW-E2	11/4/2024 12:19:10 PM	2.8	4.9	15.0	77.3	60.0	60.0	-0.06	-0.03	1.6	0.0	30.48	Valve 100% Closed
EW-E20	11/4/2024 11:54:47 AM	15.3	11.9	1.6	71.2	76.0	76.0	0.01	0.04	0.0	0.0	30.49	Decreased Flow/Vacuum
EW-E21	11/4/2024 12:13:35 PM	37.8	25.9	0.2	36.1	75.3	75.3	0.45	0.44	0.0	0.0	30.49	Valve 100% Closed
EW-E3	11/4/2024 10:19:20 AM	26.7	14.3	0.2	58.8	56.0	56.0	0.08	0.11	0.0	0.0	30.50	Valve 100% Closed
EW-E4	11/4/2024 12:08:45 PM	17.4	14.8	0.0	67.8	58.0	58.0	0.33	0.30	0.0	0.0	30.49	Decreased Flow/Vacuum
EW-E5	11/4/2024 10:22:47 AM	26.2	15.9	0.3	57.6	58.0	58.0	0.11	0.13	0.0	0.0	30.50	Valve 100% Closed



Brookfield Ave Landfill - Well Data - 11/01/2024 to 11/30/2024

Point Name	Record Date	CH4 (% by vol)	CO2 (% by vol)	O2 (% by vol)	Bal Gas (% by vol)	Init Temp (F)	Adj Temp (F)	Init Static Pressure ("H2O)	Adj Static Pressure ("H20)	Init Flow (scfm)	Adj Flow (scfm)	Baro Pressure	Comments
EW-E6	11/4/2024 12:04:59 PM	43.5	19.7	0.0	36.8	83.4	84.0	0.34	0.33	0.0	0.0	30.49	Decreased Flow/Vacuum
EW-E7	11/4/2024 10:27:02 AM	55.6	25.4	0.0	19.0	66.0	66.0	0.13	0.15	0.0	0.0	30.49	Increased Flow/Vacuum
EW-E8	11/4/2024 12:00:56 PM	50.3	15.6	0.2	33.9	64.0	64.0	0.41	0.40	0.0	0.0	30.49	Increased Flow/Vacuum
EW-E9	11/4/2024 10:30:53 AM	1.3	10.0	4.6	84.1	60.0	60.0	0.09	0.12	0.0	0.0	30.50	Decreased Flow/Vacuum



ATTACHMENT 2

BLOWER/FLARE STATION MONITORING DATA

BROOKFIELD AVENUE LANDFILL
BLOWER / FLARE DATA SHEET

Date and Time	2024-11-04 09:55:00	Wind Speed (mph)	9
Technician	Migel A	Wind Direction	East
Ambient Temperature (deg F)	54	Barometric Pressure (in. Hg)	30.51
Weather	Partly Cloudy	GEM I.D.	G506082

BLOWER INLET		
Blower # 1 Status	Off	Hours = 44105
Blower # 2 Status	Off	Hours = 44031
Methane (%vol)	9.2	
Carbon Dioxide (%vol)	9.5	
Oxygen (%vol)	9.0	
Balance Gas (%vol)	72.3	
Blower Inlet Pressure (in.WC.)	0.05	
Gas temperature (deg F)	67.6	
Inlet Flowrate (scfm)	0.00	
GC CH4 (%vol)	11.4	
GC O2 (%vol)	10.8	
Blower 301 amps	0.0	
Blower 302 amps	0.0	
Blower frequency (Hz)	0.0	
Blower 301 SCFM	0	
Blower 302 SCFM	0	

FLARE		
Flare Inlet Pressure (in.WC.)	.05	
Nitrogen Bottle Pressure (PSI)	1500	
Propane Level (percent)	75	
Flare Stack Temperature (deg F)	60	

COMMENTS

Flare was off upon arrival. We tried to restart it but did not work

KEY

deg F = degrees Fahrenheit
%vol = percent by volume
in.W.C. = inches water column
in. Hg = inches Mercury
scfm = standard cubic feet per minute
PSI = pounds per square inch
mph = Miles Per Hour
NA = Not Available

BROOKFIELD AVENUE LANDFILL
BLOWER / FLARE DATA SHEET

Date and Time	2024-11-13 10:03:00	Wind Speed (mph)	14
Technician	Doug Cordisco	Wind Direction	North
Ambient Temperature (deg F)	43	Barometric Pressure (in. Hg)	30.50
Weather	Clear	GEM I.D.	G508981

BLOWER INLET		
Blower # 1 Status	Off	Hours = 44130
Blower # 2 Status	Off	Hours = 44045
Methane (%vol)	20.1	
Carbon Dioxide (%vol)	13.7	
Oxygen (%vol)	7.6	
Balance Gas (%vol)	58.6	
Blower Inlet Pressure (in.WC.)	-0.25	
Gas temperature (deg F)	89.3	
Inlet Flowrate (scfm)	0	
GC CH4 (%vol)	13.5	
GC O2 (%vol)	1:.8	
Blower 301 amps	0	
Blower 302 amps	0	
Blower frequency (Hz)	0	
Blower 301 SCFM	0	
Blower 302 SCFM	0	

FLARE		
Flare Inlet Pressure (in.WC.)	0.07	
Nitrogen Bottle Pressure (PSI)	1400	
Propane Level (percent)	50	
Flare Stack Temperature (deg F)	83	

COMMENTS

Flare off upon arrival; methane too low to run

KEY

deg F = degrees Fahrenheit
%vol = percent by volume
in.W.C. = inches water column
in. Hg = inches Mercury
scfm = standard cubic feet per minute
PSI = pounds per square inch
mph = Miles Per Hour
NA = Not Available

BROOKFIELD AVENUE LANDFILL
BLOWER / FLARE DATA SHEET

Date and Time	2024-11-20 10:05:00	Wind Speed (mph)	4
Technician	Migel A	Wind Direction	North
Ambient Temperature (deg F)	56	Barometric Pressure (in. Hg)	29.81
Weather	Partly Cloudy	GEM I.D.	G506082

BLOWER INLET		
Blower # 1 Status	On	Hours = 44131
Blower # 2 Status	On	Hours = 44056
Methane (%vol)	17.2	
Carbon Dioxide (%vol)	4.6	
Oxygen (%vol)	14.3	
Balance Gas (%vol)	63.9	
Blower Inlet Pressure (in.WC.)	-5.44	
Gas temperature (deg F)	63.0	
Inlet Flowrate (scfm)	245.9	
GC CH4 (%vol)	25.3	
GC O2 (%vol)	01.0	
Blower 301 amps	5.9	
Blower 302 amps	6.0	
Blower frequency (Hz)	26.6	
Blower 301 SCFM	165	
Blower 302 SCFM	0	

FLARE		
Flare Inlet Pressure (in.WC.)	1.51	
Nitrogen Bottle Pressure (PSI)	1400	
Propane Level (percent)	40	
Flare Stack Temperature (deg F)	1748	

COMMENTS

Flare was off when I got here. So I restarted the flare

KEY

deg F = degrees Fahrenheit
%vol = percent by volume
in.W.C. = inches water column
in. Hg = inches Mercury
scfm = standard cubic feet per minute
PSI = pounds per square inch
mph = Miles Per Hour
NA = Not Available

BROOKFIELD AVENUE LANDFILL
BLOWER / FLARE DATA SHEET

Date and Time	2024-11-27 12:40:00	Wind Speed (mph)	9
Technician	Doug Cordisco	Wind Direction	West
Ambient Temperature (deg F)	51	Barometric Pressure (in. Hg)	30.01
Weather	Clear	GEM I.D.	G506082

BLOWER INLET		
Blower # 1 Status	Off	Hours = 44176
Blower # 2 Status	Off	Hours = 44101
Methane (%vol)	22.3	
Carbon Dioxide (%vol)	16.4	
Oxygen (%vol)	2.8	
Balance Gas (%vol)	58.6	
Blower Inlet Pressure (in.WC.)	-0.19	
Gas temperature (deg F)	77.9	
Inlet Flowrate (scfm)	223	
GC CH4 (%vol)	12.7	
GC O2 (%vol)	5.8	
Blower 301 amps	6.1	
Blower 302 amps	6.7	
Blower frequency (Hz)	26.8	
Blower 301 SCFM	143	
Blower 302 SCFM	0	

FLARE		
Flare Inlet Pressure (in.WC.)	0.04	
Nitrogen Bottle Pressure (PSI)	1400	
Propane Level (percent)	40	
Flare Stack Temperature (deg F)	161	

COMMENTS

Flare off upon arrival; unable to restart

KEY

deg F = degrees Fahrenheit
%vol = percent by volume
in.W.C. = inches water column
in. Hg = inches Mercury
scfm = standard cubic feet per minute
PSI = pounds per square inch
mph = Miles Per Hour
NA = Not Available

ATTACHMENT 3

PERIMETER PROBE MONITORING DATA

BROOKFIELD AVENUE LANDFILL

QUARTERLY PERIMETER PROBES

GAS MONITORING RESULTS

Q-4 (Nov) 2024

Date: 11/13/2024

		Concentration by %					
No.	Sample Location	Methane	CO2	Oxygen	LEL %	Time	Comments
	EAST						
1	LFG-E- 1	0	2.3	19.8	0	10:57	
2	LFG-E- 2	0	3	20	0	11:00	
3	LFG-E- 3	0	5.5	16.4	0	11:03	
4	LFG-E- 4	0	6.8	14.7	0	11:07	
5	LFG-E- 5	0	6.3	14.5	0	11:10	
6	LFG-E- 6	0	2.5	18.9	0	11:19	
7	LFG-E- 7	0	11.7	6.7	0	11:22	
8	LFG-E- 8	0	5	14.9	0	11:26	
9	LFG-E- 9	0	1.6	19.1	0	11:29	
10	LFG-E- 10	0	4.6	15.7	0	11:33	
11	LFG-E- 11	0	2.9	19.5	0	11:36	
12	LFG-E- 12	0	0.2	21.6	0	11:43	
13	LFG-E- 13	0	4.2	17.5	0	11:45	
14	LFG-E- 14	0	1.1	20.6	0	11:48	
15	LFG-E- 15	0	0.4	21.6	0	11:51	
16	LFG-E- 16	0	7	11.9	0	10:46	
17	LFG-E- 17	0	2.4	21	0	10:49	
18	LFG-E- 18	0	0.4	22.3	0	10:51	
19	LFG-E- 19	1.1	5.9	13.4	22	10:54	
	WEST						
20	LFG-W- 1	0	1.9	17.6	0	13:01	
21	LFG-W- 2	0	6.8	12.6	0	12:27	
22	LFG-W- 3	0	9.1	13.5	0	12:24	
23	LFG-W- 4	0	0.8	21.2	0	12:21	
24	LFG-W- 5	0	0.3	21.8	0	12:46	
25	LFG-W- 6	0	4.7	16.9	0	12:10	
26	LFG-W- 7	0	5.9	16	0	12:13	
27	LFG-W- 8	0	1.8	19.8	0	12:05	
28	LFG-W- 9	0	2.7	18.4	0	12:02	
29	LFG-W- 10	0	1.6	21.3	0	11:58	
30	LFG-W- 11	67.9	24	2.2	1358	12:58	
31	LFG-W- 12	56.4	22.1	2.6	1128	12:48	
32	LFG-W- 12	0	0.2	21.9	0	12:51	North
33	LFG-W- 12	0	0.1	21.9	0	12:53	South
34	LFG-W- 12	0	0.1	22	0	12:55	East
35	LFG-W- 13	0	0.7	21.5	0	12:42	

SCS DataServices – Secure Environmental Data

BROOKFIELD AVENUE LANDFILL

QUARTERLY ELTINGVILLE PUMPING STATION
GAS MONITORING RESULTS

November 2024

Date: 11/13/2024 **Equipment:** Ventis MX4 Multi-Gas Monitor
Time Calibrated: 9:00

Sample Location	Floor ID	Concentration by %		Time of Day	Comments
		Methane	LEL %		
Dry Well	Main Floor	0.0	0	9:40	
	Sub Floor 1	0.0	0	10:35	
	Sub Floor 2	0.0	0	10:40	
Wet Well	Main Floor	0.0	0	10:20	
	Sub Floor 1	0.0	0	10:25	
	Sub Floor 2	0.0	0	10:30	
Generator Room	Main Floor	0.0	0	10:15	

Notes:

1 Methane monitoring was performed by walking along the interior of the building as well as other locations throughout each floor.

2 If methane readings were encountered, a description of the location would be included in the table above and a sketch of the building showing the location would be attached to this table.

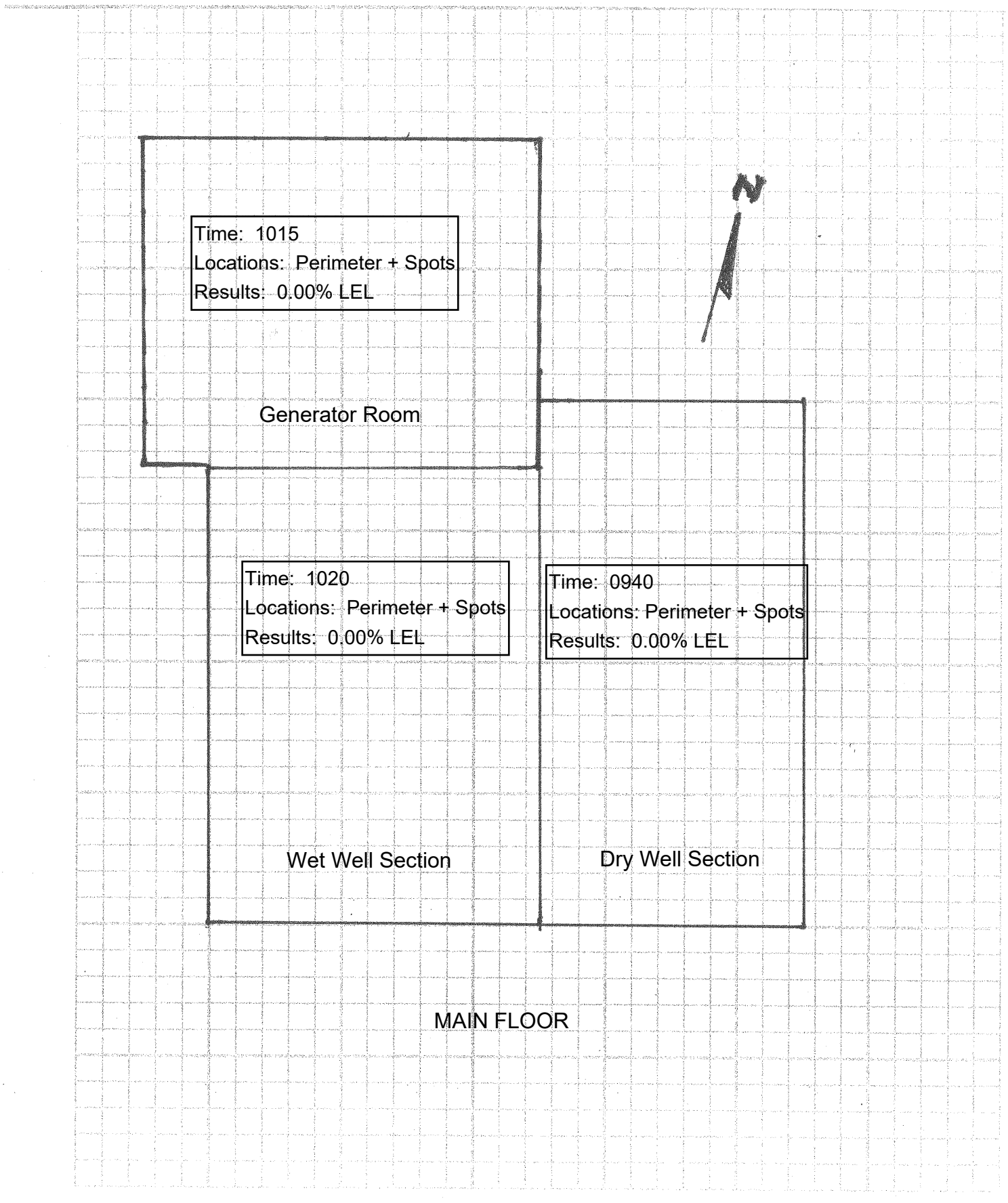


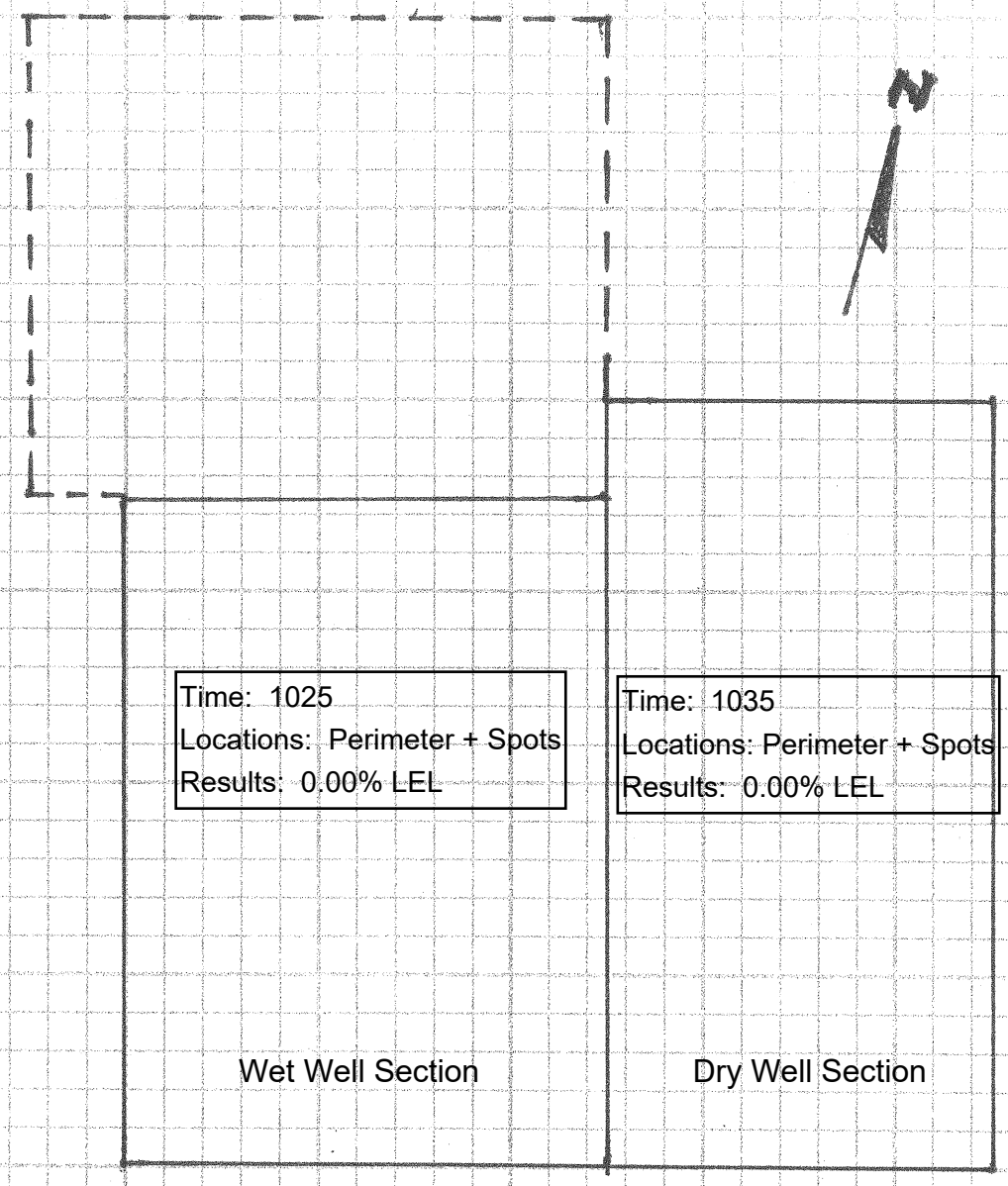
ELTINGVILLE PUMP STATION

Methane Monitoring Results

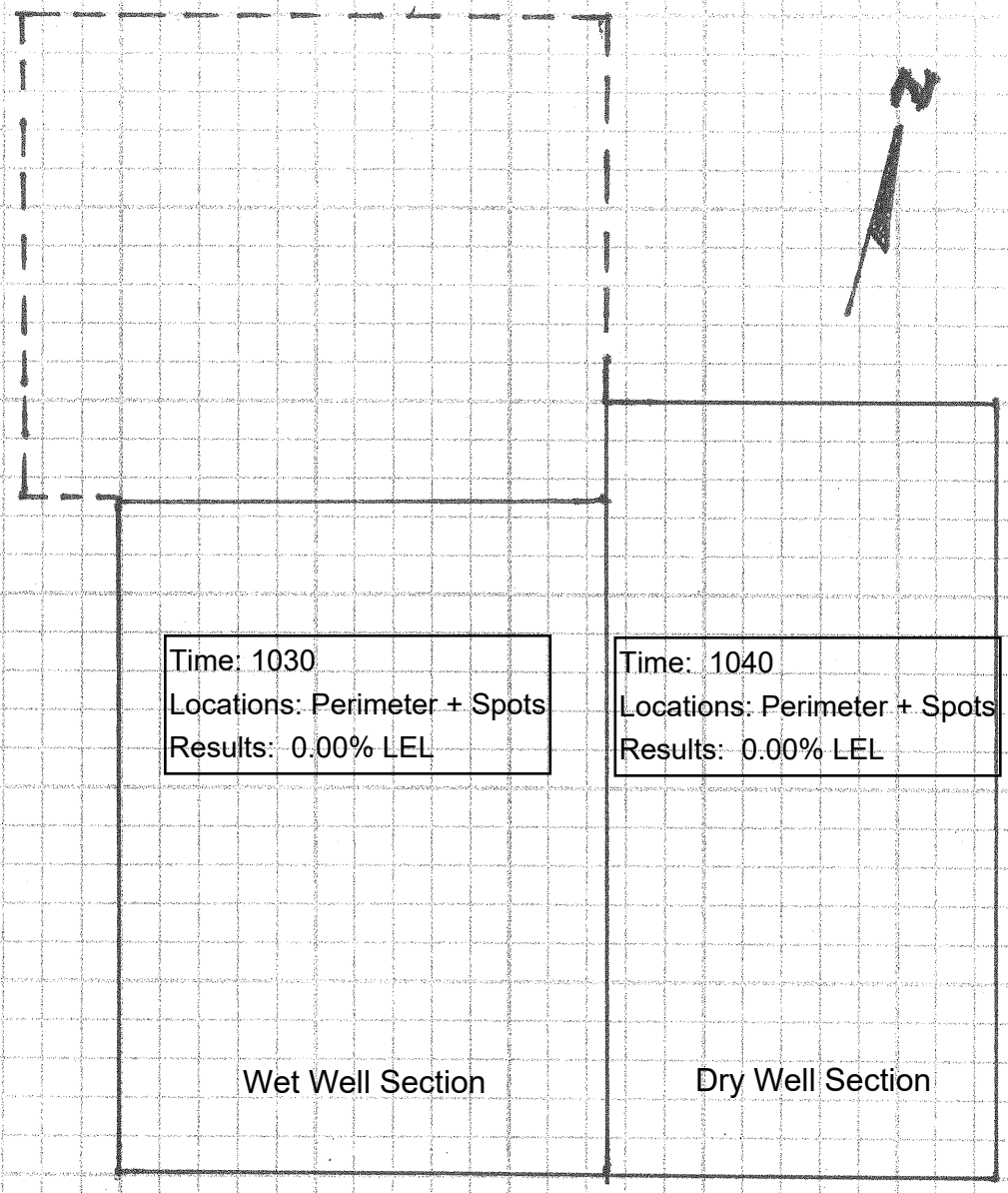
Date: 11/13/24

Equipment:
Ventis MX4 Multi-Gas Monitor
Calibrated: 0900




N
Time: 1025
Locations: Perimeter + Spots
Results: 0.00% LEL
Time: 1035
Locations: Perimeter + Spots
Results: 0.00% LEL
Wet Well Section
Dry Well Section

SUB FLOOR 1


N
Time: 1030
Locations: Perimeter + Spots
Results: 0.00% LEL
Time: 1040
Locations: Perimeter + Spots
Results: 0.00% LEL
Wet Well Section
Dry Well Section

SUB FLOOR 2

April 7, 2025
File No. 07220079.00

Mr. Wes Lindemuth
TRC
575 Arthur Kill Road
Staten Island, NY 10308

Subject: Brookfield Avenue Landfill Gas Collection System
Operations and Maintenance Report March 2025

Dear Wes:

SCS Field Services (SCS-FS) visited the Brookfield Avenue Landfill (Landfill) in March 2025 to perform Operations and Maintenance (O&M) on the landfill gas (LFG) collection system for TRC. The following report summarizes the work performed and presents the monitoring data collected.

LFG Wellfield

During the site visits, SCS-FS monitored LFG extraction wells (EW). The EW's were monitored for gas quality (methane, carbon dioxide, oxygen, and balance gas (assumed to be primarily nitrogen)), static pressure, flow rate, and gas temperature using a Landtec GEM-5000 infrared landfill gas analyzer (GEM-5000). The wellfield monitoring data are presented in ***Attachment 1***.

SCS-FS notes that the methane content at many of the extraction wells, as indicated by the portable analyzer, is higher than that typically encountered at municipal solid waste landfills. SCS-FS suspects that other components, such as long-chain hydrocarbons or hydrogen, may be present in the LFG and interfering with the instrument's methane reading. While monitoring the wellfield, SCS-FS uses a charcoal filter on the inlet sample tubing of the GEM-5000 to help reduce the interference from non-methane components.

Blower/Flare Station

SCS-FS monitored the ground flare during each site visit. The flare was monitored for gas quality and inlet pressure using the GEM-5000. LFG flow rates and flare stack temperatures were recorded from station instrumentation. The data collected are presented in ***Attachment 2***.

Perimeter Probe and Other Monitoring

On February 5, SCS-FS monitored the perimeter probes for the presence of methane using the GEM-5000. On February 5, SCS-FS performed quarterly monitoring of the Eltingville Pumping Station for combustible gas using a Ventis MX4 Multi-Gas Monitor. The monitoring was performed by walking through the interior rooms of the pump station floors with the gas monitor. No combustible gas was detected in the pump station. Perimeter probe and pump station gas monitoring data are presented in ***Attachment 3***.

SCS-FS appreciates the opportunity to provide our services. Please contact either of the undersigned should you require further information or assistance.

Sincerely,

Doug Cordisco
Senior Field Technician
SCS Field Services

Scott Schoffner
Regional Manager
SCS Field Services

Attachments

ATTACHMENT 1

WELLFIELD MONITORING DATA

BROOKFIELD AVE LANDFILL
Well Data - 3/1/2025 - 3/31/2025

Name	Date Time	Methane (% by vol)	Carbon Dioxide (% by vol)	O2 (% by vol)	Balance (% by vol)	Init Temp (deg F)	Adj Temp (deg F)	Init Static Press (H2O inch)	Adj Static Press (H2O inch)	Init Flow (scfm)	Adj Flow (scfm)	Baro Pressure	Comments
EW-A1	3/27/2025 11:09:15 AM	0.7	4.3	4.8	90.2	42.0	42.0	0.00	0.05	0.8	0.8	30.21	Decreased Flow/Vacuum
EW-A10	3/27/2025 10:52:37 AM	65.9	24.7	0.7	8.7	5.5	55.0	-0.02	0.01	0.0	0.0	30.21	Increased Flow/Vacuum
EW-A11	3/3/2025 2:44:52 PM	0.0	0.9	16.2	82.9	58.0	58.0	-0.15	-0.07	0.3	0.0	30.23	Valve 100% Closed
EW-A12	3/27/2025 3:08:09 PM	74.9	16.5			60.0	60.0	0.38	0.39	0.0	0.0	30.17	Increased Flow/Vacuum
EW-A13	3/27/2025 2:59:37 PM	0.0	1.2	16.9	81.9	60.0	60.0	0.26	0.27	0.0	0.0	30.20	Valve 100% Closed
EW-A14	3/27/2025 10:47:25 AM	0.3	0.5	21.7	77.5	43.0	43.0	-0.34	-0.29	2.1	1.9	30.24	Decreased Flow/Vacuum
EW-A15	3/27/2025 2:52:09 PM	0.0	0.6	18.6	80.8	66.0	66.0	0.23	0.23	0.0	0.0	30.20	Valve 100% Closed
EW-A16	3/27/2025 12:04:53 PM	0.0	0.5	19.2	80.3	57.0	57.0	-0.07	0.00	0.0	0.0	30.22	Decreased Flow/Vacuum,Valve 100% Closed
EW-A17	3/27/2025 2:37:22 PM	0.0	1.0	15.9	83.1	40.0	40.0	0.43	0.42	0.0	0.0	30.22	Valve 100% Closed
EW-A2	3/27/2025 11:18:48 AM	0.9	2.7	12.7	83.7	40.0	40.0	0.18	0.17	0.8	0.7	30.21	Decreased Flow/Vacuum
EW-A3	3/27/2025 11:29:31 AM	0.8	0.7	20.7	77.8	42.0	42.0	0.16	0.16	0.6	0.6	30.23	Decreased Flow/Vacuum
EW-A4	3/27/2025 11:35:39 AM	0.0	0.2	21.1	78.7	40.0	40.0	0.13	0.14	0.6	0.6	30.23	Decreased Flow/Vacuum
EW-A5	3/27/2025 11:05:16 AM	55.5	20.9	0.2	23.4	44.0	44.0	-0.01	0.03	0.0	0.0	30.23	Increased Flow/Vacuum
EW-A6	3/27/2025 10:58:59 AM	0.0	1.3	20.0	78.7	45.0	45.0	-0.14	-0.05	0.6	0.5	30.22	Decreased Flow/Vacuum
EW-A7	3/27/2025 11:14:33 AM	48.0	9.4	0.6	42.0	46.0	46.0	0.13	0.16	0.5	0.5	30.22	Increased Flow/Vacuum
EW-A8	3/27/2025 11:22:08 AM	22.2	7.0	6.4	64.4	41.5	41.5	0.04	0.09	0.9	0.8	30.24	Decreased Flow/Vacuum
EW-A9	3/27/2025 12:12:55 PM	11.9	5.9	11.3	70.9	50.0	50.0	-0.03	0.03	0.0	0.0	30.23	Valve 100% Closed
EW-B1	3/27/2025 2:13:05 PM	37.1	16.5	0.0	46.4	45.0	45.0	-0.41	-0.36	2.3	2.0	30.23	Decreased Flow/Vacuum
EW-B10	3/3/2025 2:17:07 PM	0.1	9.1	2.4	88.4	45.0	45.0	0.20	0.22	0.0	0.0	30.24	Valve 100% Closed
EW-B11	3/3/2025 1:40:36 PM	52.5	17.5			48.0	48.0	0.48	0.50	0.0	0.0	30.25	Valve 100% Open
EW-B12	3/27/2025 1:56:48 PM	30.1	20.2			38.0	38.0	0.23	0.24	0.0	0.0	30.22	Decreased Flow/Vacuum
EW-B13	3/3/2025 2:00:40 PM	29.2	20.1			43.0	43.0	0.25	0.27	0.0	0.0	30.25	Decreased Flow/Vacuum
EW-B2	3/27/2025 2:22:18 PM	0.0	0.8	19.0	80.2	60.0	60.0	0.03	0.06	0.0	0.0	30.21	Valve 100% Closed
EW-B3	3/3/2025 2:40:45 PM	0.2	1.5	20.3	78.0	46.0	46.0	-0.20	-0.12	0.0	0.0	30.23	
EW-B4	3/27/2025 2:06:06 PM	33.6	19.9			40.0	40.0	0.12	0.16	0.0	0.0	30.22	Decreased Flow/Vacuum
EW-B5	3/3/2025 2:23:57 PM	39.0	11.6	0.4	49.0	48.0	51.0	0.37	0.37	0.0	0.0	30.24	Decreased Flow/Vacuum
EW-B6	3/3/2025 2:37:15 PM	20.8	14.6	1.0	63.6	50.0	50.0	-0.60	-0.40	1.9	1.7	30.23	Decreased Flow/Vacuum
EW-B7	3/3/2025 2:31:23 PM	0.0	1.6	17.2	81.2	52.0	52.0	-0.18	-0.11	0.6	0.4	30.22	Valve 100% Closed
EW-B8	3/3/2025 1:55:10 PM	32.7	19.0			42.0	42.0	0.17	0.27	0.0	0.0	30.25	Decreased Flow/Vacuum
EW-B9	3/3/2025 1:48:18 PM	17.9	8.8	1.2	72.1	40.0	40.0	0.46	0.49	0.0	0.0	30.24	Valve 100% Closed
EW-C1	3/27/2025 11:41:34 AM	0.0	0.2	21.1	78.7	45.0	45.0	-0.03	0.01	0.7	0.6	30.24	Decreased Flow/Vacuum
EW-C10	3/27/2025 11:47:10 AM	31.9	13.3	0.2	54.6	46.5	46.5	0.06	0.07	0.6	0.4	30.23	Decreased Flow/Vacuum
EW-C11	3/27/2025 11:53:34 AM	0.0	0.3	21.3	78.4	52.0	52.0	-0.07	0.00	0.8	0.8	30.23	Decreased Flow/Vacuum
EW-C12	3/27/2025 12:03:02 PM	3.4	8.7	5.8	82.1	45.0	45.0	0.01	0.07	0.6	0.6	30.19	
EW-C13	3/27/2025 12:09:56 PM	1.0	6.2	5.1	87.7	41.0	41.0	0.07	0.11	0.7	0.7	30.19	Decreased Flow/Vacuum
EW-C14	3/27/2025 10:47:23 AM	54.9	14.9	0.6	29.6	57.0	57.0	-0.33	-0.30	1.6	1.7	30.23	Valve 100% Open
EW-C15	3/27/2025 12:21:30 PM	53.5	15.9	1.2	29.4	49.5	49.5	0.11	0.17	0.0	0.0	30.20	Increased Flow/Vacuum
EW-C16	3/3/2025 12:32:50 PM	0.1	1.3	18.6	80.0	43.0	43.0	0.45	0.46	0.0	0.0	30.23	Valve 100% Closed
EW-C17	3/27/2025 12:26:36 PM	0.4	1.9	20.2	77.5	42.0	42.0	0.11	0.12	0.4	0.5	30.20	Decreased Flow/Vacuum
EW-C18	3/3/2025 11:47:05 AM	0.0	0.1	19.3	80.6	45.0	45.0	-0.25	-0.16	0.0	0.0	30.29	Decreased Flow/Vacuum
EW-C18	3/27/2025 11:48:45 AM	0.0	2.6	11.1	86.3	48.0	48.0	-0.06	-0.04	0.0	0.0	30.23	Valve 100% Closed
EW-C19	3/27/2025 11:44:20 AM	0.0	0.6	20.1	79.3	52.0	52.0	0.05	0.04	0.0	0.0	30.21	
EW-C2	3/27/2025 11:50:42 AM	0.7	3.7	16.9	78.7	39.5	39.5	-0.03	0.04	0.5	0.6	30.21	Decreased Flow/Vacuum
EW-C20	3/27/2025 11:40:09 AM	0.0	2.0	18.4	79.6	40.0	40.0	0.01	0.00	0.0	0.0	30.23	Valve 100% Closed

BROOKFIELD AVE LANDFILL
Well Data - 3/1/2025 - 3/31/2025

Name	Date Time	Methane (% by vol)	Carbon Dioxide (% by vol)	O2 (% by vol)	Balance (% by vol)	Init Temp (deg F)	Adj Temp (deg F)	Init Static Press (H2O inch)	Adj Static Press (H2O inch)	Init Flow (scfm)	Adj Flow (scfm)	Baro Pressure	Comments
EW-C21	3/27/2025 11:36:26 AM	0.0	0.3	20.2	79.5	50.0	50.0	0.00	0.01	0.0	0.0	30.22	
EW-C22	3/27/2025 11:02:42 AM	3.0	5.2	11.5	80.3	64.0	64.0	-0.28	-0.27	1.5	1.5	30.25	Decreased Flow/Vacuum
EW-C23	3/27/2025 10:57:19 AM	27.4	20.8			50.0	50.0	-0.39	-0.32	1.4	1.4	30.23	Decreased Flow/Vacuum
EW-C24	3/3/2025 12:55:14 PM	62.0	14.5			38.0	3.8	0.54	0.55	0.0	0.0	30.25	Increased Flow/Vacuum
EW-C25	3/3/2025 12:40:25 PM	30.9	13.4			40.0	40.0	0.48	0.51	0.0	0.0	30.26	Valve 100% Closed
EW-C26	3/3/2025 12:50:09 PM	36.0	13.8			40.0	40.0	0.48	0.51	0.0	0.0	30.26	Valve 100% Closed
EW-C27	3/3/2025 1:26:27 PM	47.4	21.9			40.0	40.0	-0.08	-0.15	0.9	1.8	30.24	Decreased Flow/Vacuum
EW-C28	3/3/2025 1:18:37 PM	79.7	15.6			50.0	50.0	0.24	0.12	0.0	0.4	30.25	Increased Flow/Vacuum
EW-C29	3/3/2025 1:12:59 PM	79.1	12.6			45.0	45.0	0.62	0.62	0.0	0.0	30.25	Increased Flow/Vacuum
EW-C3	3/27/2025 11:59:12 AM	63.7	19.6	0.0	16.7	45.5	45.5	-0.02	0.06	0.5	0.3	30.19	Increased Flow/Vacuum
EW-C30	3/3/2025 1:05:48 PM	47.0	16.6			46.0	46.0	0.36	0.40	0.0	0.0	30.25	Decreased Flow/Vacuum
EW-C31	3/3/2025 12:59:59 PM	0.0	1.7	16.3	82.0	40.0	40.0	0.38	0.44	0.0	0.0	30.24	Valve 100% Closed
EW-C33	3/27/2025 11:57:35 AM	0.0	0.1	20.1	79.8	49.4	49.4	0.02	0.04	0.0	0.0	30.22	Valve 100% Open
EW-C4	3/27/2025 12:07:34 PM	47.5	23.0	0.4	29.1	42.0	42.0	0.07	0.02	0.0	1.6	30.19	Increased Flow/Vacuum
EW-C5	3/27/2025 12:14:06 PM	38.1	15.8	0.9	45.2	50.5	50.5	0.07	0.10	0.2	0.1	30.22	Increased Flow/Vacuum
EW-C6	3/27/2025 12:18:24 PM	42.5	19.4	0.1	38.0	48.0	48.0	0.15	0.17	0.6	0.5	30.20	Increased Flow/Vacuum
EW-C7	3/3/2025 12:20:54 PM	25.6	21.3			40.0	40.0	0.27	0.29	0.0	0.0	30.28	Decreased Flow/Vacuum
EW-C8	3/3/2025 11:55:00 AM	32.3	16.7	0.0	51.0	41.0	41.0	0.12	0.13	0.0	0.0	30.29	Decreased Flow/Vacuum
EW-C9	3/3/2025 11:07:27 AM	9.6	7.1	7.8	75.5	40.0	40.0	0.03	0.01	0.7	0.7	30.30	Decreased Flow/Vacuum
EW-D1	3/12/2025 1:15:54 PM	37.2	9.2	7.3	46.3	48.0	48.0	-0.66	-0.65	2.6	2.6	30.01	Valve 100% Closed
EW-D10	3/12/2025 12:00:47 PM	46.4	14.8	0.2	38.6	59.0	59.0	-1.06	-1.05	0.1	0.0	30.02	Valve 100% Open
EW-D11	3/12/2025 12:09:39 PM	33.3	15.2	2.9	48.6	50.0	50.0	-1.00	-1.00	0.5	0.4	30.03	Decreased Flow/Vacuum
EW-D12	3/27/2025 10:25:57 AM	18.0	14.4	4.5	63.1	50.0	50.0	-0.83	-0.75	1.9	1.9	30.25	Decreased Flow/Vacuum
EW-D13	3/12/2025 12:45:22 PM	0.0	0.1	19.5	80.4	50.0	50.0	-0.84	-0.83	3.0	3.0	30.01	Valve 100% Closed
EW-D14	3/12/2025 12:13:10 PM	10.8	8.3	8.7	72.2	40.0	40.0	-1.02	-1.03	3.4	3.4	30.02	Valve 100% Closed
EW-D15	3/12/2025 12:04:58 PM	4.5	4.4	14.8	76.3	47.4	47.2	-1.19	-1.13	3.4	3.4	30.02	Valve 100% Closed
EW-D16	3/12/2025 11:55:14 AM	0.1	0.4	19.5	80.0	50.0	50.0	-1.05	-1.04	3.3	3.3	30.02	Valve 100% Closed
EW-D17	3/12/2025 11:42:46 AM	42.3	13.3	4.0	40.4	45.0	45.0	-1.04	-0.99	3.4	3.4	30.02	Valve 100% Closed
EW-D2	3/27/2025 10:32:07 AM	0.2	0.9	21.5	77.4	40.0	40.0	0.09	0.12	0.4	0.4	30.25	Decreased Flow/Vacuum
EW-D3	3/12/2025 1:33:10 PM	35.0	15.3	2.1	47.6	50.0	50.0	-0.47	-0.45	2.3	2.3	29.99	Valve 100% Closed
EW-D4	3/12/2025 11:52:10 AM	41.0	20.1	1.4	37.5	58.0	58.0	-1.16	-1.16	0.0	0.0	30.03	Valve 100% Open
EW-D5	3/12/2025 11:42:49 AM	45.0	21.4	1.5	32.1	50.0	50.0	-1.15	-1.14	0.3	0.0	30.02	Valve 100% Open
EW-D6	3/12/2025 11:39:04 AM	0.0	0.4	19.9	79.7	40.0	40.0	-0.04	-0.03	0.0	0.0	30.03	Valve 100% Closed
EW-D7	3/12/2025 12:55:34 PM	0.0	0.1	19.7	80.2	45.0	45.0	-0.77	-0.79	2.9	2.9	30.02	Valve 100% Closed
EW-D8	3/12/2025 1:08:46 PM	0.0	0.1	19.9	80.0	50.0	50.0	0.07	0.05	0.0	0.0	30.02	
EW-D9	3/12/2025 1:27:15 PM	17.2	7.4	11.1	64.3	50.0	50.0	-0.39	-0.40	2.3	2.2	30.00	
EW-E1	3/3/2025 11:45:45 AM	34.4	11.8	0.0	53.8	44.0	44.0	0.02	0.15	0.7	0.5	30.25	Increased Flow/Vacuum
EW-E10	3/3/2025 10:17:13 AM	21.3	14.5	1.8	62.4	39.0	39.0	-0.09	-0.05	0.5	0.5	30.23	Increased Flow/Vacuum
EW-E11	3/3/2025 11:22:02 AM	21.0	11.4	4.4	63.2	42.0	42.0	0.13	0.13	0.8	0.8	30.27	Valve 100% Closed
EW-E12	3/3/2025 10:29:14 AM	0.3	2.3	19.0	78.4	54.0	54.0	0.08	0.14	0.6	0.5	30.23	Valve 100% Closed
EW-E13	3/3/2025 11:15:33 AM	0.0	1.1	21.3	77.6	56.0	56.0	-0.18	-0.08	0.7	0.7	30.23	Valve 100% Closed
EW-E14	3/3/2025 10:42:38 AM	0.5	4.2	17.9	77.4	42.0	42.0	-0.48	-0.44	0.6	0.6	30.24	Decreased Flow/Vacuum
EW-E15	3/3/2025 11:08:25 AM	0.0	3.4	20.8	75.8	42.0	42.0	-4.99	-4.50	7.4	6.9	30.24	Decreased Flow/Vacuum
EW-E16	3/3/2025 10:46:45 AM	0.0	0.9	21.6	77.5	46.0	46.0	0.04	0.07	0.9	0.9	30.26	Valve 100% Closed

BROOKFIELD AVE LANDFILL
Well Data - 3/1/2025 - 3/31/2025

Name	Date Time	Methane (% by vol)	Carbon Dioxide (% by vol)	O2 (% by vol)	Balance (% by vol)	Init Temp (deg F)	Adj Temp (deg F)	Init Static Press (H2O inch)	Adj Static Press (H2O inch)	Init Flow (scfm)	Adj Flow (scfm)	Baro Pressure	Comments
EW-E17	3/3/2025 10:59:12 AM	5.5	11.1	9.8	73.6	41.0	41.0	-0.14	-0.22	1.9	2.4	30.23	Decreased Flow/Vacuum
EW-E18	3/3/2025 10:52:29 AM	5.0	9.7	9.6	75.7	44.0	44.0	-0.10	-0.04	0.8	0.8	30.25	Valve 100% Closed
EW-E19	3/3/2025 10:35:16 AM	0.0	1.1	21.3	77.6	45.0	45.0	-0.10	-0.04	0.5	0.6	30.23	Valve 100% Closed
EW-E2	3/3/2025 9:48:53 AM	0.0	1.6	20.9	77.5	30.0	30.0	0.15	0.15	0.5	0.5	30.24	
EW-E20	3/3/2025 10:22:22 AM	0.0	1.3	20.7	78.0	46.0	46.0	-0.08	-0.04	0.8	0.7	30.26	Valve 100% Closed
EW-E21	3/3/2025 9:52:46 AM	23.9	9.6	11.3	55.2	40.0	40.0	-0.17	-0.15	0.8	0.7	30.28	Decreased Flow/Vacuum
EW-E3	3/3/2025 11:40:40 AM	10.0	5.8	8.8	75.4	42.0	42.0	-0.06	0.01	0.7	0.7	30.25	Valve 100% Closed
EW-E4	3/3/2025 9:56:47 AM	40.9	11.2	1.2	46.7	42.0	42.0	-0.19	-0.13	0.6	0.6	30.28	Increased Flow/Vacuum
EW-E5	3/3/2025 11:37:22 AM	13.3	8.0	5.7	73.0	46.0	46.0	0.17	0.18	0.4	0.4	30.25	Valve 100% Closed
EW-E6	3/3/2025 10:03:22 AM	1.0	6.2	15.6	77.2	43.0	43.0	0.01	0.06	0.5	0.5	30.25	Decreased Flow/Vacuum
EW-E7	3/3/2025 11:31:41 AM	0.0	0.4	21.2	78.4	39.0	39.0	0.04	0.08	0.4	0.4	30.25	Valve 100% Closed
EW-E8	3/3/2025 10:08:13 AM	6.1	11.1	9.7	73.1	41.0	41.0	-0.20	-0.12	1.4	1.5	30.24	Decreased Flow/Vacuum
EW-E9	3/3/2025 11:27:57 AM	0.0	1.1	21.1	77.8	40.0	40.0	0.12	0.13	0.6	0.6	30.26	Valve 100% Closed

ATTACHMENT 2

BLOWER/FLARE STATION MONITORING DATA

BROOKFIELD AVENUE LANDFILL
BLOWER / FLARE DATA SHEET

Date and Time	2025-03-03 10:04:00	Wind Speed (mph)	7
Technician	Migel A	Wind Direction	West
Ambient Temperature (deg F)	30	Barometric Pressure (in. Hg)	30.30
Weather	Clear	GEM I.D.	G506082

BLOWER INLET		
Blower # 1 Status	Off	Hours = 44486
Blower # 2 Status	Off	Hours = 44412
Methane (%vol)	14.1	
Carbon Dioxide (%vol)	10.6	
Oxygen (%vol)	6.8	
Balance Gas (%vol)	68.7	
Blower Inlet Pressure (in.WC.)	-0.32	
Gas temperature (deg F)	68.7	
Inlet Flowrate (scfm)	0	
GC CH4 (%vol)	07.3	
GC O2 (%vol)	09.1	
Blower 301 amps	0	
Blower 302 amps	0	
Blower frequency (Hz)	0	
Blower 301 SCFM	0	
Blower 302 SCFM	0	

FLARE		
Flare Inlet Pressure (in.WC.)	0.02	
Nitrogen Bottle Pressure (PSI)	1000	
Propane Level (percent)	Full	
Flare Stack Temperature (deg F)	100	

COMMENTS

Flare was off upon arrival.

KEY

deg F = degrees Fahrenheit
%vol = percent by volume
in.W.C. = inches water column
in. Hg = inches Mercury
scfm = standard cubic feet per minute
PSI = pounds per square inch
mph = Miles Per Hour
NA = Not Available

BROOKFIELD AVENUE LANDFILL
BLOWER / FLARE DATA SHEET

Date and Time	2025-03-12 09:54:00	Wind Speed (mph)	11
Technician	Travis snell	Wind Direction	South
Ambient Temperature (deg F)	45	Barometric Pressure (in. Hg)	30.01
Weather	Mostly Cloudy	GEM I.D.	G500430

BLOWER INLET		
Blower # 1 Status	On	Hours = 44517
Blower # 2 Status	On	Hours = 44412
Methane (%vol)	29.1	
Carbon Dioxide (%vol)	19.4	
Oxygen (%vol)	1.5	
Balance Gas (%vol)	50.0	
Blower Inlet Pressure (in.WC.)	0	
Gas temperature (deg F)	58.8	
Inlet Flowrate (scfm)	0	
GC CH4 (%vol)	12	
GC O2 (%vol)	5.6	
Blower 301 amps	0	
Blower 302 amps	0	
Blower frequency (Hz)	0	
Blower 301 SCFM	0	
Blower 302 SCFM	0	

FLARE		
Flare Inlet Pressure (in.WC.)	0	
Nitrogen Bottle Pressure (PSI)	90	
Propane Level (percent)	90	
Flare Stack Temperature (deg F)	0	

COMMENTS

KEY

deg F = degrees Fahrenheit
%vol = percent by volume
in.W.C. = inches water column
in. Hg = inches Mercury
scfm = standard cubic feet per minute
PSI = pounds per square inch
mph = Miles Per Hour
NA = Not Available

BROOKFIELD AVENUE LANDFILL
BLOWER / FLARE DATA SHEET

Date and Time	2025-03-19 11:07:00	Wind Speed (mph)	6
Technician	Doug Cordisco	Wind Direction	East
Ambient Temperature (deg F)	51	Barometric Pressure (in. Hg)	30.13
Weather	Clear	GEM I.D.	G506970

BLOWER INLET		
Blower # 1 Status	On	Hours = 44547
Blower # 2 Status	On	Hours = 44473
Methane (%vol)	30.2	
Carbon Dioxide (%vol)	19.0	
Oxygen (%vol)	1.6	
Balance Gas (%vol)	49.3	
Blower Inlet Pressure (in.WC.)	-5.75	
Gas temperature (deg F)	63.1	
Inlet Flowrate (scfm)	224	
GC CH4 (%vol)	12.3	
GC O2 (%vol)	3.5	
Blower 301 amps	6.0	
Blower 302 amps	6.2	
Blower frequency (Hz)	26.4	
Blower 301 SCFM	153	
Blower 302 SCFM	0	

FLARE		
Flare Inlet Pressure (in.WC.)	1.81	
Nitrogen Bottle Pressure (PSI)	1000	
Propane Level (percent)	90	
Flare Stack Temperature (deg F)	1537	

COMMENTS

Flare off upon arrival; restarted

KEY

deg F = degrees Fahrenheit
%vol = percent by volume
in.W.C. = inches water column
in. Hg = inches Mercury
scfm = standard cubic feet per minute
PSI = pounds per square inch
mph = Miles Per Hour
NA = Not Available

BROOKFIELD AVENUE LANDFILL
BLOWER / FLARE DATA SHEET

Date and Time	2025-03-27 12:36:00	Wind Speed (mph)	10
Technician	Chase Mazalusky	Wind Direction	West
Ambient Temperature (deg F)	45	Barometric Pressure (in. Hg)	30.27
Weather	Clear	GEM I.D.	500388

BLOWER INLET		
Blower # 1 Status	Off	Hours = 44593
Blower # 2 Status	Off	Hours = 44508
Methane (%vol)	23.6	
Carbon Dioxide (%vol)	18.2	
Oxygen (%vol)	2.0	
Balance Gas (%vol)	56.2	
Blower Inlet Pressure (in.WC.)	0	
Gas temperature (deg F)	49.0	
Inlet Flowrate (scfm)	0	
GC CH4 (%vol)	12.3	
GC O2 (%vol)	3.1	
Blower 301 amps	0	
Blower 302 amps	0	
Blower frequency (Hz)	0	
Blower 301 SCFM	0	
Blower 302 SCFM	0	

FLARE		
Flare Inlet Pressure (in.WC.)	0	
Nitrogen Bottle Pressure (PSI)	900	
Propane Level (percent)	40	
Flare Stack Temperature (deg F)	59	

COMMENTS

Flare continuously shuts off after 2-3 minutes

KEY

deg F = degrees Fahrenheit
%vol = percent by volume
in.W.C. = inches water column
in. Hg = inches Mercury
scfm = standard cubic feet per minute
PSI = pounds per square inch
mph = Miles Per Hour
NA = Not Available

ATTACHMENT 3

PERIMETER PROBE MONITORING DATA

BROOKFIELD AVENUE LANDFILL

QUARTERLY PERIMETER PROBES

GAS MONITORING RESULTS

Q-1 (Feb) 2025

Date: 2/5/2025

		Concentration by %					
No.	Sample Location	Methane	CO2	Oxygen	LEL %	Time	Comments
	EAST						
1	LFG-E- 1	0	0.6	22.2	0	12:21	
2	LFG-E- 2	0	1.2	20.5	0	12:24	
3	LFG-E- 3	0	1.5	20.5	0	12:26	
4	LFG-E- 4	0	6.1	9.3	0	12:29	
5	LFG-E- 5	0	4.1	13.7	0	12:31	
6	LFG-E- 6	0	1.1	21.2	0	12:40	
7	LFG-E- 7	0	8.2	5.7	0	12:44	
8	LFG-E- 8	0	2.6	18.2	0	12:47	
9	LFG-E- 9	0	0.7	22.1	0	12:50	
10	LFG-E- 10	0	5	14.6	0	12:52	
11	LFG-E- 11	0	3.1	16.7	0	12:55	
12	LFG-E- 12	0	2.3	18.7	0	12:59	
13	LFG-E- 13	0	1.6	20	0	13:06	
14	LFG-E- 14	0	0.4	22	0	13:07	
15	LFG-E- 15	0	0.2	22.3	0	13:10	
16	LFG-E- 16	0	0.3	22.5	0	13:16	
17	LFG-E- 17	0	0.9	22.1	0	11:55	
18	LFG-E- 18	0.5	0.6	21.9	10	12:10	
19	LFG-E- 18	0	0.3	22.8	0	12:11	South
20	LFG-E- 18	0	0.1	22.8	0	12:12	East
21	LFG-E- 19	0	2	20.7	0	11:59	
	WEST						
22	LFG-W- 1	0	1.7	19.7	0	12:36	
23	LFG-W- 2	0	8.2	7.3	0	13:50	
24	LFG-W- 3	0	6.5	14.9	0	13:53	
25	LFG-W- 4	0	3.1	17.9	0	13:56	
26	LFG-W- 5	0	5.5	15.9	0	13:59	
27	LFG-W- 6	0	0.8	22.8	0	13:33	
28	LFG-W- 7	0	5.6	14.1	0	13:37	
29	LFG-W- 8	0	0.2	22.8	0	13:21	
30	LFG-W- 9	0	0.7	22.4	0	13:24	
31	LFG-W- 10	0	0.3	22.9	0	13:27	
32	LFG-W- 11	23.6	12.9	3.6	472	14:10	
33	LFG-W- 11	0	0.9	22.4	0	14:12	South
34	LFG-W- 11	0	0.3	22.7	0	14:13	East
35	LFG-W- 12	46.2	12.5	6.1	924	11:30	
36	LFG-W- 12	0	0.1	23.8	0	11:44	North
37	LFG-W- 12	0	0.1	23.8	0	11:45	South
38	LFG-W- 12	0	0.4	23.7	0	11:46	East
39	LFG-W- 13	0	0.2	23.7	0	11:48	

SCS DataServices – Secure Environmental Data

BROOKFIELD AVENUE LANDFILL

QUARTERLY ELTINGVILLE PUMPING STATION

GAS MONITORING RESULTS

February 2025

Date: 3/11/2024 **Equipment:** Ventis MX4 Multi-Gas Monitor

Time Calibrated: 9:00

Sample Location	Floor ID	Concentration by %		Time of Day	Comments
		Methane	LEL %		
Dry Well	Main Floor	0.0	0	9:15	
	Sub Floor 1	0.0	0	9:35	
	Sub Floor 2	0.0	0	9:55	
Wet Well	Main Floor	0.0	0	9:20	
	Sub Floor 1	0.0	0	9:30	
	Sub Floor 2	0.0	0	9:45	
Generator Room	Main Floor	0.0	0	9:05	

Notes:

1 Methane monitoring was performed by walking along the interior of the building as well as other locations throughout each floor.

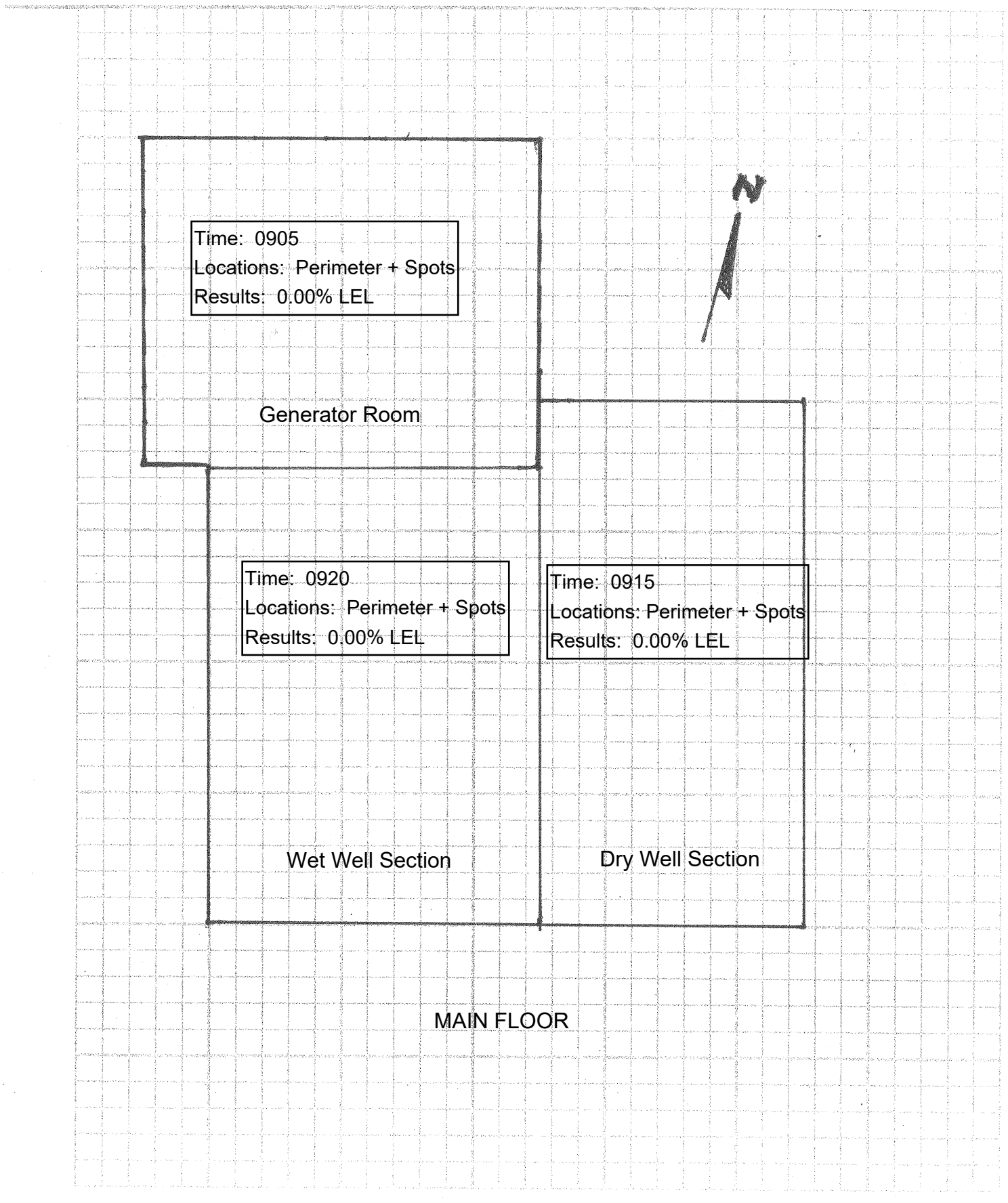
2 If methane readings were encountered, a description of the location would be included in the table above and a sketch of the building showing the location would be attached to this table.

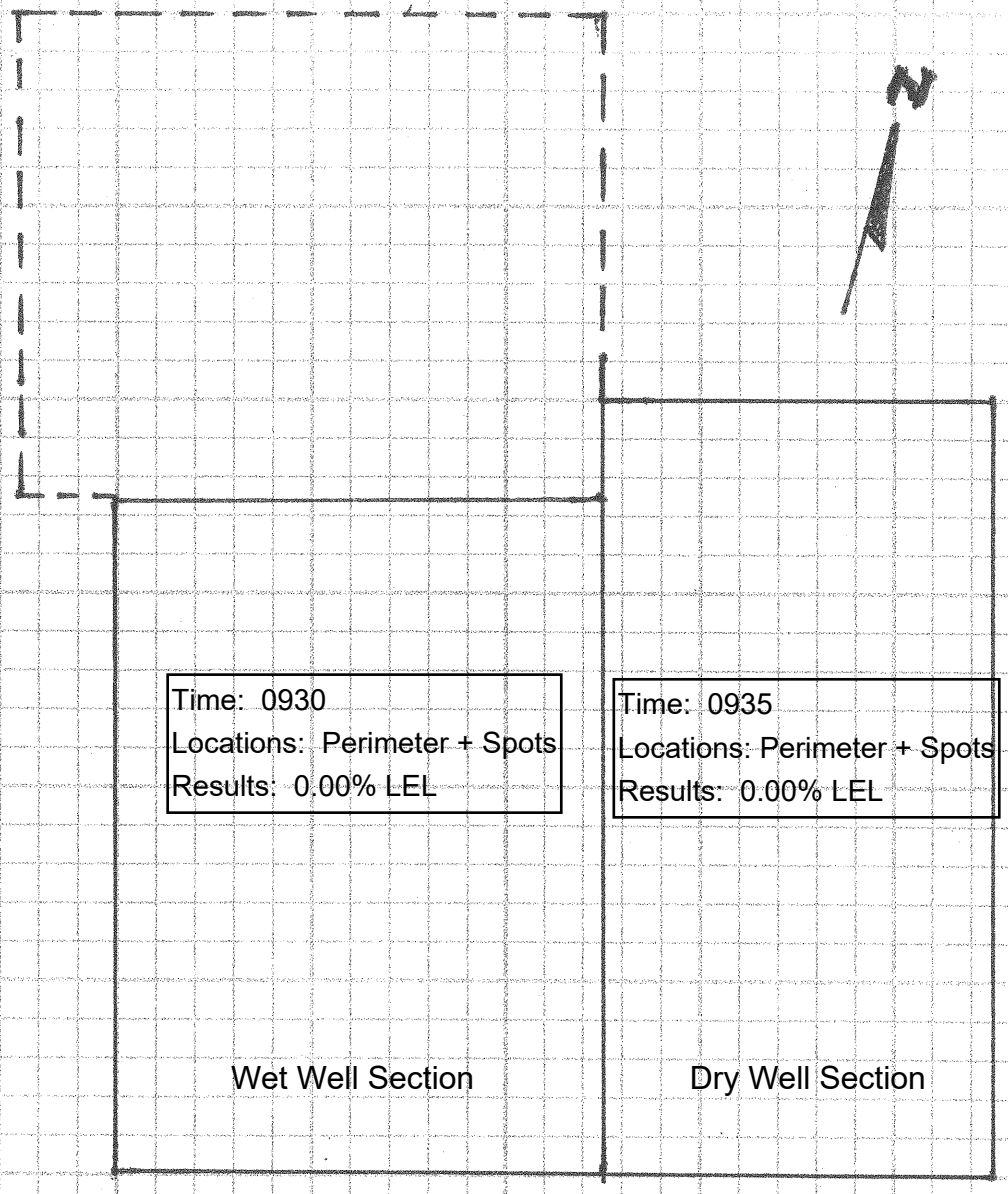
ELTINGVILLE PUMP STATION

Methane Monitoring Results

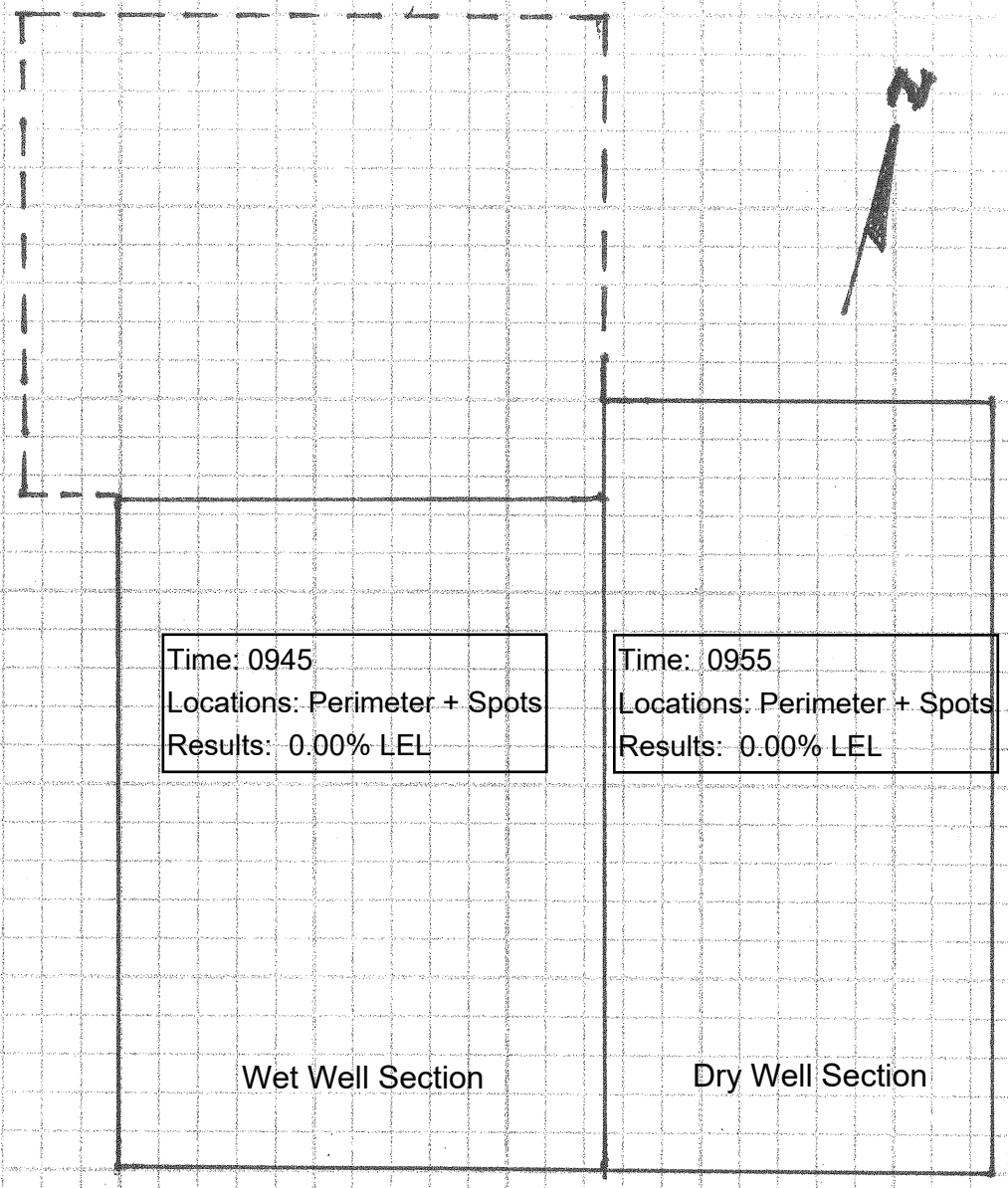
Date: 2/5/25

Equipment:
Ventis MX4 Multi-Gas Monitor
Calibrated: 0900




N
Time: 0930
Locations: Perimeter + Spots
Results: 0.00% LEL
Time: 0935
Locations: Perimeter + Spots
Results: 0.00% LEL
Wet Well Section
Dry Well Section

SUB FLOOR 1


N
Time: 0945
Locations: Perimeter + Spots
Results: 0.00% LEL
Time: 0955
Locations: Perimeter + Spots
Results: 0.00% LEL
Wet Well Section
Dry Well Section

SUB FLOOR 2

APPENDIX E

FINAL COVER SYSTEM

FORM FCS-1

QUARTERLY INSPECTION CHECKLIST

FINAL COVER SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 4/16/2024 | **Inspected By: Ivan Gonzalez**

INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
	1	2	3	4A	4B	5	6	
Surface Cracks	NS	√	√	NS	√	√	√	Cracks in pavement surface.
Vegetative Growth	√	√	√	√	√	√	√	
Vector Penetration	√	√	√	√	√	√	√	
Settlement	√	√	√	√	√	√	√	
Erosion	√	√	√	√	√	√	√	
Slope Stability	√	√	√	√	√	√	√	
Seepage	√	√	√	√	√	√	√	
Vandalism (Debris)	√	√	√	√	√	√	√	
Vegetation Islands	√	√	√	√	√	√	√	

COMMENTS

FORM DP-1
FINAL COVER SYSTEM: FCS-1
2ND QUARTER 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
4/16/2024	Zones 1 and 4A	Cracks in surface pavement.	None, continued monitoring size of cracks.

Date: 4/16/2024

Inspected By: I. Gonzalez

Signature: 

FORM FCS-1

QUARTERLY INSPECTION CHECKLIST

FINAL COVER SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 5/14/2024 | **Inspected By: Ivan Gonzalez**

INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
	1	2	3	4A	4B	5	6	
Surface Cracks	NS	√	√	NS	√	√	√	Cracks in pavement surface.
Vegetative Growth	√	√	√	√	√	√	√	
Vector Penetration	√	√	√	√	√	√	√	
Settlement	√	√	√	√	√	√	√	
Erosion	√	√	√	√	√	√	√	
Slope Stability	√	√	√	√	√	√	√	
Seepage	√	√	√	√	√	√	√	
Vandalism (Debris)	√	√	√	√	√	√	√	
Vegetation Islands	√	√	√	√	√	√	√	

COMMENTS

FORM DP-1
FINAL COVER SYSTEM: FCS-1
2ND QUARTER 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
5/14/2024	Zones 1 and 4A	Cracks in surface pavement.	None, continued monitoring size of cracks.

Date: 5/14/2024

Inspected By: I. Gonzalez

Signature: 

FORM FCS-1

QUARTERLY INSPECTION CHECKLIST

FINAL COVER SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 6/18/2024 | **Inspected By: Ivan Gonzalez**

INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
	1	2	3	4A	4B	5	6	
Surface Cracks	NS	√	√	NS	√	NS	√	Cracks in pavement surface.
Vegetative Growth	√	√	√	√	√	√	√	
Vector Penetration	√	√	√	√	√	√	√	
Settlement	√	√	√	√	√	√	√	
Erosion	√	√	√	√	√	√	√	
Slope Stability	√	√	√	√	√	√	√	
Seepage	√	√	√	√	√	√	√	
Vandalism (Debris)	√	√	√	√	√	√	√	
Vegetation Islands	√	√	√	√	√	√	√	

COMMENTS

FORM DP-1
FINAL COVER SYSTEM: FCS-1
2ND QUARTER 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
6/18/2024	Zones 1, 4A, 5	Cracks in surface pavement.	Cracks photographed and sent to parks.

Date: 6/18/2024

Inspected By: I. Gonzalez

Signature: _____

FORM FCS-1

QUARTERLY INSPECTION CHECKLIST

FINAL COVER SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 7/17/2024 | **Inspected By: Ivan Gonzalez**

INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
	1	**2**	**3**	**4A**	**4B**	**5**	**6**	
Surface Cracks	**NS**	√	√	**NS**	√	**NS**	√	Cracks in pavement surface.
Vegetative Growth	√	√	√	√	√	√	√	
Vector Penetration	√	√	√	√	√	√	√	
Settlement	√	√	√	√	√	√	√	
Erosion	√	√	√	√	√	√	√	
Slope Stability	√	√	√	√	√	√	√	
Seepage	√	√	√	√	√	√	√	
Vandalism (Debris)	√	√	√	√	√	√	√	
Vegetation Islands	√	√	√	√	√	√	√	

COMMENTS

FORM DP-1
FINAL COVER SYSTEM: FCS-1
3RD QUARTER 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
7/17/2024	Zones 1, 4A, 5	Cracks in surface pavement.	Cracks photographed and sent to parks.

Date: 7/17/2024

Inspected By: I. Gonzalez

Signature: 

FORM FCS-1								
QUARTERLY INSPECTION CHECKLIST								
FINAL COVER SYSTEM								
BROOKFIELD AVENUE LANDFILL								
Date: 8/8/2024			**Inspected By: Ivan Gonzalez**					
INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
	1	**2**	**3**	**4A**	**4B**	**5**	**6**	
Surface Cracks	**NS**	√	√	**NS**	√	**NS**	√	Cracks in pavement surface.
Vegetative Growth	√	√	√	√	√	√	√	
Vector Penetration	√	√	√	√	√	√	√	
Settlement	√	√	√	√	√	√	√	
Erosion	√	√	√	√	√	√	√	
Slope Stability	√	√	√	√	√	√	√	
Seepage	√	√	√	√	√	√	√	
Vandalism (Debris)	√	√	√	√	√	√	√	
Vegetation Islands	√	√	√	√	√	√	√	
COMMENTS								

FORM DP-1
FINAL COVER SYSTEM: FCS-1
3RD QUARTER 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
8/8/2024	Zones 1, 4A, 5	Cracks in surface pavement.	Cracks photographed and sent to parks.

Date: 8/8/2024

Inspected By: I. Gonzalez

Signature: 

FORM FCS-1								
QUARTERLY INSPECTION CHECKLIST								
FINAL COVER SYSTEM								
BROOKFIELD AVENUE LANDFILL								
Date: 9/17/2024			**Inspected By: Elise He**					
INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
	1	**2**	**3**	**4A**	**4B**	**5**	**6**	
Surface Cracks	**NS**	√	√	**NS**	√	**NS**	√	Cracks in pavement surface.
Vegetative Growth	√	√	√	√	√	√	√	
Vector Penetration	√	√	√	√	√	√	√	
Settlement	√	√	√	√	√	√	√	
Erosion	√	√	√	√	√	√	√	
Slope Stability	√	√	√	√	√	√	√	
Seepage	√	√	√	√	√	√	√	
Vandalism (Debris)	√	√	√	√	√	√	√	
Vegetation Islands	√	√	√	√	√	√	√	
COMMENTS								

FORM DP-1
FINAL COVER SYSTEM: FCS-1
3RD QUARTER 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
9/17/2024	Zones 1, 4A, 5	Cracks in surface pavement.	Cracks photographed and sent to parks.

Date: 9/17/2024

Inspected By: E. He

Signature: Eric He

FORM FCS-1								
QUARTERLY INSPECTION CHECKLIST								
FINAL COVER SYSTEM								
BROOKFIELD AVENUE LANDFILL								
Date: 10/17/2024			**Inspected By: Elise He**					
INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
	1	**2**	**3**	**4A**	**4B**	**5**	**6**	
Surface Cracks	**NS**	√	√	**NS**	√	**NS**	√	Cracks in pavement surface.
Vegetative Growth	√	√	√	√	√	√	√	
Vector Penetration	√	√	√	√	√	√	√	
Settlement	√	√	√	√	√	√	√	
Erosion	√	√	√	√	√	√	√	
Slope Stability	√	√	√	√	√	√	√	
Seepage	√	√	√	√	√	√	√	
Vandalism (Debris)	√	√	√	√	√	√	√	
Vegetation Islands	√	√	√	√	√	√	√	
COMMENTS								

FORM DP-1
FINAL COVER SYSTEM: FCS-1
4TH QUARTER 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
10/17/2024	Zones 1, 4A, 5	Cracks in surface pavement.	Cracks received patch up job, cracks between 1-2' still remain.

Date: 10/17/2024

Inspected By: E. He

Signature: Elvis He

FORM FCS-1								
QUARTERLY INSPECTION CHECKLIST								
FINAL COVER SYSTEM								
BROOKFIELD AVENUE LANDFILL								
Date: 11/15/2024			**Inspected By: Ivan Gonzalez**					
INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
	1	**2**	**3**	**4A**	**4B**	**5**	**6**	
Surface Cracks	**NS**	√	√	**NS**	√	**NS**	√	Cracks in pavement surface.
Vegetative Growth	√	√	√	√	√	√	√	
Vector Penetration	√	√	√	√	√	√	√	
Settlement	√	√	√	√	√	√	√	
Erosion	√	√	√	√	√	√	√	
Slope Stability	√	√	√	√	√	√	√	
Seepage	√	√	√	√	√	√	√	
Vandalism (Debris)	√	√	√	√	√	√	√	
Vegetation Islands	√	√	√	√	√	√	√	
COMMENTS								

FORM DP-1
FINAL COVER SYSTEM: FCS-1
4TH QUARTER 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
11/15/2024	Zones 1, 4A, 5	Cracks in surface pavement.	Cracks received patch up job, cracks between 1-2' still remain.

Date: 11/15/2024

Inspected By: Ivan Gonzalez

Signature: 

FORM FCS-1

QUARTERLY INSPECTION CHECKLIST

FINAL COVER SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 12/18/2024 | **Inspected By: Ivan Gonzalez**

INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
	1	2	3	4A	4B	5	6	
Surface Cracks	NS	√	√	NS	√	NS	√	Cracks in pavement surface.
Vegetative Growth	√	√	√	√	√	√	√	
Vector Penetration	√	√	√	√	√	√	√	
Settlement	√	√	√	√	√	√	√	
Erosion	√	√	√	√	√	√	√	
Slope Stability	√	√	√	√	√	√	√	
Seepage	√	√	√	√	√	√	√	
Vandalism (Debris)	√	√	√	√	√	√	√	
Vegetation Islands	√	√	√	√	√	√	√	

COMMENTS

FORM DP-1

FINAL COVER SYSTEM: FCS-1

4TH QUARTER 2024

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
12/18/2024	Zones 1, 4A, 5	Cracks in surface pavement.	Cracks received patch up job, cracks between 1-2' still remain.

Date: 12/18/2024

Inspected By: Ivan Gonzalez

Signature: 

FORM FCS-1								
QUARTERLY INSPECTION CHECKLIST								
FINAL COVER SYSTEM								
BROOKFIELD AVENUE LANDFILL								
Date: 1/17/2025			**Inspected By: Claire Winter**					
INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
	1	**2**	**3**	**4A**	**4B**	**5**	**6**	
Surface Cracks	**NS**	√	√	**NS**	√	**NS**	√	Cracks in pavement surface.
Vegetative Growth	√	√	√	√	√	√	√	
Vector Penetration	√	√	√	√	√	√	√	
Settlement	√	√	√	√	√	√	√	
Erosion	√	√	√	√	√	√	√	
Slope Stability	√	√	√	√	√	√	√	
Seepage	√	√	√	√	√	√	√	
Vandalism (Debris)	√	√	√	√	√	√	√	
Vegetation Islands	√	√	√	√	√	√	√	
COMMENTS								

FORM DP-1

FINAL COVER SYSTEM: FCS-1

1ST QUARTER 2025

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
1/17/2025	Zones 1, 4A, 5	Cracks in surface pavement.	Cracks received patch up job, cracks between 1-2' still remain.

Date: 1/17/2025

Inspected By: Claire Winter

Signature: Claire Winter

FORM FCS-1								
QUARTERLY INSPECTION CHECKLIST								
FINAL COVER SYSTEM								
BROOKFIELD AVENUE LANDFILL								
Date: 2/21/2025			**Inspected By: Zara Castillo**					
INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
	1	**2**	**3**	**4A**	**4B**	**5**	**6**	
Surface Cracks	**NS**	√	√	**NS**	√	**NS**	√	Cracks in pavement surface.
Vegetative Growth	√	√	√	√	√	√	√	
Vector Penetration	√	√	√	√	√	√	√	
Settlement	√	√	√	√	√	√	√	
Erosion	√	√	√	√	√	√	√	
Slope Stability	√	√	√	√	√	√	√	
Seepage	√	√	√	√	√	√	√	
Vandalism (Debris)	√	√	√	√	√	√	√	
Vegetation Islands	√	√	√	√	√	√	√	
COMMENTS								

FORM DP-1

FINAL COVER SYSTEM: FCS-1

1ST QUARTER 2025

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
2/21/2025	Zones 1, 4A, 5	Cracks in surface pavement.	Cracks received patch up job, cracks between 1-2" still remain.

Date: 2/21/2025

Inspected By: Zara Castillo

Signature: Zara Castillo

FORM FCS-1

QUARTERLY INSPECTION CHECKLIST

FINAL COVER SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 3/18/2025 | **Inspected By: Abigail Donnelly**

INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
	1	**2**	**3**	**4A**	**4B**	**5**	**6**	
Surface Cracks	**NS**	√	√	**NS**	√	**NS**	√	Cracks in pavement surface.
Vegetative Growth	√	√	√	√	√	√	√	
Vector Penetration	√	√	√	√	√	√	√	
Settlement	√	√	√	√	√	√	√	
Erosion	√	√	√	√	√	√	√	
Slope Stability	√	√	√	√	√	√	√	
Seepage	√	√	√	√	√	√	√	
Vandalism (Debris)	√	√	√	√	√	√	√	
Vegetation Islands	√	√	√	√	√	√	√	

COMMENTS

FORM DP-1

FINAL COVER SYSTEM: FCS-1

1ST QUARTER 2025

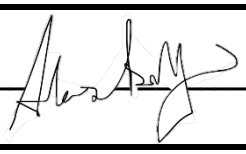
DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
3/18/2025	Zones 1, 4A, 5	Cracks in surface pavement.	Cracks received patch up job, cracks between 1-2" still remain.

Date: 3/18/2025

Inspected By: Abigail Donnelly

Signature: 

APPENDIX F

STORMWATER MANAGEMENT SYSTEM

FORM SWM-1
MONTHLY INSPECTION CHECKLIST
DRAINAGE CHANNELS AND DRAINS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 4/16/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	CHANNEL / DRAIN NUMBER							REMARKS
1	**V-SHAPED w/ PATH**	**1-1**	**2-1**	**3-1**	**3-2**	**3-3**	**4**	**5-4**	
	Standing Water	√	√	√	√	√	√	√	
	Sediments and Debris	√	√	√	√	√	√	√	
	Erosion/Washouts	√	**NS**	**NS**	√	√	√	√	Erosion control fabric visible at Channel 2-1 and 3-1.
	Sinkholes	√	√	√	√	√	√	√	
	Cleanouts	√	√	√	√	√	√	√	
	Flow at Toe Drains	√	√	√	√	√	√	√	
	Flow at Culverts	√	√	√	√	√	√	√	
	Damage at Drains/Culverts	√	√	√	√	√	√	√	
	Overgrown Vegetation	√	√	√	√	√	√	√	
2	**V-SHAPED CHANNEL**	**6**	**8A**	**8B**	**11A**	**11B**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
3	**V-SHAPED w/ BERM**	**1-2**							
	Overgrown Vegetation	√							
	Standing Water	√							
	Sediments and Debris	√							
	Erosion/Washouts	√							
	Settlement and Sinkholes	√							
4	**TRAPEZOIDAL CHANNEL**	**7**	**9**	**10**					
	Overgrown Vegetation	√	√	√					
	Standing Water	√	√	√					
	Sediments and Debris	√	√	√					
	Erosion/Washouts	√	√	√					
	Settlement and Sinkholes	√	√	√					
5	**TRAPEZOIDAL w/ RIPRAP**	**2-2**	**3-4**	**5-1**	**5-2**	**5-3**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
	Loss of Riprap	√	√	√	√	√			

COMMENTS:

FORM SWM-2 EAST

MONTHLY INSPECTION CHECKLIST

PERIMETER ROAD DRAINAGE OUTLETS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 4/16/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
1	**EAST CELL NORTH OUTLETS**	**1EN**	**2EN**	**3EN**	**4EN**	**5EN**	**6EN**	**7EN**	
	Damage (Spalling, Cracking, etc.)	**NS**	√	√	√	**NS**	**NS**	**NS**	1EN, 5EN, 6EN, 7EN - Damaged outfall structures
	Erosion Around Structure	**NS**	√	√	√	√	√	√	1EN - Erosion around structure.
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	1EN, 2EN, 3EN, 4EN, 5EN, 6EN, 7EN - Sediment build-up at outfall structure.
	I/O Vegetative Growth	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	1EN, 2EN, 3EN,4EN, 5EN, 6EN, 7EN - Excess vegetation growth at outfall structure.
2	**EAST CELL NORTH OUTLETS**	**8EN**	**9EN**	**10EN**	**11EN**	**12EN**	**13EN**		
	Damage (Spalling, Cracking, etc.)	√	**NS**	√	**NS**	**NS**	√		9EN, 11EN, 12EN - Damaged Outfall Strucutres
	Erosion Around Structure	√	√	√	√	√	√		
	Settlement Along Structure	√	√	√	√	√	√		
	Standing Water	√	√	√	√	√	√		
	Sediment/Debris in Pipe	√	√	√	√	√	√		
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√		
	I/O Sediments and Debris	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**		8 EN, 9EN, 10EN, 11EN, 12EN, 13EN - Sediment build-up at outfall structure
	I/O Vegetative Growth	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**		8 EN, 9EN, 10EN, 11EN, 12EN, 13EN - Excess vegetation growth at outfall structure.
3	**EAST CELL EAST OUTLETS**	**1EE**	**2EE**	**3EE**	**4EE**				
	Damage (Spalling, Cracking, etc.)	√	√	√	**NS**				4EE - Cracked outfall structures
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	**NS**	**NS**	**NS**	**NS**				1EE, 2EE, 3EE, 4EE - Sediment build-up at outfall structure.
	I/O Vegetative Growth	**NS**	**NS**	**NS**	**NS**				1EE, 2EE, 3EE, 4EE - Excess vegetation growth at outfall structure.
4	**EAST CELL SOUTH OUTLETS**	**1ES**	**2ES**	**3ES**	**4ES**	**5ES**	**6ES**	**7ES**	
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	**NS**	√	6ES - Outfall structure cracked.
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	1ES, 2ES, 3ES, 4ES, 5ES, 6ES, 7ES - Sediment build-up at outfall structure.
	I/O Vegetative Growth	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	1ES, 2ES, 3ES, 4ES, 5ES, 6ES, 7ES - Excess vegetation growth at outfall structure.
5	**EAST CELL SOUTH OUTLETS**	**8ES**	**9ES**	**10ES**	**11ES**				
	Damage (Spalling, Cracking, etc.)	√	**NS**	**NS**	√				9ES, 10ES - Spalled/dislodged outfall structure.
	Erosion Around Structure	√	√	√	**NS**				11ES - Erosion around structure.
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				9ES - Standing water
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	**NS**	**NS**	**NS**	**NS**				8ES, 9ES, 10ES, 11ES - Sediment build-up at outfall structure.
	I/O Vegetative Growth	**NS**	**NS**	**NS**	**NS**				8ES, 9ES, 10ES, 11ES - Excess vegetation growth at outfall structure.
6	**EAST CELL WEST OUTLETS**	**1EW**	**2EW**	**3EW**	**4EW**	**5EW**			
	Damage (Spalling, Cracking, etc.)	**NS**	√	√	**NS**	√			1EW, 4EW - Outfall structure cracked.
	Erosion Around Structure	√	√	**NS**	√	√			3EW - Erosion around structure
	Settlement Along Structure	√	√	√	√	√			
	Standing Water	√	√	√	√	**NS**			5EW - Standing water/excess vegeation growth at outfall.
	Sediment/Debris in Pipe	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√			
	I/O Sediments and Debris	**NS**	**NS**	√	**NS**	**NS**			1EW, 2EW, 4EW, 5EW - Sediment build-up at outfall structure.
	I/O Vegetative Growth	**NS**	**NS**	√	**NS**	**NS**			1EW, 2EW, 4EW, 5EW - Excess vegetation growth at outfall structure.

COMMENTS

Removed debris and trash as necessary

FORM SWM-2 WEST

MONTHLY INSPECTION CHECKLIST

PERIMETER ROAD DRAINAGE OUTLETS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 4/16/24 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER								REMARKS
1	**WEST CELL NORTH OUTLETS**	**1WN**	**2WN**	**3WN**						
	Damage (Spalling, Cracking, etc.)	√	**NS**	√						2WN - Outfall structure cracked.
	Erosion Around Structure	√	√	√						
	Settlement Along Structure	√	√	√						
	Standing Water	√	√	√						
	Sediment/Debris in Pipe	√	√	√						
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√						
	I/O Sediments and Debris	**NS**	**NS**	**NS**						1WN, 2WN, 3WN - Debris at outfall structure.
	I/O Vegetative Growth	**NS**	**NS**	**NS**						1WN, 2WN, 3WN - Vegetation overgrowth at outfall structure.
2	**WEST CELL EAST OUTLETS**	**1WE**	**2WE**	**3WE**	**4WE**	**5WE**	**6WE**			
	Damage (Spalling, Cracking, etc.)	√	**NS**	**NS**	√	√	√			2WE, 3WE - Outfall structure cracked.
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	**NS**			6WE - Sediment in pipe.
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**			1WE, 2WE, 3WE, 4WE, 5WE, 6WE - Sediment and debris at outfall structure.
	I/O Vegetative Growth	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**			1WE, 2WE, 3WE, 4WE, 5WE, 6WE - Vegetation overgrowth at outfall structure.
3	**WEST CELL SOUTH OUTLETS**	**1WS**	**2WS**	**3WS**	**4WS**	**5WS**	**6WS**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	**NS**	**NS**	**NS**	**NS**	**NS**			2WS, 3WS, 4WS, 5WS, 6WS - Sediment and debris at outfall structure.
	I/O Vegetative Growth	√	**NS**	**NS**	**NS**	**NS**	**NS**			2WS, 3WS, 4WS, 5WS, 6WS - Vegetation overgrowth at outfall structure.
4	**WEST CELL WEST OUTLETS**	**1WW**	**2WW**	**3WW**	**4WW**	**5WW**	**6WW**	**7WW**	**8WW**	
	Damage (Spalling, Cracking, etc.)	**NS**	√	√	√	**NS**	√	√	√	1WW, 5WW - Outfall structure cracked.
	Erosion Around Structure	√	√	√	**NS**	√	√	√	√	4WW - Erosion around exposed outfall structure pipe.
	Settlement Along Structure	√	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	√	
	I/O Sediments and Debris	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	√	1WW, 2WW, 3WW, 4WW, 5WW, 6WW, 7WW - Sediment and Debris in outfall structure.
	I/O Vegetative Growth	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	√	1WW, 2WW, 3WW, 4WW, 5WW, 6WW, 7WW - Vegetation overgrowth at outfall structure.

COMMENTS

Removed debris and trash as necessary.

FORM SWM-3

MONTHLY INSPECTION CHECKLIST

DOWNDRAINS, FLARED END SECTIONS, PIPE TRENCHES, AND ENERGY DISSIPATORS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 04/16/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
3	**Downdrain Pipe Trenches**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	**NS**	**NS**	**NS**	√	√	√	**NS**	DDE1, DDE2, DDE7 - Sediment Accumulation and Debris
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench	√	√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	
	Downdrain Pipe Trenches	**DDE8**	**DDE9**	**DDE10**					
	Damaged Pipe Trenches	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation	√	√	√					
	Pipe Trench Settlement	√	√	√					
	Erosion Around Pipe Trench	√	√	√					
	Damaged Downdrain Connections	√	√	√					
	Downdrain Pipe Trenches	**DDWI**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	**NS**	**NS**	DDW6, DDW7 - Sediment Accumulation and Debris
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench		√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
4	**Downdrain Outlet Protection**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	**NS**	√	**NS**	√	√	√	√	DDE1, DDE3 - Sediment Accumulation and Debris
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	
	Downdrain Outlet Protection	**DDE8**	**DDE9**	**DDE10**					
	Riprap Displacement	√	√	√					
	Flow from CPP Discharge Pipes	√	√	√					
	Vegetative Growth	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation and Debris	√	√	√					
	Erosion Around Structure	√	√	√					
	Structure Settlement	√	√	√					
	Downdrain Outlet Protection	**DDWI**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	**NS**	**NS**	√	√	**NS**	√	**NS**	DDW1, DDW2, DDW5, DDW7 - Sediment Accumulation and Debris
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

FORM DP-1

STORMWATER SYSTEM: SWM-1, SWM-2 AND SWM-3

APRIL 2024

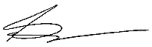
DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
4/16/2024	1EN, 2EN, 3EN, 4EN, 5EN, 6EN, 7EN, 8 EN, 9EN, 10EN, 11EN, 12EN, 13EN, 1EE, 2EE, 3EE, 4EE, 1ES, 2ES, 3ES, 4ES, 5ES, 6ES, 7ES, 8ES, 9ES, 10ES, 11ES, 1EW, 2EW, 4EW, 5EW, 1WN, 2WN, 3WN, 1WE, 2WE, 3WE, 4WE, 5WE, 6WE, 2WS, 3WS, 4WS, 5WS, 6WS, 1WW, 2WW, 3WW, 4WW, 5WW, 6WW,	Excess vegetation at outfall	None
4/16/2024	1EN, 5EN, 6EN, 7EN, 9EN, 11EN, 12EN, 2EE, 4EE, 6ES, 9ES, 10ES, 1EW, 4EW, 2WN, 2WE, 3WE, 1WW, 5WW	Damage to outfall stucture	None
4/16/2024	Channel 2-1 and 3-1	Erosion control fabric visible - erosion/ washout	None
4/16/2024	1EN, 2EN, 3EN, 4EN, 5EN, 6EN, 7EN, 8 EN, 9EN, 10EN, 11EN, 12EN, 13EN, 1EE, 2EE, 3EE, 4EE, 1ES, 2ES, 3ES, 4ES, 5ES, 6ES, 7ES, 8ES, 9ES, 10ES, 11ES, 1EW, 2EW, 4EW, 5EW, 1WN, 2WN, 3WN, 1WE, 2WE, 3WE, 4WE, 5WE, 6WE, 2WS, 3WS, 4WS, 5WS, 6WS, 1WW, 2WW, 3WW, 4WW, 5WW, 6WW, 7WW	Sediment build-up at outfall structure	None
4/16/2024	1EN, 11ES, 3EW, 4WW	Erosion around outfall pipe.	None
4/16/2024	DDE1, DDE2, DDE7, DDW6, DDW7, DDE1, DDE3, DDW1, DDW2, DDW5, DDW7	Downdrain outlet sediment and debris accumulation.	None

Date: 4/16/2024

Inspected By: I.Gonzalez

Signature: 

FORM SWM-1
MONTHLY INSPECTION CHECKLIST
DRAINAGE CHANNELS AND DRAINS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 5/14/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	CHANNEL / DRAIN NUMBER							REMARKS
1	**V-SHAPED w/ PATH**	**1-1**	**2-1**	**3-1**	**3-2**	**3-3**	**4**	**5-4**	
	Standing Water	√	√	√	√	√	√	√	
	Sediments and Debris	√	√	√	√	√	√	√	
	Erosion/Washouts	√	**NS**	**NS**	√	√	√	√	Erosion control fabric visible at Channel 2-1 and 3-1.
	Sinkholes	√	√	√	√	√	√	√	
	Cleanouts	√	√	√	√	√	√	√	
	Flow at Toe Drains	√	√	√	√	√	√	√	
	Flow at Culverts	√	√	√	√	√	√	√	
	Damage at Drains/Culverts	√	√	√	√	√	√	√	
	Overgrown Vegetation	√	√	√	√	√	√	√	
2	**V-SHAPED CHANNEL**	**6**	**8A**	**8B**	**11A**	**11B**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
3	**V-SHAPED w/ BERM**	**1-2**							
	Overgrown Vegetation	√							
	Standing Water	√							
	Sediments and Debris	√							
	Erosion/Washouts	√							
	Settlement and Sinkholes	√							
4	**TRAPEZOIDAL CHANNEL**	**7**	**9**	**10**					
	Overgrown Vegetation	√	√	√					
	Standing Water	√	√	√					
	Sediments and Debris	√	√	√					
	Erosion/Washouts	√	√	√					
	Settlement and Sinkholes	√	√	√					
5	**TRAPEZOIDAL w/ RIPRAP**	**2-2**	**3-4**	**5-1**	**5-2**	**5-3**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
	Loss of Riprap	√	√	√	√	√			

COMMENTS:

FORM SWM-2 EAST
MONTHLY INSPECTION CHECKLIST
PERIMETER ROAD DRAINAGE OUTLETS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 5/14/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
1	**EAST CELL NORTH OUTLETS**	**1EN**	**2EN**	**3EN**	**4EN**	**5EN**	**6EN**	**7EN**	
	Damage (Spalling, Cracking, etc.)	**NS**	√	√	√	**NS**	**NS**	**NS**	1EN, 5EN, 6EN, 7EN - Damaged outfall structures
	Erosion Around Structure	**NS**	√	√	√	√	√	√	1EN - Erosion around structure.
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	1EN, 2EN, 3EN, 4EN, 5EN, 6EN, 7EN - Sediment build-up at outfall structure.
	I/O Vegetative Growth	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	1EN, 2EN, 3EN,4EN, 5EN, 6EN, 7EN - Excess vegetation growth at outfall structure.
2	**EAST CELL NORTH OUTLETS**	**8EN**	**9EN**	**10EN**	**11EN**	**12EN**	**13EN**		
	Damage (Spalling, Cracking, etc.)	√	**NS**	√	**NS**	**NS**	√		9EN, 11EN, 12EN - Damaged Outfall Strucutres
	Erosion Around Structure	√	√	√	√	√	√		
	Settlement Along Structure	√	√	√	√	√	√		
	Standing Water	√	√	√	√	√	√		
	Sediment/Debris in Pipe	√	√	√	√	√	√		
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√		
	I/O Sediments and Debris	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**		8 EN, 9EN, 10EN, 11EN, 12EN, 13EN - Sediment build-up at outfall structure
	I/O Vegetative Growth	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**		8 EN, 9EN, 10EN, 11EN, 12EN, 13EN - Excess vegetation growth at outfall structure.
3	**EAST CELL EAST OUTLETS**	**1EE**	**2EE**	**3EE**	**4EE**				
	Damage (Spalling, Cracking, etc.)	√	√	√	**NS**				4EE - Cracked outfall structures
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	**NS**	**NS**	**NS**	**NS**				1EE, 2EE, 3EE, 4EE - Sediment build-up at outfall structure.
	I/O Vegetative Growth	**NS**	**NS**	**NS**	**NS**				1EE, 2EE, 3EE, 4EE - Excess vegetation growth at outfall structure.
4	**EAST CELL SOUTH OUTLETS**	**1ES**	**2ES**	**3ES**	**4ES**	**5ES**	**6ES**	**7ES**	
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	**NS**	√	6ES - Outfall structure cracked.
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	1ES, 2ES, 3ES, 4ES, 5ES, 6ES, 7ES - Sediment build-up at outfall structure.
	I/O Vegetative Growth	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	1ES, 2ES, 3ES, 4ES, 5ES, 6ES, 7ES - Excess vegetation growth at outfall structure.
5	**EAST CELL SOUTH OUTLETS**	**8ES**	**9ES**	**10ES**	**11ES**				
	Damage (Spalling, Cracking, etc.)	√	**NS**	**NS**	√				9ES, 10ES - Spalled/dislodged outfall structure.
	Erosion Around Structure	√	√	√	**NS**				11ES - Erosion around structure.
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				9ES - Standing water
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	**NS**	**NS**	**NS**	**NS**				8ES, 9ES, 10ES, 11ES - Sediment build-up at outfall structure.
	I/O Vegetative Growth	**NS**	**NS**	**NS**	**NS**				8ES, 9ES, 10ES, 11ES - Excess vegetation growth at outfall structure.
6	**EAST CELL WEST OUTLETS**	**1EW**	**2EW**	**3EW**	**4EW**	**5EW**			
	Damage (Spalling, Cracking, etc.)	**NS**	√	√	**NS**	√			1EW, 4EW - Outfall structure cracked.
	Erosion Around Structure	√	√	**NS**	√	√			3EW - Erosion around structure
	Settlement Along Structure	√	√	√	√	√			
	Standing Water	√	√	√	√	**NS**			5EW - Standing water/excess vegeation growth at outfall.
	Sediment/Debris in Pipe	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√			
	I/O Sediments and Debris	**NS**	**NS**	√	**NS**	**NS**			1EW, 2EW, 4EW, 5EW - Sediment build-up at outfall structure.
	I/O Vegetative Growth	**NS**	**NS**	√	**NS**	**NS**			1EW, 2EW, 4EW, 5EW - Excess vegetation growth at outfall structure.

COMMENTS

Removed debris and trash as necessary

FORM SWM-2 WEST

MONTHLY INSPECTION CHECKLIST

PERIMETER ROAD DRAINAGE OUTLETS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 5/14/24 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER								REMARKS
1	**WEST CELL NORTH OUTLETS**	**1WN**	**2WN**	**3WN**						
	Damage (Spalling, Cracking, etc.)	√	**NS**	√						2WN - Outfall structure cracked.
	Erosion Around Structure	√	√	√						
	Settlement Along Structure	√	√	√						
	Standing Water	√	√	√						
	Sediment/Debris in Pipe	√	√	√						
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√						
	I/O Sediments and Debris	**NS**	**NS**	**NS**						1WN, 2WN, 3WN - Debris at outfall structure.
	I/O Vegetative Growth	**NS**	**NS**	**NS**						1WN, 2WN, 3WN - Vegetation overgrowth at outfall structure.
2	**WEST CELL EAST OUTLETS**	**1WE**	**2WE**	**3WE**	**4WE**	**5WE**	**6WE**			
	Damage (Spalling, Cracking, etc.)	√	**NS**	**NS**	√	√	√			2WE, 3WE - Outfall structure cracked.
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	**NS**			6WE - Sediment in pipe.
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**			1WE, 2WE, 3WE, 4WE, 5WE, 6WE - Sediment and debris at outfall structure.
	I/O Vegetative Growth	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**			1WE, 2WE, 3WE, 4WE, 5WE, 6WE - Vegetation overgrowth at outfall structure.
3	**WEST CELL SOUTH OUTLETS**	**1WS**	**2WS**	**3WS**	**4WS**	**5WS**	**6WS**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	**NS**	**NS**	**NS**	**NS**	**NS**			2WS, 3WS, 4WS, 5WS, 6WS - Sediment and debris at outfall structure.
	I/O Vegetative Growth	√	**NS**	**NS**	**NS**	**NS**	**NS**			2WS, 3WS, 4WS, 5WS, 6WS - Vegetation overgrowth at outfall structure.
4	**WEST CELL WEST OUTLETS**	**1WW**	**2WW**	**3WW**	**4WW**	**5WW**	**6WW**	**7WW**	**8WW**	
	Damage (Spalling, Cracking, etc.)	**NS**	√	√	√	**NS**	√	√	√	1WW, 5WW - Outfall structure cracked.
	Erosion Around Structure	√	√	√	**NS**	√	√	√	√	4WW - Erosion around exposed outfall structure pipe.
	Settlement Along Structure	√	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	√	
	I/O Sediments and Debris	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	√	1WW, 2WW, 3WW, 4WW, 5WW, 6WW, 7WW - Sediment and Debris in outfall structure.
	I/O Vegetative Growth	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	**NS**	√	1WW, 2WW, 3WW, 4WW, 5WW, 6WW, 7WW - Vegetation overgrowth at outfall structure.

COMMENTS

Removed debris and trash as necessary.

FORM SWM-3

MONTHLY INSPECTION CHECKLIST

DOWNDRAINS, FLARED END SECTIONS, PIPE TRENCHES, AND ENERGY DISSIPATORS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 05/14/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
3	**Downdrain Pipe Trenches**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	**NS**	**NS**	**NS**	√	√	√	**NS**	DDE1, DDE2, DDE7 - Sediment Accumulation and Debris
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench	√	√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	
	Downdrain Pipe Trenches	**DDE8**	**DDE9**	**DDE10**					
	Damaged Pipe Trenches	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation	√	√	√					
	Pipe Trench Settlement	√	√	√					
	Erosion Around Pipe Trench	√	√	√					
	Damaged Downdrain Connections	√	√	√					
	Downdrain Pipe Trenches	**DDWl**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	**NS**	**NS**	DDW6, DDW7 - Sediment Accumulation and Debris
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench		√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
4	**Downdrain Outlet Protection**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	**NS**	√	**NS**	√	√	√	√	DDE1, DDE3 - Sediment Accumulation and Debris
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	
	Downdrain Outlet Protection	**DDE8**	**DDE9**	**DDE10**					
	Riprap Displacement	√	√	√					
	Flow from CPP Discharge Pipes	√	√	√					
	Vegetative Growth	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation and Debris	√	√	√					
	Erosion Around Structure	√	√	√					
	Structure Settlement	√	√	√					
	Downdrain Outlet Protection	**DDWl**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	**NS**	**NS**	√	√	**NS**	√	**NS**	DDW1, DDW2, DDW5, DDW7 - Sediment Accumulation and Debris
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

FORM DP-1

STORMWATER SYSTEM: SWM-1, SWM-2 AND SWM-3

MAY 2024

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
5/14/2024	1EN, 2EN, 3EN, 4EN, 5EN, 6EN, 7EN, 8 EN, 9EN, 10EN, 11EN, 12EN, 13EN, 1EE, 2EE, 3EE, 4EE, 1ES, 2ES, 3ES, 4ES, 5ES, 6ES, 7ES, 8ES, 9ES, 10ES, 11ES, 1EW, 2EW, 4EW, 5EW, 1WN, 2WN, 3WN, 1WE, 2WE, 3WE, 4WE, 5WE, 6WE, 2WS, 3WS, 4WS, 5WS, 6WS, 1WW, 2WW, 3WW, 4WW, 5WW, 6WW,	Excess vegetation at outfall	None
5/14/2024	1EN, 5EN, 6EN, 7EN, 9EN, 11EN, 12EN, 2EE, 4EE, 6ES, 9ES, 10ES, 1EW, 4EW, 2WN, 2WE, 3WE, 1WW, 5WW	Damage to outfall stucture	None
5/14/2024	Channel 2-1 and 3-1	Erosion control fabric visible - erosion/ washout	None
5/14/2024	1EN, 2EN, 3EN, 4EN, 5EN, 6EN, 7EN, 8 EN, 9EN, 10EN, 11EN, 12EN, 13EN, 1EE, 2EE, 3EE, 4EE, 1ES, 2ES, 3ES, 4ES, 5ES, 6ES, 7ES, 8ES, 9ES, 10ES, 11ES, 1EW, 2EW, 4EW, 5EW, 1WN, 2WN, 3WN, 1WE, 2WE, 3WE, 4WE, 5WE, 6WE, 2WS, 3WS, 4WS, 5WS, 6WS, 1WW, 2WW, 3WW, 4WW, 5WW, 6WW, 7WW	Sediment build-up at outfall structure	None
5/14/2024	1EN, 11ES, 3EW, 4WW	Erosion around outfall pipe.	None
5/14/2024	DDE1, DDE2, DDE7, DDW6, DDW7, DDE1, DDE3, DDW1, DDW2, DDW5, DDW7	Downdrain outlet sediment and debris accumulation.	None

Date: 5/14/2024

Inspected By: I.Gonzalez

Signature: 

FORM SWM-1
MONTHLY INSPECTION CHECKLIST
DRAINAGE CHANNELS AND DRAINS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 6/18/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	CHANNEL / DRAIN NUMBER							REMARKS
1	**V-SHAPED w/ PATH**	**1-1**	**2-1**	**3-1**	**3-2**	**3-3**	**4**	**5-4**	
	Standing Water	√	√	√	√	√	√	√	
	Sediments and Debris	√	√	√	√	√	√	√	
	Erosion/Washouts	√	**NS**	**NS**	√	√	√	√	Erosion control fabric visible at Channel 2-1 and 3-1.
	Sinkholes	√	√	√	√	√	√	√	
	Cleanouts	√	√	√	√	√	√	√	
	Flow at Toe Drains	√	√	√	√	√	√	√	
	Flow at Culverts	√	√	√	√	√	√	√	
	Damage at Drains/Culverts	√	√	√	√	√	√	√	
	Overgrown Vegetation	√	√	√	√	√	√	√	
2	**V-SHAPED CHANNEL**	**6**	**8A**	**8B**	**11A**	**11B**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
3	**V-SHAPED w/ BERM**	**1-2**							
	Overgrown Vegetation	√							
	Standing Water	√							
	Sediments and Debris	√							
	Erosion/Washouts	√							
	Settlement and Sinkholes	√							
4	**TRAPEZOIDAL CHANNEL**	**7**	**9**	**10**					
	Overgrown Vegetation	√	√	√					
	Standing Water	√	√	√					
	Sediments and Debris	√	√	√					
	Erosion/Washouts	√	√	√					
	Settlement and Sinkholes	√	√	√					
5	**TRAPEZOIDAL w/ RIPRAP**	**2-2**	**3-4**	**5-1**	**5-2**	**5-3**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
	Loss of Riprap	√	√	√	√	√			

COMMENTS:

FORM SWM-2 EAST
MONTHLY INSPECTION CHECKLIST
PERIMETER ROAD DRAINAGE OUTLETS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 6/18/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
1	**EAST CELL NORTH OUTLETS**	**1EN**	**2EN**	**3EN**	**4EN**	**5EN**	**6EN**	**7EN**	
	Damage (Spalling, Cracking, etc.)	√	**NS**	√	√	√	√	**NS**	2EN, 7EN - Damaged outfall structures
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	√	√	√	√	√	√	
2	**EAST CELL NORTH OUTLETS**	**8EN**	**9EN**	**10EN**	**11EN**	**12EN**	**13EN**		
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√		
	Erosion Around Structure	√	√	√	√	√	√		
	Settlement Along Structure	√	√	√	√	√	√		
	Standing Water	√	√	√	√	√	√		
	Sediment/Debris in Pipe	√	√	√	√	√	√		
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√		
	I/O Sediments and Debris	√	√	√	√	√	√		
	I/O Vegetative Growth	√	√	√	√	√	√		
3	**EAST CELL EAST OUTLETS**	**1EE**	**2EE**	**3EE**	**4EE**				
	Damage (Spalling, Cracking, etc.)	√	√	√	**NS**				4EE - Cracked outfall structures
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
4	**EAST CELL SOUTH OUTLETS**	**1ES**	**2ES**	**3ES**	**4ES**	**5ES**	**6ES**	**7ES**	
	Damage (Spalling, Cracking, etc.)	√	√	**NS**	√	√	**NS**	√	3ES, 6ES - Outfall structure cracked.
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	√	√	√	√	√	√	
5	**EAST CELL SOUTH OUTLETS**	**8ES**	**9ES**	**10ES**	**11ES**				
	Damage (Spalling, Cracking, etc.)	√	**NS**	√	√				9ES - Dislodged outfall structure.
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
6	**EAST CELL WEST OUTLETS**	**1EW**	**2EW**	**3EW**	**4EW**	**5EW**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√			

COMMENTS

Removed debris and trash as necessary

FORM SWM-2 WEST
MONTHLY INSPECTION CHECKLIST
PERIMETER ROAD DRAINAGE OUTLETS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 6/18/24 **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER								REMARKS
1	**WEST CELL NORTH OUTLETS**	**1WN**	**2WN**	**3WN**						
	Damage (Spalling, Cracking, etc.)	√	**NS**	√						2WN - Outfall structure cracked.
	Erosion Around Structure	√	√	√						
	Settlement Along Structure	√	√	√						
	Standing Water	√	√	√						
	Sediment/Debris in Pipe	√	√	√						
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√						
	I/O Sediments and Debris	√	√	√						
	I/O Vegetative Growth	√	√	√						
2	**WEST CELL EAST OUTLETS**	**1WE**	**2WE**	**3WE**	**4WE**	**5WE**	**6WE**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√	√			
3	**WEST CELL SOUTH OUTLETS**	**1WS**	**2WS**	**3WS**	**4WS**	**5WS**	**6WS**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√	√			
4	**WEST CELL WEST OUTLETS**	**1WW**	**2WW**	**3WW**	**4WW**	**5WW**	**6WW**	**7WW**	**8WW**	
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	√	√	√	√	√	√	√	

COMMENTS

Removed debris and trash as necessary.

FORM SWM-3

MONTHLY INSPECTION CHECKLIST

DOWNDRAINS, FLARED END SECTIONS, PIPE TRENCHES, AND ENERGY DISSIPATORS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 06/18/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
3	**Downdrain Pipe Trenches**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench	√	√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	
	Downdrain Pipe Trenches	**DDE8**	**DDE9**	**DDE10**					
	Damaged Pipe Trenches	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation	√	√	√					
	Pipe Trench Settlement	√	√	√					
	Erosion Around Pipe Trench	√	√	√					
	Damaged Downdrain Connections	√	√	√					
	Downdrain Pipe Trenches	**DDWI**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench		√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
4	**Downdrain Outlet Protection**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	
	Downdrain Outlet Protection	**DDE8**	**DDE9**	**DDE10**					
	Riprap Displacement	√	√	√					
	Flow from CPP Discharge Pipes	√	√	√					
	Vegetative Growth	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation and Debris	√	√	√					
	Erosion Around Structure	√	√	√					
	Structure Settlement	√	√	√					
	Downdrain Outlet Protection	**DDWI**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

FORM DP-1

STORMWATER SYSTEM: SWM-1, SWM-2 AND SWM-3

JUNE 2024

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
6/18/2024	2EN, 7EN, 4EE, 3ES, 6ES, 9ES, 2WN	Damage to outfall stucture	None
6/18/2024	Channel 2-1 and 3-1	Erosion control fabric visible - erosion/ washout	None

Date: 6/18/2024

Inspected By: I.Gonzalez

Signature: 

FORM SWM-1
MONTHLY INSPECTION CHECKLIST
DRAINAGE CHANNELS AND DRAINS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 7/17/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	CHANNEL / DRAIN NUMBER							REMARKS
1	**V-SHAPED w/ PATH**	**1-1**	**2-1**	**3-1**	**3-2**	**3-3**	**4**	**5-4**	
	Standing Water	√	√	√	√	√	√	√	
	Sediments and Debris	√	√	√	√	√	√	√	
	Erosion/Washouts	√	√	√	√	√	√	√	
	Sinkholes	√	√	√	√	√	√	√	
	Cleanouts	√	√	√	√	√	√	√	
	Flow at Toe Drains	√	√	√	√	√	√	√	
	Flow at Culverts	√	√	√	√	√	√	√	
	Damage at Drains/Culverts	√	√	√	√	√	√	√	
	Overgrown Vegetation	√	√	√	√	√	√	√	
2	**V-SHAPED CHANNEL**	**6**	**8A**	**8B**	**11A**	**11B**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
3	**V-SHAPED w/ BERM**	**1-2**							
	Overgrown Vegetation	√							
	Standing Water	√							
	Sediments and Debris	√							
	Erosion/Washouts	√							
	Settlement and Sinkholes	√							
4	**TRAPEZOIDAL CHANNEL**	**7**	**9**	**10**					
	Overgrown Vegetation	√	√	√					
	Standing Water	√	√	√					
	Sediments and Debris	√	√	√					
	Erosion/Washouts	√	√	√					
	Settlement and Sinkholes	√	√	√					
5	**TRAPEZOIDAL w/ RIPRAP**	**2-2**	**3-4**	**5-1**	**5-2**	**5-3**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
	Loss of Riprap	√	√	√	√	√			

COMMENTS:

FORM SWM-2 EAST
MONTHLY INSPECTION CHECKLIST
PERIMETER ROAD DRAINAGE OUTLETS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 7/17/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
1	**EAST CELL NORTH OUTLETS**	**1EN**	**2EN**	**3EN**	**4EN**	**5EN**	**6EN**	**7EN**	
	Damage (Spalling, Cracking, etc.)	√	**NS**	√	√	√	√	**NS**	2EN, 7EN - Cracked outfall structure.
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	√	√	√	√	√	√	
2	**EAST CELL NORTH OUTLETS**	**8EN**	**9EN**	**10EN**	**11EN**	**12EN**	**13EN**		
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√		
	Erosion Around Structure	√	√	√	√	√	√		
	Settlement Along Structure	√	√	√	√	√	√		
	Standing Water	√	√	√	√	√	√		
	Sediment/Debris in Pipe	√	√	√	√	√	√		
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√		
	I/O Sediments and Debris	√	√	√	√	√	√		
	I/O Vegetative Growth	√	√	√	√	√	√		
3	**EAST CELL EAST OUTLETS**	**1EE**	**2EE**	**3EE**	**4EE**				
	Damage (Spalling, Cracking, etc.)	√	√	√	√				
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
4	**EAST CELL SOUTH OUTLETS**	**1ES**	**2ES**	**3ES**	**4ES**	**5ES**	**6ES**	**7ES**	
	Damage (Spalling, Cracking, etc.)	√	√	**NS**	√	√	**NS**	√	3ES, 6ES - Cracked outfall structure.
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	√	√	√	√	√	√	
5	**EAST CELL SOUTH OUTLETS**	**8ES**	**9ES**	**10ES**	**11ES**				
	Damage (Spalling, Cracking, etc.)	√	**NS**	√	√				9ES - Cracked outfall structure.
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
6	**EAST CELL WEST OUTLETS**	**1EW**	**2EW**	**3EW**	**4EW**	**5EW**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√			

COMMENTS

Removed debris and trash as necessary

FORM SWM-2 WEST

MONTHLY INSPECTION CHECKLIST

PERIMETER ROAD DRAINAGE OUTLETS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 7/17/24 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER								REMARKS
1	**WEST CELL NORTH OUTLETS**	**1WN**	**2WN**	**3WN**						
	Damage (Spalling, Cracking, etc.)	√	**NS**	√						2WN - Outfall structure cracked.
	Erosion Around Structure	√	√	√						
	Settlement Along Structure	√	√	√						
	Standing Water	√	√	√						
	Sediment/Debris in Pipe	√	√	√						
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√						
	I/O Sediments and Debris	√	√	√						
	I/O Vegetative Growth	√	√	√						
2	**WEST CELL EAST OUTLETS**	**1WE**	**2WE**	**3WE**	**4WE**	**5WE**	**6WE**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√	√			
3	**WEST CELL SOUTH OUTLETS**	**1WS**	**2WS**	**3WS**	**4WS**	**5WS**	**6WS**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√	√			
4	**WEST CELL WEST OUTLETS**	**1WW**	**2WW**	**3WW**	**4WW**	**5WW**	**6WW**	**7WW**	**8WW**	
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	√	√	√	√	√	√	√	

COMMENTS

Removed debris and trash as necessary.

FORM SWM-3

MONTHLY INSPECTION CHECKLIST

DOWNDRAINS, FLARED END SECTIONS, PIPE TRENCHES, AND ENERGY DISSIPATORS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 07/17/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
3	**Downdrain Pipe Trenches**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench	√	√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	
	Downdrain Pipe Trenches	**DDE8**	**DDE9**	**DDE10**					
	Damaged Pipe Trenches	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation	√	√	√					
	Pipe Trench Settlement	√	√	√					
	Erosion Around Pipe Trench	√	√	√					
	Damaged Downdrain Connections	√	√	√					
	Downdrain Pipe Trenches	**DDWI**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench		√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
4	**Downdrain Outlet Protection**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	
	Downdrain Outlet Protection	**DDE8**	**DDE9**	**DDE10**					
	Riprap Displacement	√	√	√					
	Flow from CPP Discharge Pipes	√	√	√					
	Vegetative Growth	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation and Debris	√	√	√					
	Erosion Around Structure	√	√	√					
	Structure Settlement	√	√	√					
	Downdrain Outlet Protection	**DDWI**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

FORM DP-1

STORMWATER SYSTEM: SWM-1, SWM-2 AND SWM-3

JULY 2024

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
7/17/2024	2EN, 7EN, 4EE, 3ES, 6ES, 9ES, 2WN	Cracked outfall structures, does not impact drainage performance.	Outfall structures to be replaced.

Date: 7/17/2024

Inspected By: I.Gonzalez

Signature: 

FORM SWM-1
MONTHLY INSPECTION CHECKLIST
DRAINAGE CHANNELS AND DRAINS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 8/8/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	CHANNEL / DRAIN NUMBER							REMARKS
1	**V-SHAPED w/ PATH**	**1-1**	**2-1**	**3-1**	**3-2**	**3-3**	**4**	**5-4**	
	Standing Water	√	√	√	√	√	√	√	
	Sediments and Debris	√	√	√	√	√	√	√	
	Erosion/Washouts	√	√	√	√	√	√	√	
	Sinkholes	√	√	√	√	√	√	√	
	Cleanouts	√	√	√	√	√	√	√	
	Flow at Toe Drains	√	√	√	√	√	√	√	
	Flow at Culverts	√	√	√	√	√	√	√	
	Damage at Drains/Culverts	√	√	√	√	√	√	√	
	Overgrown Vegetation	√	√	√	√	√	√	√	
2	**V-SHAPED CHANNEL**	**6**	**8A**	**8B**	**11A**	**11B**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
3	**V-SHAPED w/ BERM**	**1-2**							
	Overgrown Vegetation	√							
	Standing Water	√							
	Sediments and Debris	√							
	Erosion/Washouts	√							
	Settlement and Sinkholes	√							
4	**TRAPEZOIDAL CHANNEL**	**7**	**9**	**10**					
	Overgrown Vegetation	√	√	√					
	Standing Water	√	√	√					
	Sediments and Debris	√	√	√					
	Erosion/Washouts	√	√	√					
	Settlement and Sinkholes	√	√	√					
5	**TRAPEZOIDAL w/ RIPRAP**	**2-2**	**3-4**	**5-1**	**5-2**	**5-3**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
	Loss of Riprap	√	√	√	√	√			

COMMENTS:

FORM SWM-2 EAST
MONTHLY INSPECTION CHECKLIST
PERIMETER ROAD DRAINAGE OUTLETS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 8/8/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
1	**EAST CELL NORTH OUTLETS**	**1EN**	**2EN**	**3EN**	**4EN**	**5EN**	**6EN**	**7EN**	
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	√	√	√	√	√	√	
2	**EAST CELL NORTH OUTLETS**	**8EN**	**9EN**	**10EN**	**11EN**	**12EN**	**13EN**		
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√		
	Erosion Around Structure	√	√	√	√	√	√		
	Settlement Along Structure	√	√	√	√	√	√		
	Standing Water	√	√	√	√	√	√		
	Sediment/Debris in Pipe	√	√	√	√	√	√		
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√		
	I/O Sediments and Debris	√	√	√	√	√	√		
	I/O Vegetative Growth	√	√	√	√	√	√		
3	**EAST CELL EAST OUTLETS**	**1EE**	**2EE**	**3EE**	**4EE**				
	Damage (Spalling, Cracking, etc.)	√	√	√	√				
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
4	**EAST CELL SOUTH OUTLETS**	**1ES**	**2ES**	**3ES**	**4ES**	**5ES**	**6ES**	**7ES**	
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	√	√	√	√	√	√	
5	**EAST CELL SOUTH OUTLETS**	**8ES**	**9ES**	**10ES**	**11ES**				
	Damage (Spalling, Cracking, etc.)	√	√	√	√				
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
6	**EAST CELL WEST OUTLETS**	**1EW**	**2EW**	**3EW**	**4EW**	**5EW**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√			

COMMENTS

Removed debris and trash as necessary

FORM SWM-2 WEST

MONTHLY INSPECTION CHECKLIST

PERIMETER ROAD DRAINAGE OUTLETS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 8/8/24 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER								REMARKS
1	**WEST CELL NORTH OUTLETS**	**1WN**	**2WN**	**3WN**						
	Damage (Spalling, Cracking, etc.)	√	√	√						
	Erosion Around Structure	√	√	√						
	Settlement Along Structure	√	√	√						
	Standing Water	√	√	√						
	Sediment/Debris in Pipe	√	√	√						
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√						
	I/O Sediments and Debris	√	√	√						
	I/O Vegetative Growth	√	√	√						
2	**WEST CELL EAST OUTLETS**	**1WE**	**2WE**	**3WE**	**4WE**	**5WE**	**6WE**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√	√			
3	**WEST CELL SOUTH OUTLETS**	**1WS**	**2WS**	**3WS**	**4WS**	**5WS**	**6WS**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√	√			
4	**WEST CELL WEST OUTLETS**	**1WW**	**2WW**	**3WW**	**4WW**	**5WW**	**6WW**	**7WW**	**8WW**	
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	√	√	√	√	√	√	√	

COMMENTS

Removed debris and trash as necessary.

FORM SWM-3

MONTHLY INSPECTION CHECKLIST

DOWNDRAINS, FLARED END SECTIONS, PIPE TRENCHES, AND ENERGY DISSIPATORS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 08/8/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
3	**Downdrain Pipe Trenches**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench	√	√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	
	Downdrain Pipe Trenches	**DDE8**	**DDE9**	**DDE10**					
	Damaged Pipe Trenches	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation	√	√	√					
	Pipe Trench Settlement	√	√	√					
	Erosion Around Pipe Trench	√	√	√					
	Damaged Downdrain Connections	√	√	√					
	Downdrain Pipe Trenches	**DDWI**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench		√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
4	**Downdrain Outlet Protection**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	
	Downdrain Outlet Protection	**DDE8**	**DDE9**	**DDE10**					
	Riprap Displacement	√	√	√					
	Flow from CPP Discharge Pipes	√	√	√					
	Vegetative Growth	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation and Debris	√	√	√					
	Erosion Around Structure	√	√	√					
	Structure Settlement	√	√	√					
	Downdrain Outlet Protection	**DDWI**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

FORM DP-1

STORMWATER SYSTEM: SWM-1, SWM-2 AND SWM-3

AUGUST 2024

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
8/8/2024	2EN, 7EN, 4EE, 3ES, 6ES, 9ES, 2WN	Cracked outfall structures, does not impact drainage performance.	Cracked outfall structures to continue to be observed, no action will be taken.

Date: 8/8/2024

Inspected By: I.Gonzalez

Signature: 

FORM SWM-1
MONTHLY INSPECTION CHECKLIST
DRAINAGE CHANNELS AND DRAINS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 9/17/2024 | **Inspected By: Elise He**

	INSPECTION TASK	CHANNEL / DRAIN NUMBER							REMARKS
1	**V-SHAPED w/ PATH**	**1-1**	**2-1**	**3-1**	**3-2**	**3-3**	**4**	**5-4**	
	Standing Water	√	√	√	√	√	√	√	
	Sediments and Debris	√	√	√	√	√	√	√	
	Erosion/Washouts	√	√	√	√	√	√	√	
	Sinkholes	√	√	√	√	√	√	√	
	Cleanouts	√	√	√	√	√	√	√	
	Flow at Toe Drains	√	√	√	√	√	√	√	
	Flow at Culverts	√	√	√	√	√	√	√	
	Damage at Drains/Culverts	√	√	√	√	√	√	√	
	Overgrown Vegetation	√	√	√	√	√	√	√	
2	**V-SHAPED CHANNEL**	**6**	**8A**	**8B**	**11A**	**11B**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
3	**V-SHAPED w/ BERM**	**1-2**							
	Overgrown Vegetation	√							
	Standing Water	√							
	Sediments and Debris	√							
	Erosion/Washouts	√							
	Settlement and Sinkholes	√							
4	**TRAPEZOIDAL CHANNEL**	**7**	**9**	**10**					
	Overgrown Vegetation	√	√	√					
	Standing Water	√	√	√					
	Sediments and Debris	√	√	√					
	Erosion/Washouts	√	√	√					
	Settlement and Sinkholes	√	√	√					
5	**TRAPEZOIDAL w/ RIPRAP**	**2-2**	**3-4**	**5-1**	**5-2**	**5-3**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
	Loss of Riprap	√	√	√	√	√			

COMMENTS:

FORM SWM-2 EAST
MONTHLY INSPECTION CHECKLIST
PERIMETER ROAD DRAINAGE OUTLETS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 9/17/2024 | **Inspected By: Elise He**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
1	**EAST CELL NORTH OUTLETS**	**1EN**	**2EN**	**3EN**	**4EN**	**5EN**	**6EN**	**7EN**	
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	√	√	√	√	√	√	
2	**EAST CELL NORTH OUTLETS**	**8EN**	**9EN**	**10EN**	**11EN**	**12EN**	**13EN**		
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√		
	Erosion Around Structure	√	√	√	√	√	√		
	Settlement Along Structure	√	√	√	√	√	√		
	Standing Water	√	√	√	√	√	√		
	Sediment/Debris in Pipe	√	√	√	√	√	√		
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√		
	I/O Sediments and Debris	√	√	√	√	√	√		
	I/O Vegetative Growth	√	√	√	√	√	√		
3	**EAST CELL EAST OUTLETS**	**1EE**	**2EE**	**3EE**	**4EE**				
	Damage (Spalling, Cracking, etc.)	√	√	√	√				
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
4	**EAST CELL SOUTH OUTLETS**	**1ES**	**2ES**	**3ES**	**4ES**	**5ES**	**6ES**	**7ES**	
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	√	√	√	√	√	√	
5	**EAST CELL SOUTH OUTLETS**	**8ES**	**9ES**	**10ES**	**11ES**				
	Damage (Spalling, Cracking, etc.)	√	√	√	√				
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
6	**EAST CELL WEST OUTLETS**	**1EW**	**2EW**	**3EW**	**4EW**	**5EW**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√			

COMMENTS

Removed debris and trash as necessary

FORM SWM-2 WEST
MONTHLY INSPECTION CHECKLIST
PERIMETER ROAD DRAINAGE OUTLETS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 9/17/24 | **Inspected By: Elise He**

	INSPECTION TASK	STRUCTURE NUMBER								REMARKS
1	**WEST CELL NORTH OUTLETS**	**1WN**	**2WN**	**3WN**						
	Damage (Spalling, Cracking, etc.)	√	√	√						
	Erosion Around Structure	√	√	√						
	Settlement Along Structure	√	√	√						
	Standing Water	√	√	√						
	Sediment/Debris in Pipe	√	√	√						
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√						
	I/O Sediments and Debris	√	√	√						
	I/O Vegetative Growth	√	√	√						
2	**WEST CELL EAST OUTLETS**	**1WE**	**2WE**	**3WE**	**4WE**	**5WE**	**6WE**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√	√			
3	**WEST CELL SOUTH OUTLETS**	**1WS**	**2WS**	**3WS**	**4WS**	**5WS**	**6WS**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√	√			
4	**WEST CELL WEST OUTLETS**	**1WW**	**2WW**	**3WW**	**4WW**	**5WW**	**6WW**	**7WW**	**8WW**	
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	√	√	√	√	√	√	√	

COMMENTS

Removed debris and trash as necessary.

FORM SWM-3

MONTHLY INSPECTION CHECKLIST

DOWNDRAINS, FLARED END SECTIONS, PIPE TRENCHES, AND ENERGY DISSIPATORS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 09/17/2024 | **Inspected By: Elise He**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
3	**Downdrain Pipe Trenches**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench	√	√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	
	Downdrain Pipe Trenches	**DDE8**	**DDE9**	**DDE10**					
	Damaged Pipe Trenches	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation	√	√	√					
	Pipe Trench Settlement	√	√	√					
	Erosion Around Pipe Trench	√	√	√					
	Damaged Downdrain Connections	√	√	√					
	Downdrain Pipe Trenches	**DDWI**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench		√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
4	**Downdrain Outlet Protection**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	
	Downdrain Outlet Protection	**DDE8**	**DDE9**	**DDE10**					
	Riprap Displacement	√	√	√					
	Flow from CPP Discharge Pipes	√	√	√					
	Vegetative Growth	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation and Debris	√	√	√					
	Erosion Around Structure	√	√	√					
	Structure Settlement	√	√	√					
	Downdrain Outlet Protection	**DDWI**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

FORM DP-1 STORMWATER SYSTEM: SWM-1, SWM-2 AND SWM-3 SEPTEMBER 2024 DESCRIPTION OF DEFICIENCIES AND PROBLEMS BROOKFIELD AVENUE LANDFILL			
Date	**Location**	**Description**	**Corrective Action Taken**
9/17/2024	2EN, 7EN, 4EE, 3ES, 6ES, 9ES, 2WN	Cracked outfall structures, does not impact drainage performance.	Cracked outfall structures to continue to be observed, no action will be taken.
Date: 9/17/2024		**Inspected By: E.He**	
		Signature:	

FORM SWM-1
MONTHLY INSPECTION CHECKLIST
DRAINAGE CHANNELS AND DRAINS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 10/17/2024 | **Inspected By: Elise He**

	INSPECTION TASK	CHANNEL / DRAIN NUMBER							REMARKS
1	**V-SHAPED w/ PATH**	**1-1**	**2-1**	**3-1**	**3-2**	**3-3**	**4**	**5-4**	
	Standing Water	√	√	√	√	√	√	√	
	Sediments and Debris	√	√	√	√	√	√	√	
	Erosion/Washouts	√	√	√	√	√	√	√	
	Sinkholes	√	√	√	√	√	√	√	
	Cleanouts	√	√	√	√	√	√	√	
	Flow at Toe Drains	√	√	√	√	√	√	√	
	Flow at Culverts	√	√	√	√	√	√	√	
	Damage at Drains/Culverts	√	√	√	√	√	√	√	
	Overgrown Vegetation	√	√	√	√	√	√	√	
2	**V-SHAPED CHANNEL**	**6**	**8A**	**8B**	**11A**	**11B**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
3	**V-SHAPED w/ BERM**	**1-2**							
	Overgrown Vegetation	√							
	Standing Water	√							
	Sediments and Debris	√							
	Erosion/Washouts	√							
	Settlement and Sinkholes	√							
4	**TRAPEZOIDAL CHANNEL**	**7**	**9**	**10**					
	Overgrown Vegetation	√	√	√					
	Standing Water	√	√	√					
	Sediments and Debris	√	√	√					
	Erosion/Washouts	√	√	√					
	Settlement and Sinkholes	√	√	√					
5	**TRAPEZOIDAL w/ RIPRAP**	**2-2**	**3-4**	**5-1**	**5-2**	**5-3**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
	Loss of Riprap	√	√	√	√	√			

COMMENTS:

FORM SWM-2 EAST
MONTHLY INSPECTION CHECKLIST
PERIMETER ROAD DRAINAGE OUTLETS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 10/17/2024 | **Inspected By: Elise He**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
1	**EAST CELL NORTH OUTLETS**	**1EN**	**2EN**	**3EN**	**4EN**	**5EN**	**6EN**	**7EN**	
	Damage (Spalling, Cracking, etc.)	√	**NS**	√	√	√	√	**NS**	2EN, 7EN - Damaged outfall structure, does not impact drainage performance.
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	**NS**	√	√	√	√	**NS**	2EN, 7EN - Excess vegetation growth around outfall structure.
2	**EAST CELL NORTH OUTLETS**	**8EN**	**9EN**	**10EN**	**11EN**	**12EN**	**13EN**		
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√		
	Erosion Around Structure	√	√	√	√	√	√		
	Settlement Along Structure	√	√	√	√	√	√		
	Standing Water	√	√	√	√	√	√		
	Sediment/Debris in Pipe	√	√	√	√	√	√		
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√		
	I/O Sediments and Debris	√	√	√	√	√	√		
	I/O Vegetative Growth	√	√	√	√	√	√		
3	**EAST CELL EAST OUTLETS**	**1EE**	**2EE**	**3EE**	**4EE**				
	Damage (Spalling, Cracking, etc.)	√	√	√	**NS**				4EE - Damaged outfall structure, does not impact drainage performance.
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
4	**EAST CELL SOUTH OUTLETS**	**1ES**	**2ES**	**3ES**	**4ES**	**5ES**	**6ES**	**7ES**	
	Damage (Spalling, Cracking, etc.)	√	√	**NS**	√	√	**NS**	√	3ES, 6ES - Damaged outfall structure, does not impact drainage performance.
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	**NS**	√	√	√	4ES - Sediment in pipe.
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	**NS**	√	**NS**	√	√	√	2ES, 4ES - Vegetation overgrowth around outfall structure.
5	**EAST CELL SOUTH OUTLETS**	**8ES**	**9ES**	**10ES**	**11ES**				
	Damage (Spalling, Cracking, etc.)	√	**NS**	√	√				9ES - Damaged outfall structure, does not impact drainage performance.
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
6	**EAST CELL WEST OUTLETS**	**1EW**	**2EW**	**3EW**	**4EW**	**5EW**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√			

COMMENTS

Removed debris and trash as necessary

FORM SWM-2 WEST
MONTHLY INSPECTION CHECKLIST
PERIMETER ROAD DRAINAGE OUTLETS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 10/17/2024 **Inspected By: Elise He**

	INSPECTION TASK	STRUCTURE NUMBER								REMARKS
1	**WEST CELL NORTH OUTLETS**	**1WN**	**2WN**	**3WN**						
	Damage (Spalling, Cracking, etc.)	√	**NS**	√						2WN - Damaged outfall structures, does not impact drainage performance.
	Erosion Around Structure	√	√	√						
	Settlement Along Structure	√	√	√						
	Standing Water	√	√	√						
	Sediment/Debris in Pipe	√	√	√						
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√						
	I/O Sediments and Debris	√	√	√						
	I/O Vegetative Growth	√	**NS**	√						2WN - Excess vegetation growth at the outfall structure.
2	**WEST CELL EAST OUTLETS**	**1WE**	**2WE**	**3WE**	**4WE**	**5WE**	**6WE**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	**NS**	√	**NS**			4WE, 6WE - Excess vegetation growth at the outfall structure.
3	**WEST CELL SOUTH OUTLETS**	**1WS**	**2WS**	**3WS**	**4WS**	**5WS**	**6WS**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√	√			
4	**WEST CELL WEST OUTLETS**	**1WW**	**2WW**	**3WW**	**4WW**	**5WW**	**6WW**	**7WW**	**8WW**	
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	√	√	**NS**	√	√	√	√	4WW - Excess vegetation growth at the outfall structure.

COMMENTS

Removed debris and trash as necessary.

FORM SWM-3

MONTHLY INSPECTION CHECKLIST

DOWNDRAINS, FLARED END SECTIONS, PIPE TRENCHES, AND ENERGY DISSIPATORS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 10/17/2024 | **Inspected By: Elise He**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
3	**Downdrain Pipe Trenches**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench	√	√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	
	Downdrain Pipe Trenches	**DDE8**	**DDE9**	**DDE10**					
	Damaged Pipe Trenches	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation	√	√	√					
	Pipe Trench Settlement	√	√	√					
	Erosion Around Pipe Trench	√	√	√					
	Damaged Downdrain Connections	√	√	√					
	Downdrain Pipe Trenches	**DDWI**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench		√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
4	**Downdrain Outlet Protection**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	
	Downdrain Outlet Protection	**DDE8**	**DDE9**	**DDE10**					
	Riprap Displacement	√	√	√					
	Flow from CPP Discharge Pipes	√	√	√					
	Vegetative Growth	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation and Debris	√	√	√					
	Erosion Around Structure	√	√	√					
	Structure Settlement	√	√	√					
	Downdrain Outlet Protection	**DDWI**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

FORM DP-1 STORMWATER SYSTEM: SWM-1, SWM-2 AND SWM-3 OCTOBER 2024 DESCRIPTION OF DEFICIENCIES AND PROBLEMS BROOKFIELD AVENUE LANDFILL			
Date	**Location**	**Description**	**Corrective Action Taken**
10/17/2024	2EN, 7EN, 4EE, 3ES, 6ES, 9ES, 2WN	Cracked outfall structures, does not impact drainage performance.	Cracked outfall structures to continue to be observed, no action will be taken.
10/17/2024	4ES	Sediment in pipe.	Sediment observed in pipe, no impact on drainage performance, will continue to monitor.
10/17/2024	2EN, 7EN, 2ES, 4ES,2WN, 4WE, 6WE, 4WW	Vegetative overgrowth observed around outfall structures.	No impact on drainage performance was monitored. Will continue to monitor.
Date: 10/17/2024		**Inspected By: E.He**	
		Signature:	

FORM SWM-1
MONTHLY INSPECTION CHECKLIST
DRAINAGE CHANNELS AND DRAINS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 11/15/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	CHANNEL / DRAIN NUMBER							REMARKS
1	**V-SHAPED w/ PATH**	**1-1**	**2-1**	**3-1**	**3-2**	**3-3**	**4**	**5-4**	
	Standing Water	√	√	√	√	√	√	√	
	Sediments and Debris	√	√	√	√	√	√	√	
	Erosion/Washouts	√	√	√	√	√	√	√	
	Sinkholes	√	√	√	√	√	√	√	
	Cleanouts	√	√	√	√	√	√	√	
	Flow at Toe Drains	√	√	√	√	√	√	√	
	Flow at Culverts	√	√	√	√	√	√	√	
	Damage at Drains/Culverts	√	√	√	√	√	√	√	
	Overgrown Vegetation	√	√	√	√	√	√	√	
2	**V-SHAPED CHANNEL**	**6**	**8A**	**8B**	**11A**	**11B**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
3	**V-SHAPED w/ BERM**	**1-2**							
	Overgrown Vegetation	√							
	Standing Water	√							
	Sediments and Debris	√							
	Erosion/Washouts	√							
	Settlement and Sinkholes	√							
4	**TRAPEZOIDAL CHANNEL**	**7**	**9**	**10**					
	Overgrown Vegetation	√	√	√					
	Standing Water	√	√	√					
	Sediments and Debris	√	√	√					
	Erosion/Washouts	√	√	√					
	Settlement and Sinkholes	√	√	√					
5	**TRAPEZOIDAL w/ RIPRAP**	**2-2**	**3-4**	**5-1**	**5-2**	**5-3**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
	Loss of Riprap	√	√	√	√	√			

COMMENTS:

FORM SWM-2 EAST
MONTHLY INSPECTION CHECKLIST
PERIMETER ROAD DRAINAGE OUTLETS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 11/15/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
1	**EAST CELL NORTH OUTLETS**	**1EN**	**2EN**	**3EN**	**4EN**	**5EN**	**6EN**	**7EN**	
	Damage (Spalling, Cracking, etc.)	√	**NS**	√	√	√	√	**NS**	2EN, 7EN - Damaged outfall structure, does not impact drainage performance.
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	**NS**	√	√	√	√	**NS**	2EN, 7EN - Excess vegetation growth around outfall structure.
2	**EAST CELL NORTH OUTLETS**	**8EN**	**9EN**	**10EN**	**11EN**	**12EN**	**13EN**		
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√		
	Erosion Around Structure	√	√	√	√	√	√		
	Settlement Along Structure	√	√	√	√	√	√		
	Standing Water	√	√	√	√	√	√		
	Sediment/Debris in Pipe	√	√	√	√	√	√		
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√		
	I/O Sediments and Debris	√	√	√	√	√	√		
	I/O Vegetative Growth	√	√	√	√	√	√		
3	**EAST CELL EAST OUTLETS**	**1EE**	**2EE**	**3EE**	**4EE**				
	Damage (Spalling, Cracking, etc.)	√	√	√	**NS**				4EE - Damaged outfall structure, does not impact drainage performance.
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
4	**EAST CELL SOUTH OUTLETS**	**1ES**	**2ES**	**3ES**	**4ES**	**5ES**	**6ES**	**7ES**	
	Damage (Spalling, Cracking, etc.)	√	√	**NS**	√	√	**NS**	√	3ES, 6ES - Damaged outfall structure, does not impact drainage performance.
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	**NS**	√	√	√	4ES - Sediment in pipe.
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	**NS**	√	**NS**	√	√	√	2ES, 4ES - Vegetation overgrowth around outfall structure.
5	**EAST CELL SOUTH OUTLETS**	**8ES**	**9ES**	**10ES**	**11ES**				
	Damage (Spalling, Cracking, etc.)	√	**NS**	√	√				9ES - Damaged outfall structure, does not impact drainage performance.
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
6	**EAST CELL WEST OUTLETS**	**1EW**	**2EW**	**3EW**	**4EW**	**5EW**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√			

COMMENTS

Removed debris and trash as necessary

FORM SWM-2 WEST
MONTHLY INSPECTION CHECKLIST
PERIMETER ROAD DRAINAGE OUTLETS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 11/15/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER								REMARKS
1	**WEST CELL NORTH OUTLETS**	**1WN**	**2WN**	**3WN**						
	Damage (Spalling, Cracking, etc.)	√	**NS**	√						2WN - Damaged outfall structures, does not impact drainage performance.
	Erosion Around Structure	√	√	√						
	Settlement Along Structure	√	√	√						
	Standing Water	√	√	√						
	Sediment/Debris in Pipe	√	√	√						
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√						
	I/O Sediments and Debris	√	√	√						
	I/O Vegetative Growth	√	**NS**	√						2WN - Excess vegetation growth at the outfall structure.
2	**WEST CELL EAST OUTLETS**	**1WE**	**2WE**	**3WE**	**4WE**	**5WE**	**6WE**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	**NS**	√	**NS**			4WE, 6WE - Excess vegetation growth at the outfall structure.
3	**WEST CELL SOUTH OUTLETS**	**1WS**	**2WS**	**3WS**	**4WS**	**5WS**	**6WS**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√	√			
4	**WEST CELL WEST OUTLETS**	**1WW**	**2WW**	**3WW**	**4WW**	**5WW**	**6WW**	**7WW**	**8WW**	
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	√	√	**NS**	√	√	√	√	4WW - Excess vegetation growth at the outfall structure.

COMMENTS

Removed debris and trash as necessary.

FORM SWM-3

MONTHLY INSPECTION CHECKLIST

DOWNDRAINS, FLARED END SECTIONS, PIPE TRENCHES, AND ENERGY DISSIPATORS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 11/15/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
3	**Downdrain Pipe Trenches**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench	√	√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	
	Downdrain Pipe Trenches	**DDE8**	**DDE9**	**DDE10**					
	Damaged Pipe Trenches	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation	√	√	√					
	Pipe Trench Settlement	√	√	√					
	Erosion Around Pipe Trench	√	√	√					
	Damaged Downdrain Connections	√	√	√					
	Downdrain Pipe Trenches	**DDWI**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench		√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
4	**Downdrain Outlet Protection**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	
	Downdrain Outlet Protection	**DDE8**	**DDE9**	**DDE10**					
	Riprap Displacement	√	√	√					
	Flow from CPP Discharge Pipes	√	√	√					
	Vegetative Growth	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation and Debris	√	√	√					
	Erosion Around Structure	√	√	√					
	Structure Settlement	√	√	√					
	Downdrain Outlet Protection	**DDWI**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

FORM DP-1

STORMWATER SYSTEM: SWM-1, SWM-2 AND SWM-3

NOVEMBER 2024

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
11/15/2024	2EN, 7EN, 4EE, 3ES, 6ES, 9ES, 2WN	Cracked outfall structures, does not impact drainage performance.	Cracked outfall structures to continue to be observed, no action will be taken.
11/15/2024	4ES	Sediment in pipe.	Sediment observed in pipe, no impact on drainage performance, will continue to monitor.
11/15/2024	2EN, 7EN, 2ES, 4ES,2WN, 4WE, 6WE, 4WW	Vegetative overgrowth observed around outfall structures.	No impact on drainage performance was monitored. Will continue to monitor.

Date: 11/15/2024

Inspected By: Ivan Gonzalez

Signature: 

FORM SWM-1

MONTHLY INSPECTION CHECKLIST

DRAINAGE CHANNELS AND DRAINS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 12/18/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	CHANNEL / DRAIN NUMBER							REMARKS
1	**V-SHAPED w/ PATH**	**1-1**	**2-1**	**3-1**	**3-2**	**3-3**	**4**	**5-4**	
	Standing Water	√	√	√	√	√	√	√	
	Sediments and Debris	√	√	√	√	√	√	√	
	Erosion/Washouts	√	√	√	√	√	√	√	
	Sinkholes	√	√	√	√	√	√	√	
	Cleanouts	√	√	√	√	√	√	√	
	Flow at Toe Drains	√	√	√	√	√	√	√	
	Flow at Culverts	√	√	√	√	√	√	√	
	Damage at Drains/Culverts	√	√	√	√	√	√	√	
	Overgrown Vegetation	√	√	√	√	√	√	√	
2	**V-SHAPED CHANNEL**	**6**	**8A**	**8B**	**11A**	**11B**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
3	**V-SHAPED w/ BERM**	**1-2**							
	Overgrown Vegetation	√							
	Standing Water	√							
	Sediments and Debris	√							
	Erosion/Washouts	√							
	Settlement and Sinkholes	√							
4	**TRAPEZOIDAL CHANNEL**	**7**	**9**	**10**					
	Overgrown Vegetation	√	√	√					
	Standing Water	√	√	√					
	Sediments and Debris	√	√	√					
	Erosion/Washouts	√	√	√					
	Settlement and Sinkholes	√	√	√					
5	**TRAPEZOIDAL w/ RIPRAP**	**2-2**	**3-4**	**5-1**	**5-2**	**5-3**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
	Loss of Riprap	√	√	√	√	√			

COMMENTS:

FORM SWM-2 EAST
MONTHLY INSPECTION CHECKLIST
PERIMETER ROAD DRAINAGE OUTLETS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 12/18/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
1	**EAST CELL NORTH OUTLETS**	**1EN**	**2EN**	**3EN**	**4EN**	**5EN**	**6EN**	**7EN**	
	Damage (Spalling, Cracking, etc.)	√	**NS**	√	√	√	√	**NS**	2EN, 7EN - Damaged outfall structure, does not impact drainage performance.
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	**NS**	√	√	√	√	**NS**	2EN, 7EN - Excess vegetation growth around outfall structure.
2	**EAST CELL NORTH OUTLETS**	**8EN**	**9EN**	**10EN**	**11EN**	**12EN**	**13EN**		
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√		
	Erosion Around Structure	√	√	√	√	√	√		
	Settlement Along Structure	√	√	√	√	√	√		
	Standing Water	√	√	√	√	√	√		
	Sediment/Debris in Pipe	√	√	√	√	√	√		
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√		
	I/O Sediments and Debris	√	√	√	√	√	√		
	I/O Vegetative Growth	√	√	√	√	√	√		
3	**EAST CELL EAST OUTLETS**	**1EE**	**2EE**	**3EE**	**4EE**				
	Damage (Spalling, Cracking, etc.)	√	√	√	**NS**				
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
4	**EAST CELL SOUTH OUTLETS**	**1ES**	**2ES**	**3ES**	**4ES**	**5ES**	**6ES**	**7ES**	
	Damage (Spalling, Cracking, etc.)	√	√	**NS**	√	√	**NS**	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	**NS**	√	√	√	4ES - Sediment in pipe.
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	**NS**	√	**NS**	√	√	√	2ES, 4ES - Vegetation overgrowth around outfall structure.
5	**EAST CELL SOUTH OUTLETS**	**8ES**	**9ES**	**10ES**	**11ES**				
	Damage (Spalling, Cracking, etc.)	√	**NS**	√	√				
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
6	**EAST CELL WEST OUTLETS**	**1EW**	**2EW**	**3EW**	**4EW**	**5EW**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√			

COMMENTS

Removed debris and trash as necessary

FORM SWM-2 WEST

MONTHLY INSPECTION CHECKLIST

PERIMETER ROAD DRAINAGE OUTLETS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 12/18/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER								REMARKS
1	**WEST CELL NORTH OUTLETS**	**1WN**	**2WN**	**3WN**						
	Damage (Spalling, Cracking, etc.)	√	**NS**	√						
	Erosion Around Structure	√	√	√						
	Settlement Along Structure	√	√	√						
	Standing Water	√	√	√						
	Sediment/Debris in Pipe	√	√	√						
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√						
	I/O Sediments and Debris	√	√	√						
	I/O Vegetative Growth	√	**NS**	√						2WN - Excess vegetation growth at the outfall structure.
2	**WEST CELL EAST OUTLETS**	**1WE**	**2WE**	**3WE**	**4WE**	**5WE**	**6WE**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	**NS**	√	**NS**			4WE, 6WE - Excess vegetation growth at the outfall structure.
3	**WEST CELL SOUTH OUTLETS**	**1WS**	**2WS**	**3WS**	**4WS**	**5WS**	**6WS**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√	√			
4	**WEST CELL WEST OUTLETS**	**1WW**	**2WW**	**3WW**	**4WW**	**5WW**	**6WW**	**7WW**	**8WW**	
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	√	√	**NS**	√	√	√	√	4WW - Excess vegetation growth at the outfall structure.

COMMENTS

Removed debris and trash as necessary.

FORM SWM-3

MONTHLY INSPECTION CHECKLIST

DOWNDRAINS, FLARED END SECTIONS, PIPE TRENCHES, AND ENERGY DISSIPATORS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 12/18/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
3	**Downdrain Pipe Trenches**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench	√	√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	
	Downdrain Pipe Trenches	**DDE8**	**DDE9**	**DDE10**					
	Damaged Pipe Trenches	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation	√	√	√					
	Pipe Trench Settlement	√	√	√					
	Erosion Around Pipe Trench	√	√	√					
	Damaged Downdrain Connections	√	√	√					
	Downdrain Pipe Trenches	**DDWI**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench		√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
4	**Downdrain Outlet Protection**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	
	Downdrain Outlet Protection	**DDE8**	**DDE9**	**DDE10**					
	Riprap Displacement	√	√	√					
	Flow from CPP Discharge Pipes	√	√	√					
	Vegetative Growth	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation and Debris	√	√	√					
	Erosion Around Structure	√	√	√					
	Structure Settlement	√	√	√					
	Downdrain Outlet Protection	**DDWI**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

FORM DP-1

STORMWATER SYSTEM: SWM-1, SWM-2 AND SWM-3

DECEMBER 2024

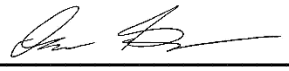
DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
12/18/2024	4ES	Sediment in pipe.	Sediment observed in pipe, no impact on drainage performance, will continue to monitor.
12/18/2024	2EN, 7EN, 2ES, 4ES,2WN, 4WE, 6WE, 4WW	Vegetative overgrowth observed around outfall structures.	No impact on drainage performance was monitored. Will continue to monitor.

Date: 12/18/2024

Inspected By: Ivan Gonzalez

Signature: 

FORM SWM-1
MONTHLY INSPECTION CHECKLIST
DRAINAGE CHANNELS AND DRAINS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 01/17/2025 | **Inspected By: Claire Winter**

	INSPECTION TASK	CHANNEL / DRAIN NUMBER							REMARKS
1	**V-SHAPED w/ PATH**	**1-1**	**2-1**	**3-1**	**3-2**	**3-3**	**4**	**5-4**	
	Standing Water	√	√	√	√	√	√	√	
	Sediments and Debris	√	√	√	√	√	√	√	
	Erosion/Washouts	√	√	√	√	√	√	√	
	Sinkholes	√	√	√	√	√	√	√	
	Cleanouts	√	√	√	√	√	√	√	
	Flow at Toe Drains	√	√	√	√	√	√	√	
	Flow at Culverts	√	√	√	√	√	√	√	
	Damage at Drains/Culverts	√	√	√	√	√	√	√	
	Overgrown Vegetation	√	√	√	√	√	√	√	
2	**V-SHAPED CHANNEL**	**6**	**8A**	**8B**	**11A**	**11B**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
3	**V-SHAPED w/ BERM**	**1-2**							
	Overgrown Vegetation	√							
	Standing Water	√							
	Sediments and Debris	√							
	Erosion/Washouts	√							
	Settlement and Sinkholes	√							
4	**TRAPEZOIDAL CHANNEL**	**7**	**9**	**10**					
	Overgrown Vegetation	√	√	√					
	Standing Water	√	√	√					
	Sediments and Debris	√	√	√					
	Erosion/Washouts	√	√	√					
	Settlement and Sinkholes	√	√	√					
5	**TRAPEZOIDAL w/ RIPRAP**	**2-2**	**3-4**	**5-1**	**5-2**	**5-3**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
	Loss of Riprap	√	√	√	√	√			

COMMENTS:

FORM SWM-2 EAST

MONTHLY INSPECTION CHECKLIST

PERIMETER ROAD DRAINAGE OUTLETS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 01/17/2025 | **Inspected By: Claire Winter**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
1	**EAST CELL NORTH OUTLETS**	**1EN**	**2EN**	**3EN**	**4EN**	**5EN**	**6EN**	**7EN**	
	Damage (Spalling, Cracking, etc.)	√	**NS**	√	√	√	√	**NS**	2EN, 7EN - Damaged outfall structure, does not impact drainage performance.
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	**NS**	√	√	√	√	**NS**	2EN, 7EN - Excess vegetation growth around outfall structure.
2	**EAST CELL NORTH OUTLETS**	**8EN**	**9EN**	**10EN**	**11EN**	**12EN**	**13EN**		
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√		
	Erosion Around Structure	√	√	√	√	√	√		
	Settlement Along Structure	√	√	√	√	√	√		
	Standing Water	√	√	√	√	√	√		
	Sediment/Debris in Pipe	√	√	√	√	√	√		
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√		
	I/O Sediments and Debris	√	√	√	√	√	√		
	I/O Vegetative Growth	√	√	√	√	√	√		
3	**EAST CELL EAST OUTLETS**	**1EE**	**2EE**	**3EE**	**4EE**				
	Damage (Spalling, Cracking, etc.)	√	√	√	**NS**				
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
4	**EAST CELL SOUTH OUTLETS**	**1ES**	**2ES**	**3ES**	**4ES**	**5ES**	**6ES**	**7ES**	
	Damage (Spalling, Cracking, etc.)	√	√	**NS**	√	√	**NS**	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	**NS**	√	√	√	4ES - Sediment in pipe.
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	**NS**	√	**NS**	√	√	√	2ES, 4ES - Vegetation overgrowth around outfall structure.
5	**EAST CELL SOUTH OUTLETS**	**8ES**	**9ES**	**10ES**	**11ES**				
	Damage (Spalling, Cracking, etc.)	√	**NS**	√	√				
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
6	**EAST CELL WEST OUTLETS**	**1EW**	**2EW**	**3EW**	**4EW**	**5EW**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√			

COMMENTS

Removed debris and trash as necessary

FORM SWM-2 WEST

MONTHLY INSPECTION CHECKLIST

PERIMETER ROAD DRAINAGE OUTLETS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 01/17/2025 | **Inspected By: Claire Winter**

	INSPECTION TASK	STRUCTURE NUMBER								REMARKS
1	**WEST CELL NORTH OUTLETS**	**1WN**	**2WN**	**3WN**						
	Damage (Spalling, Cracking, etc.)	√	**NS**	√						
	Erosion Around Structure	√	√	√						
	Settlement Along Structure	√	√	√						
	Standing Water	√	√	√						
	Sediment/Debris in Pipe	√	√	√						
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√						
	I/O Sediments and Debris	√	√	√						
	I/O Vegetative Growth	√	**NS**	√						2WN - Excess vegetation growth at the outfall structure.
2	**WEST CELL EAST OUTLETS**	**1WE**	**2WE**	**3WE**	**4WE**	**5WE**	**6WE**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	**NS**	√	**NS**			4WE, 6WE - Excess vegetation growth at the outfall structure.
3	**WEST CELL SOUTH OUTLETS**	**1WS**	**2WS**	**3WS**	**4WS**	**5WS**	**6WS**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√	√			
4	**WEST CELL WEST OUTLETS**	**1WW**	**2WW**	**3WW**	**4WW**	**5WW**	**6WW**	**7WW**	**8WW**	
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	√	√	**NS**	√	√	√	√	4WW - Excess vegetation growth at the outfall structure.

COMMENTS

Removed debris and trash as necessary.

FORM SWM-3

MONTHLY INSPECTION CHECKLIST

DOWNDRAINS, FLARED END SECTIONS, PIPE TRENCHES, AND ENERGY DISSIPATORS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 01/17/2025 | **Inspected By: Claire Winter**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
3	**Downdrain Pipe Trenches**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench	√	√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	
	Downdrain Pipe Trenches	**DDE8**	**DDE9**	**DDE10**					
	Damaged Pipe Trenches	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation	√	√	√					
	Pipe Trench Settlement	√	√	√					
	Erosion Around Pipe Trench	√	√	√					
	Damaged Downdrain Connections	√	√	√					
	Downdrain Pipe Trenches	**DDWl**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench		√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
4	**Downdrain Outlet Protection**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	
	Downdrain Outlet Protection	**DDE8**	**DDE9**	**DDE10**					
	Riprap Displacement	√	√	√					
	Flow from CPP Discharge Pipes	√	√	√					
	Vegetative Growth	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation and Debris	√	√	√					
	Erosion Around Structure	√	√	√					
	Structure Settlement	√	√	√					
	Downdrain Outlet Protection	**DDWl**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

FORM DP-1

STORMWATER SYSTEM: SWM-1, SWM-2 AND SWM-3

JANUARY 2025

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
1/17/2025	4ES	Sediment in pipe.	Sediment observed in pipe, no impact on drainage performance, will continue to monitor.
1/17/2025	2EN, 7EN, 2ES, 4ES,2WN, 4WE, 6WE, 4WW	Vegetative overgrowth observed around outfall structures.	No impact on drainage performance was monitored. Will continue to monitor.

Date: 1/17/2025

Inspected By: Claire Winter

Signature: Claire Winter

FORM SWM-1
MONTHLY INSPECTION CHECKLIST
DRAINAGE CHANNELS AND DRAINS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 02/21/2025 | **Inspected By: Zara Castillo**

	INSPECTION TASK	CHANNEL / DRAIN NUMBER							REMARKS
1	**V-SHAPED w/ PATH**	**1-1**	**2-1**	**3-1**	**3-2**	**3-3**	**4**	**5-4**	
	Standing Water	√	√	√	√	√	√	√	
	Sediments and Debris	√	√	√	√	√	√	√	
	Erosion/Washouts	√	√	√	√	√	√	√	
	Sinkholes	√	√	√	√	√	√	√	
	Cleanouts	√	√	√	√	√	√	√	
	Flow at Toe Drains	√	√	√	√	√	√	√	
	Flow at Culverts	√	√	√	√	√	√	√	
	Damage at Drains/Culverts	√	√	√	√	√	√	√	3-1 - Catch basin damaged in brush fire
	Overgrown Vegetation	√	√	√	√	√	√	√	
2	**V-SHAPED CHANNEL**	**6**	**8A**	**8B**	**11A**	**11B**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
3	**V-SHAPED w/ BERM**	**1-2**							
	Overgrown Vegetation	√							
	Standing Water	√							
	Sediments and Debris	√							
	Erosion/Washouts	√							
	Settlement and Sinkholes	√							
4	**TRAPEZOIDAL CHANNEL**	**7**	**9**	**10**					
	Overgrown Vegetation	√	√	√					
	Standing Water	√	√	√					
	Sediments and Debris	√	√	√					
	Erosion/Washouts	√	√	√					
	Settlement and Sinkholes	√	√	√					
5	**TRAPEZOIDAL w/ RIPRAP**	**2-2**	**3-4**	**5-1**	**5-2**	**5-3**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
	Loss of Riprap	√	√	√	√	√			

COMMENTS:

FORM SWM-2 EAST

MONTHLY INSPECTION CHECKLIST

PERIMETER ROAD DRAINAGE OUTLETS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 02/21/2025 | **Inspected By: Zara Castillo**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
1	**EAST CELL NORTH OUTLETS**	**1EN**	**2EN**	**3EN**	**4EN**	**5EN**	**6EN**	**7EN**	
	Damage (Spalling, Cracking, etc.)	√	**NS**	√	√	√	√	**NS**	2EN, 7EN - Damaged outfall structure, does not impact drainage performance.
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	**NS**	√	√	√	√	**NS**	2EN, 7EN - Excess vegetation growth around outfall structure.
2	**EAST CELL NORTH OUTLETS**	**8EN**	**9EN**	**10EN**	**11EN**	**12EN**	**13EN**		
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√		
	Erosion Around Structure	√	√	√	√	√	√		
	Settlement Along Structure	√	√	√	√	√	√		
	Standing Water	√	√	√	√	√	√		
	Sediment/Debris in Pipe	√	√	√	√	√	√		
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√		
	I/O Sediments and Debris	√	√	√	√	√	√		
	I/O Vegetative Growth	√	√	√	√	√	√		
3	**EAST CELL EAST OUTLETS**	**1EE**	**2EE**	**3EE**	**4EE**				
	Damage (Spalling, Cracking, etc.)	√	√	√	**NS**				
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
4	**EAST CELL SOUTH OUTLETS**	**1ES**	**2ES**	**3ES**	**4ES**	**5ES**	**6ES**	**7ES**	
	Damage (Spalling, Cracking, etc.)	√	√	**NS**	√	√	**NS**	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	**NS**	√	√	√	4ES - Sediment in pipe.
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	**NS**	√	**NS**	√	√	√	2ES, 4ES - Vegetation overgrowth around outfall structure.
5	**EAST CELL SOUTH OUTLETS**	**8ES**	**9ES**	**10ES**	**11ES**				
	Damage (Spalling, Cracking, etc.)	√	**NS**	√	√				
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
6	**EAST CELL WEST OUTLETS**	**1EW**	**2EW**	**3EW**	**4EW**	**5EW**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√			

COMMENTS

Removed debris and trash as necessary

FORM SWM-2 WEST

MONTHLY INSPECTION CHECKLIST

PERIMETER ROAD DRAINAGE OUTLETS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 02/21/2025 | **Inspected By: Zara Castillo**

	INSPECTION TASK	STRUCTURE NUMBER								REMARKS
1	**WEST CELL NORTH OUTLETS**	**1WN**	**2WN**	**3WN**						
	Damage (Spalling, Cracking, etc.)	√	**NS**	√						
	Erosion Around Structure	√	√	√						
	Settlement Along Structure	√	√	√						
	Standing Water	√	√	√						
	Sediment/Debris in Pipe	√	√	√						
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√						
	I/O Sediments and Debris	√	√	√						
	I/O Vegetative Growth	√	**NS**	√						2WN - Excess vegetation growth at the outfall structure.
2	**WEST CELL EAST OUTLETS**	**1WE**	**2WE**	**3WE**	**4WE**	**5WE**	**6WE**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	**NS**	√	**NS**			4WE, 6WE - Excess vegetation growth at the outfall structure.
3	**WEST CELL SOUTH OUTLETS**	**1WS**	**2WS**	**3WS**	**4WS**	**5WS**	**6WS**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√	√			
4	**WEST CELL WEST OUTLETS**	**1WW**	**2WW**	**3WW**	**4WW**	**5WW**	**6WW**	**7WW**	**8WW**	
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	√	√	**NS**	√	√	√	√	4WW - Excess vegetation growth at the outfall structure.

COMMENTS

Removed debris and trash as necessary.

FORM SWM-3

MONTHLY INSPECTION CHECKLIST

DOWNDRAINS, FLARED END SECTIONS, PIPE TRENCHES, AND ENERGY DISSIPATORS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 02/21/2025 | **Inspected By: Zara Castillo**

INSPECTION TASK		STRUCTURE NUMBER							REMARKS
3	**Downdrain Pipe Trenches**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench	√	√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	
	Downdrain Pipe Trenches	**DDE8**	**DDE9**	**DDE10**					
	Damaged Pipe Trenches	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation	√	√	√					
	Pipe Trench Settlement	√	√	√					
	Erosion Around Pipe Trench	√	√	√					
	Damaged Downdrain Connections	√	√	√					
	Downdrain Pipe Trenches	**DDWl**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench		√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

INSPECTION TASK		STRUCTURE NUMBER							REMARKS
4	**Downdrain Outlet Protection**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	
	Downdrain Outlet Protection	**DDE8**	**DDE9**	**DDE10**					
	Riprap Displacement	√	√	√					
	Flow from CPP Discharge Pipes	√	√	√					
	Vegetative Growth	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation and Debris	√	√	√					
	Erosion Around Structure	√	√	√					
	Structure Settlement	√	√	√					
	Downdrain Outlet Protection	**DDWl**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

FORM DP-1

STORMWATER SYSTEM: SWM-1, SWM-2 AND SWM-3

FEBRUARY 2025

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
2/21/2025	4ES	Sediment in pipe.	Sediment observed in pipe, no impact on drainage performance, will continue to monitor.
11/15/2024	3ES, 9ES, 5EW, 3WN, 2WS, 3WS, 2WE, 4WE, 5WE	Standing water in pipe at outfall structure.	None
2/21/2025	2EN, 7EN, 2ES, 4ES,2WN, 4WE, 6WE, 4WW	Vegetative overgrowth observed around outfall structures.	No impact on drainage performance was monitored. Will continue to monitor.

Date: 2/21/2025

Inspected By: Zara Castillo

Signature: Zara Castillo

FORM SWM-1
MONTHLY INSPECTION CHECKLIST
DRAINAGE CHANNELS AND DRAINS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 03/18/2025 | **Inspected By: Abigail Donnelly**

	INSPECTION TASK	CHANNEL / DRAIN NUMBER							REMARKS
1	**V-SHAPED w/ PATH**	**1-1**	**2-1**	**3-1**	**3-2**	**3-3**	**4**	**5-4**	
	Standing Water	√	√	√	√	√	√	√	
	Sediments and Debris	√	√	√	√	√	√	√	
	Erosion/Washouts	√	√	√	√	√	√	√	
	Sinkholes	√	√	√	√	√	√	√	
	Cleanouts	√	√	√	√	√	√	√	
	Flow at Toe Drains	√	√	√	√	√	√	√	
	Flow at Culverts	√	√	√	√	√	√	√	
	Damage at Drains/Culverts	√	√	√	√	√	√	√	3-1 - Catch basin damaged in brush fire
	Overgrown Vegetation	√	√	√	√	√	√	√	
2	**V-SHAPED CHANNEL**	**6**	**8A**	**8B**	**11A**	**11B**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
3	**V-SHAPED w/ BERM**	**1-2**							
	Overgrown Vegetation	√							
	Standing Water	√							
	Sediments and Debris	√							
	Erosion/Washouts	√							
	Settlement and Sinkholes	√							
4	**TRAPEZOIDAL CHANNEL**	**7**	**9**	**10**					
	Overgrown Vegetation	√	√	√					
	Standing Water	√	√	√					
	Sediments and Debris	√	√	√					
	Erosion/Washouts	√	√	√					
	Settlement and Sinkholes	√	√	√					
5	**TRAPEZOIDAL w/ RIPRAP**	**2-2**	**3-4**	**5-1**	**5-2**	**5-3**			
	Overgrown Vegetation	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediments and Debris	√	√	√	√	√			
	Erosion/Washouts	√	√	√	√	√			
	Settlement and Sinkholes	√	√	√	√	√			
	Loss of Riprap	√	√	√	√	√			

COMMENTS:

FORM SWM-2 EAST
MONTHLY INSPECTION CHECKLIST
PERIMETER ROAD DRAINAGE OUTLETS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Date: 03/18/2025 | **Inspected By: Abigail Donnelly**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
1	**EAST CELL NORTH OUTLETS**	**1EN**	**2EN**	**3EN**	**4EN**	**5EN**	**6EN**	**7EN**	
	Damage (Spalling, Cracking, etc.)	√	**NS**	√	√	√	√	**NS**	2EN, 7EN - Damaged outfall structure, does not impact drainage performance.
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	**NS**	√	√	√	√	**NS**	2EN, 7EN - Excess vegetation growth around outfall structure.
2	**EAST CELL NORTH OUTLETS**	**8EN**	**9EN**	**10EN**	**11EN**	**12EN**	**13EN**		
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√		
	Erosion Around Structure	√	√	√	√	√	√		
	Settlement Along Structure	√	√	√	√	√	√		
	Standing Water	√	√	√	√	√	√		
	Sediment/Debris in Pipe	√	√	√	√	√	√		
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√		
	I/O Sediments and Debris	√	√	√	√	√	√		
	I/O Vegetative Growth	√	√	√	√	√	√		
3	**EAST CELL EAST OUTLETS**	**1EE**	**2EE**	**3EE**	**4EE**				
	Damage (Spalling, Cracking, etc.)	√	√	√	**NS**				
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
4	**EAST CELL SOUTH OUTLETS**	**1ES**	**2ES**	**3ES**	**4ES**	**5ES**	**6ES**	**7ES**	
	Damage (Spalling, Cracking, etc.)	√	√	**NS**	√	√	**NS**	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	**NS**	√	√	√	4ES - Sediment in pipe.
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	**NS**	√	**NS**	√	√	√	2ES, 4ES - Vegetation overgrowth around outfall structure.
5	**EAST CELL SOUTH OUTLETS**	**8ES**	**9ES**	**10ES**	**11ES**				
	Damage (Spalling, Cracking, etc.)	√	**NS**	√	√				
	Erosion Around Structure	√	√	√	√				
	Settlement Along Structure	√	√	√	√				
	Standing Water	√	√	√	√				
	Sediment/Debris in Pipe	√	√	√	√				
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√				
	I/O Sediments and Debris	√	√	√	√				
	I/O Vegetative Growth	√	√	√	√				
6	**EAST CELL WEST OUTLETS**	**1EW**	**2EW**	**3EW**	**4EW**	**5EW**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√			
	Standing Water	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√			

COMMENTS

Removed debris and trash as necessary

FORM SWM-2 WEST

MONTHLY INSPECTION CHECKLIST

PERIMETER ROAD DRAINAGE OUTLETS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 03/18/2025 | **Inspected By: Abigail Donnelly**

	INSPECTION TASK	STRUCTURE NUMBER								REMARKS
1	**WEST CELL NORTH OUTLETS**	**1WN**	**2WN**	**3WN**						
	Damage (Spalling, Cracking, etc.)	√	**NS**	√						
	Erosion Around Structure	√	√	√						
	Settlement Along Structure	√	√	√						
	Standing Water	√	√	√						
	Sediment/Debris in Pipe	√	√	√						
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√						
	I/O Sediments and Debris	√	√	√						
	I/O Vegetative Growth	√	**NS**	√						2WN - Excess vegetation growth at the outfall structure.
2	**WEST CELL EAST OUTLETS**	**1WE**	**2WE**	**3WE**	**4WE**	**5WE**	**6WE**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	**NS**	√	**NS**			4WE, 6WE - Excess vegetation growth at the outfall structure.
3	**WEST CELL SOUTH OUTLETS**	**1WS**	**2WS**	**3WS**	**4WS**	**5WS**	**6WS**			
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√			
	Erosion Around Structure	√	√	√	√	√	√			
	Settlement Along Structure	√	√	√	√	√	√			
	Standing Water	√	√	√	√	√	√			
	Sediment/Debris in Pipe	√	√	√	√	√	√			
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√			
	I/O Sediments and Debris	√	√	√	√	√	√			
	I/O Vegetative Growth	√	√	√	√	√	√			
4	**WEST CELL WEST OUTLETS**	**1WW**	**2WW**	**3WW**	**4WW**	**5WW**	**6WW**	**7WW**	**8WW**	
	Damage (Spalling, Cracking, etc.)	√	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	√	
	Settlement Along Structure	√	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	√	
	Sediment/Debris in Pipe	√	√	√	√	√	√	√	√	
	Rip-Rap Inlet Outlet Protection (I/O) Displacement and Settlement	√	√	√	√	√	√	√	√	
	I/O Sediments and Debris	√	√	√	√	√	√	√	√	
	I/O Vegetative Growth	√	√	√	**NS**	√	√	√	√	4WW - Excess vegetation growth at the outfall structure.

COMMENTS

Removed debris and trash as necessary.

FORM SWM-3

MONTHLY INSPECTION CHECKLIST

DOWNDRAINS, FLARED END SECTIONS, PIPE TRENCHES, AND ENERGY DISSIPATORS

STORMWATER MANAGEMENT SYSTEM

BROOKFIELD AVENUE LANDFILL

Date: 03/18/2025 | **Inspected By: Abigail Donnelly**

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
3	**Downdrain Pipe Trenches**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench	√	√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	
	Downdrain Pipe Trenches	**DDE8**	**DDE9**	**DDE10**					
	Damaged Pipe Trenches	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation	√	√	√					
	Pipe Trench Settlement	√	√	√					
	Erosion Around Pipe Trench	√	√	√					
	Damaged Downdrain Connections	√	√	√					
	Downdrain Pipe Trenches	**DDWI**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Damaged Pipe Trenches	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation	√	√	√	√	√	√	√	
	Pipe Trench Settlement	√	√	√	√	√	√	√	
	Erosion Around Pipe Trench		√	√	√	√	√	√	
	Damaged Downdrain Connections	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

	INSPECTION TASK	STRUCTURE NUMBER							REMARKS
4	**Downdrain Outlet Protection**	**DDE1**	**DDE2**	**DDE3**	**DDE4**	**DDE5**	**DDE6**	**DDE7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	
	Downdrain Outlet Protection	**DDE8**	**DDE9**	**DDE10**					
	Riprap Displacement	√	√	√					
	Flow from CPP Discharge Pipes	√	√	√					
	Vegetative Growth	√	√	√					
	Standing Water	√	√	√					
	Sediment Accumulation and Debris	√	√	√					
	Erosion Around Structure	√	√	√					
	Structure Settlement	√	√	√					
	Downdrain Outlet Protection	**DDWI**	**DDW2**	**DDW3**	**DDW4**	**DDW5**	**DDW6**	**DDW7**	
	Riprap Displacement	√	√	√	√	√	√	√	
	Flow from CPP Discharge Pipes	√	√	√	√	√	√	√	
	Vegetative Growth	√	√	√	√	√	√	√	
	Standing Water	√	√	√	√	√	√	√	
	Sediment Accumulation and Debris	√	√	√	√	√	√	√	
	Erosion Around Structure	√	√	√	√	√	√	√	
	Structure Settlement	√	√	√	√	√	√	√	

COMMENTS

Site outlets are stable and functional

FORM DP-1

STORMWATER SYSTEM: SWM-1, SWM-2 AND SWM-3

MARCH 2025

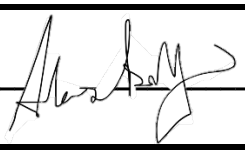
DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
3/18/2025	4ES	Sediment in pipe.	Sediment observed in pipe, no impact on drainage performance, will continue to monitor.
3/18/2025	2EN, 7EN, 2ES, 4ES,2WN, 4WE, 6WE, 4WW	Vegetative overgrowth observed around outfall structures.	No impact on drainage performance was monitored. Will continue to monitor.

Date: 3/18/2025

Inspected By: Abigail Donnelly

Signature: 

APPENDIX G

ANCILLARY SYSTEMS

FORM ANS-1
MONTHLY INSPECTION CHECKLIST
ANCILLARY SYSTEMS
BROOKFIELD AVENUE LANDFILL

Date: 4/16/2024 **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
1	**ROADS**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	√	√	√	√	√	√	
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout	**NS**	√	√	√	√	√	√	Washout observed, black demarcation fabric visible.
	Roadway Pavement Condition	**NS**	√	√	**NS**	√	√	√	Surface cracks observed in roadway pavement in Zone 1 and Zone 4A.
2	**Walking Trails**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	**NS**	√	**NS**	**NS**	**NS**	**NS**	Rutting observed along walking trails in Zones 2, 4A, 4B, 5, and 6.
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout	√	√	√	**NS**	√	**NS**	√	Exposed erosion control fabric in Zones 4A and 5.
	Trail Stone Condition	√	√	√	√	√	√	√	
3	**Fencing , Locks, Gates**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Vandalism	√	√	√	√	√	√	√	
	Debris	√	√	√	√	√	√	√	
	Gate Alignment and Swing Action	√	√	√	√	√	√	√	
	Lock Lubrication and Function	√	√	√	√	√	√	√	
	Vegetation	√	√	√	√	√	√	√	
4	**Site Lighting**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Outage	√	√	√	√	√	√	√	
5	**LMS Confined Space Entry Signs**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√		√	√		√	√	
6	**Litter**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Illegal Dumping	√	√	√	√	√	√	√	

COMMENTS

Surface cracks in Zone 1 measure 0.5" to 1" wide - no change since July 2020.

Surface cracks in Zone 4A measure 0.25" to 0.5" wide no change since July 2020.

FORM DP-1
ANCILLARY SYSTEMS: ANS-1
APRIL 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
4/16/2024	Zone 1 and 4A	Surface pavement cracking	None
4/16/2024	Zones 2, 4A, 4B, 5, and 6	Minor rutting at walking paths	None
4/16/2024	Zones 4A and 5	Exposed erosion control fabric	None
4/16/2024	Zone 1 and 4A	Washout, demarcation fabric exposed	Cone placed in area

Date: 4/16/2024

Inspected By: I. Gonzalez

Signature: _____

FORM ANS-1

MONTHLY INSPECTION CHECKLIST

ANCILLARY SYSTEMS

BROOKFIELD AVENUE LANDFILL

Date: 5/14/2024 **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
1	**ROADS**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	√	√	√	√	√	√	
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout	**NS**	√	√	√	√	√	√	Washout observed, black demarcation fabric visible.
	Roadway Pavement Condition	**NS**	√	√	**NS**	√	√	√	Surface cracks observed in roadway pavement in Zone 1 and Zone 4A.
2	**Walking Trails**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	**NS**	√	**NS**	**NS**	**NS**	**NS**	Rutting observed along walking trails in Zones 2, 4A, 4B, 5, and 6.
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout	√	√	√	**NS**	√	**NS**	√	Exposed erosion control fabric in Zones 4A and 5.
	Trail Stone Condition	√	√	√	√	√	√	√	
3	**Fencing , Locks, Gates**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Vandalism	√	√	√	√	√	√	√	
	Debris	√	√	√	√	√	√	√	
	Gate Alignment and Swing Action	√	√	√	√	√	√	√	
	Lock Lubrication and Function	√	√	√	√	√	√	√	
	Vegetation	√	√	√	√	√	√	√	
4	**Site Lighting**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Outage	√	√	√	√	√	√	√	
5	**LMS Confined Space Entry Signs**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√		√	√		√	√	
6	**Litter**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Illegal Dumping	√	√	√	√	√	√	√	

COMMENTS

Surface cracks in Zone 1 measure 0.5" to 1" wide - no change since July 2020.

Surface cracks in Zone 4A measure 0.25" to 0.5" wide no change since July 2020.

FORM DP-1
ANCILLARY SYSTEMS: ANS-1
MAY 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
5/14/2024	Zone 1 and 4A	Surface pavement cracking	None
5/14/2024	Zones 2, 4A, 4B, 5, and 6	Minor rutting at walking paths	None
5/14/2024	Zones 4A and 5	Exposed erosion control fabric	None
5/14/2024	Zone 1 and 4A	Washout, demarcation fabric exposed	Cone placed in area

Date: 5/14/2024

Inspected By: I. Gonzalez

Signature: _____

FORM ANS-1

MONTHLY INSPECTION CHECKLIST

ANCILLARY SYSTEMS

BROOKFIELD AVENUE LANDFILL

Date: 6/18/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
1	**ROADS**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	√	√	√	√	√	√	
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout	**NS**	√	√	√	√	√	√	Washout observed, black demarcation fabric visible.
	Roadway Pavement Condition	**NS**	√	√	**NS**	√	**NS**	√	Surface cracks were observed in roadway pavement in Zone 1, 4A, and 5.
2	**Walking Trails**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	**NS**	√	**NS**	**NS**	**NS**	**NS**	Rutting observed along walking trails in Zones 2, 4A, 4B, 5, and 6.
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout	√	√	√	**NS**	√	**NS**	√	Exposed erosion control fabric in Zones 4A and 5.
	Trail Stone Condition	√	√	√	√	√	√	√	
3	**Fencing , Locks, Gates**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Vandalism	√	√	√	√	√	√	√	
	Debris	√	√	√	√	√	√	√	
	Gate Alignment and Swing Action	√	√	√	√	√	√	√	
	Lock Lubrication and Function	√	√	√	√	√	√	√	
	Vegetation	√	√	√	√	√	√	√	
4	**Site Lighting**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Outage	√	√	√	√	√	√	√	
5	**LMS Confined Space Entry Signs**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√		√	√		√	√	
6	**Litter**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Illegal Dumping	**NS**	√	√	√	√	√	√	Over +100 bags of dog waste were removed from outfalls in Zone 1.

COMMENTS

Surface cracks in Zone 1 measure 0.5" to 2" wide. Remeasured in June 2022.

Surface cracks in Zone 5 measure 0.25" to 1.5" wide. Remeasured in June 2022.

Surface cracks in Zone 4A measure 0.25" to 0.5" wide no change since July 2020.

FORM DP-1
ANCILLARY SYSTEMS: ANS-1
JUNE 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
6/18/2024	Zone 1 and 4A	Surface pavement cracking	None
6/18/2024	Zones 2, 4A, 4B, 5, and 6	Minor rutting at walking paths	None
6/18/2024	Zones 4A and 5	Exposed erosion control fabric	None
6/18/2024	Zone 1 and 4A	Washout, demarcation fabric exposed	Cone placed in area
6/18/2024	Zone 1	Illegal Dumping in drains	100+ bags of dog waste removed during drain clearing event.

Date: 6/18/2024

Inspected By: I. Gonzalez

Signature: _____

FORM ANS-1

MONTHLY INSPECTION CHECKLIST

ANCILLARY SYSTEMS

BROOKFIELD AVENUE LANDFILL

Date: 7/17/2024 **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
1	**ROADS**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	√	√	√	√	√	√	
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout		√	√	√	√	√	√	
	Roadway Pavement Condition	**NS**	√	√	**NS**	√	**NS**	√	Surface cracks were observed in roadway pavement in Zone 1, 4A, and 5.
2	**Walking Trails**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	**NS**	√	**NS**	**NS**	**NS**	**NS**	Rutting observed along walking trails in Zones 2, 4A, 4B, 5, and 6.
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout	√	√	√	√	√	√	√	
	Trail Stone Condition	√	√	√	√	√	√	√	
3	**Fencing , Locks, Gates**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Vandalism	√	√	√	√	√	√	√	
	Debris	√	√	√	√	√	√	√	
	Gate Alignment and Swing Action	√	√	√	√	√	√	√	
	Lock Lubrication and Function	√	√	√	√	√	√	√	
	Vegetation	√	√	√	√	√	√	√	
4	**Site Lighting**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Outage	√	√	√	√	√	√	√	
5	**LMS Confined Space Entry Signs**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√		√	√		√	√	
6	**Litter**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Illegal Dumping	√	√	√	√	√	√	√	

COMMENTS

Surface cracks in Zone 1 measure 0.5" to 3" wide. Remeasured in July 2024.

Surface cracks in Zone 5 measure 0.25" to 1.5" wide. Remeasured in July 2024.

Surface cracks in Zone 4A measure 0.25" to 1.5" wide. Remeasured in July 2024.

FORM DP-1
ANCILLARY SYSTEMS: ANS-1
JULY 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
7/17/2024	Zone 1 and 4A	Surface pavement cracking	None
7/17/2024	Zones 2, 4A, 4B, 5, and 6	Minor rutting at walking paths	None

Date: 7/17/2024

Inspected By: I. Gonzalez

Signature: 

FORM ANS-1

MONTHLY INSPECTION CHECKLIST

ANCILLARY SYSTEMS

BROOKFIELD AVENUE LANDFILL

Date: 8/8/2024 **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
1	**ROADS**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	√	√	√	√	√	√	
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout		√	√	√	√	√	√	
	Roadway Pavement Condition	**NS**	√	√	**NS**	√	**NS**	√	Surface cracks were observed in roadway pavement in Zone 1, 4A, and 5.
2	**Walking Trails**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	**NS**	√	**NS**	**NS**	**NS**	**NS**	Rutting observed along walking trails in Zones 2, 4A, 4B, 5, and 6.
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout	√	√	√	√	√	√	√	
	Trail Stone Condition	√	√	√	√	√	√	√	
3	**Fencing , Locks, Gates**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Vandalism	√	√	√	√	√	√	√	
	Debris	√	√	√	√	√	√	√	
	Gate Alignment and Swing Action	√	√	√	√	√	√	√	
	Lock Lubrication and Function	√	√	√	√	√	√	√	
	Vegetation	√	√	√	√	√	√	√	
4	**Site Lighting**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Outage	√	√	√	√	√	√	√	
5	**LMS Confined Space Entry Signs**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√		√	√		√	√	
6	**Litter**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Illegal Dumping	√	√	√	√	√	√	√	

COMMENTS

Surface cracks in Zone 1 measure 0.5" to 3" wide. Remeasured in July 2024.

Surface cracks in Zone 5 measure 0.25" to 1.5" wide. Remeasured in July 2024.

Surface cracks in Zone 4A measure 0.25" to 1.5" wide. Remeasured in July 2024.

FORM DP-1
ANCILLARY SYSTEMS: ANS-1
AUGUST 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
8/8/2024	Zone 1 and 4A	Surface pavement cracking	None
8/8/2024	Zones 2, 4A, 4B, 5, and 6	Rutting at walking paths	Rutting volume calculated

Date: 8/8/2024

Inspected By: I. Gonzalez

Signature: _____

FORM ANS-1

MONTHLY INSPECTION CHECKLIST

ANCILLARY SYSTEMS

BROOKFIELD AVENUE LANDFILL

Date: 9/17/2024 **Inspected By: Elise He**

	INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
1	**ROADS**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	√	√	√	√	√	√	
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout		√	√	√	√	√	√	
	Roadway Pavement Condition	**NS**	√	√	**NS**	√	**NS**	√	Surface cracks were observed in roadway pavement in Zone 1, 4A, and 5.
2	**Walking Trails**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	**NS**	√	**NS**	**NS**	**NS**	**NS**	Rutting observed along walking trails in Zones 2, 4A, 4B, 5, and 6.
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout	√	√	√	√	√	√	√	
	Trail Stone Condition	√	√	√	√	√	√	√	
3	**Fencing , Locks, Gates**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Vandalism	√	√	√	√	√	√	√	
	Debris	√	√	√	√	√	√	√	
	Gate Alignment and Swing Action	√	√	√	√	√	√	√	
	Lock Lubrication and Function	√	√	√	√	√	√	√	
	Vegetation	√	√	√	√	√	√	√	
4	**Site Lighting**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Outage	√	√	√	√	√	√	√	
5	**LMS Confined Space Entry Signs**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√		√	√		√	√	
6	**Litter**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Illegal Dumping	√	√	√	√	√	√	√	

COMMENTS

Surface cracks in Zone 1 measure 0.5" to 3" wide. Remeasured in July 2024.

Surface cracks in Zone 5 measure 0.25" to 1.5" wide. Remeasured in July 2024.

Surface cracks in Zone 4A measure 0.25" to 1.5" wide. Remeasured in July 2024.

FORM DP-1			
ANCILLARY SYSTEMS: ANS-1			
SEPTEMBER 2024			
DESCRIPTION OF DEFICIENCIES AND PROBLEMS			
BROOKFIELD AVENUE LANDFILL			
Date	**Location**	**Description**	**Corrective Action Taken**
9/17/2024	Zone 1 and 4A	Surface pavement cracking	None
9/17/2024	Zones 2, 4A, 4B, 5, and 6	Rutting at walking paths	Rutting volume calculated
Date: 9/17/2024		**Inspected By: E. He**	
		Signature: _____	

FORM ANS-1

MONTHLY INSPECTION CHECKLIST

ANCILLARY SYSTEMS

BROOKFIELD AVENUE LANDFILL

Date: 10/17/2024 **Inspected By: Elise He**

	INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
1	**ROADS**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	√	√	√	√	√	√	
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout		√	√	√	√	√	√	
	Roadway Pavement Condition	**NS**	√	√	**NS**	√	**NS**	√	Surface cracks were observed in roadway pavement in Zone 1, 4A, and 5.
2	**Walking Trails**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	**NS**	√	**NS**	**NS**	**NS**	**NS**	Rutting observed along walking trails in Zones 2, 4A, 4B, 5, and 6.
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout	√	√	√	√	√	√	√	
	Trail Stone Condition	√	√	√	√	√	√	√	
3	**Fencing , Locks, Gates**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Vandalism	√	√	√	√	√	√	√	
	Debris	√	√	√	√	√	√	√	
	Gate Alignment and Swing Action	√	√	√	√	√	√	√	
	Lock Lubrication and Function	√	√	√	√	√	√	√	
	Vegetation	√	√	√	√	√	√	√	
4	**Site Lighting**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Outage	√	√	√	√	√	√	√	
5	**LMS Confined Space Entry Signs**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√		√	√		√	√	
6	**Litter**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Illegal Dumping	√	√	√	√	√	√	√	

COMMENTS

Surface cracks in Zone 1 measure 0.5" to 2" wide. Remeasured in October 2024.

Surface cracks in Zone 5 measure 0.25" to 1.5" wide. Remeasured in October 2024.

Surface cracks in Zone 4A measure 0.25" to 1.5" wide. Remeasured in OCtober 2024.

FORM DP-1
ANCILLARY SYSTEMS: ANS-1
OCTOBER 2024
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
10/17/2024	Zone 1 and 4A	Surface pavement cracking	Parks performed cold patchwork jobs, some areas still have wide cracks.
10/17/2024	Zones 2, 4A, 4B, 5, and 6	Rutting at walking paths	Rutting volume calculated for future fill.

Date: 10/17/2024

Inspected By: E. He

Signature: _____

FORM ANS-1

MONTHLY INSPECTION CHECKLIST

ANCILLARY SYSTEMS

BROOKFIELD AVENUE LANDFILL

Date: 11/15/2024 | **Inspected By: Ivan Gonzalez**

	INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
1	**ROADS**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	√	√	√	√	√	√	
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout		√	√	√	√	√	√	
	Roadway Pavement Condition	**NS**	√	√	**NS**	√	**NS**	√	Surface cracks were observed in roadway pavement in Zone 1, 4A, and 5.
2	**Walking Trails**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	**NS**	√	**NS**	**NS**	**NS**	**NS**	Rutting observed along walking trails in Zones 2, 4A, 4B, 5, and 6.
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout	√	√	√	√	√	√	√	
	Trail Stone Condition	√	√	√	√	√	√	√	
3	**Fencing , Locks, Gates**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Vandalism	√	√	√	√	√	√	√	
	Debris	√	√	√	√	√	√	√	
	Gate Alignment and Swing Action	√	√	√	√	√	√	√	
	Lock Lubrication and Function	√	√	√	√	√	√	√	
	Vegetation	√	√	√	√	√	√	√	
4	**Site Lighting**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Outage	√	√	√	√	√	√	√	
5	**LMS Confined Space Entry Signs**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√		√	√		√	√	
6	**Litter**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Illegal Dumping	√	√	√	√	√	√	√	

COMMENTS

Surface cracks in Zone 1 measure 0.5" to 2" wide. Remeasured in November 2024.

Surface cracks in Zone 5 measure 0.25" to 1.5" wide. Remeasured in November 2024.

Surface cracks in Zone 4A measure 0.25" to 1.5" wide. Remeasured in November 2024.

FORM DP-1

ANCILLARY SYSTEMS: ANS-1

NOVEMBER 2024

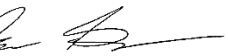
DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
11/15/2024	Zone 1 and 4A	Surface pavement cracking	Parks performed cold patchwork jobs, some areas still have wide cracks.
11/15/2024	Zones 2, 4A, 4B, 5, and 6	Rutting at walking paths	Rutting volume calculated for future fill.

Date: 11/15/2024

Inspected By: Ivan Gonzalez

Signature: 

FORM ANS-1									
MONTHLY INSPECTION CHECKLIST									
ANCILLARY SYSTEMS									
BROOKFIELD AVENUE LANDFILL									
Date: 12/18/2024		**Inspected By: Ivan Gonzalez**							
INSPECTION TASK		**INSPECTION ZONE NUMBER**							**REMARKS**
1	**ROADS**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	√	√	√	√	√	√	
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout		√	√	√	√	√	√	
	Roadway Pavement Condition	**NS**	√	√	**NS**	√	**NS**	√	Surface cracks were observed in roadway pavement in Zone 1, 4A, and 5.
2	**Walking Trails**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	**NS**	√	**NS**	**NS**	**NS**	**NS**	Rutting observed along walking trails in Zones 2, 4A, 4B, 5, and 6.
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout	√	√	√	√	√	√	√	
	Trail Stone Condition	√	√	√	√	√	√	√	
3	**Fencing , Locks, Gates**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Vandalism	√	√	√	√	√	√	√	
	Debris	√	√	√	√	√	√	√	
	Gate Alignment and Swing Action	√	√	√	√	√	√	√	
	Lock Lubrication and Function	√	√	√	√	√	√	√	
	Vegetation	√	√	√	√	√	√	√	
4	**Site Lighting**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Outage	√	√	√	√	√	√	√	
5	**LMS Confined Space Entry Signs**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√		√	√		√	√	
6	**Litter**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Illegal Dumping	√	√	√	√	√	√	√	
COMMENTS									
Surface cracks in Zone 1 measure 0.5" to 2" wide. Remeasured in December 2024.									
Surface cracks in Zone 5 measure 0.25" to 1.5" wide. Remeasured in December 2024.									
Surface cracks in Zone 4A measure 0.25" to 1.5" wide. Remeasured in December 2024.									

FORM DP-1

ANCILLARY SYSTEMS: ANS-1

DECEMBER 2024

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
12/18/2024	Zone 1 and 4A	Surface pavement cracking	Parks performed cold patchwork jobs, some areas still have wide cracks.
12/18/2024	Zones 2, 4A, 4B, 5, and 6	Rutting at walking paths	Rutting volume calculated for future fill.

Date: 12/18/2024

Inspected By: Ivan Gonzalez

Signature: 

FORM ANS-1
MONTHLY INSPECTION CHECKLIST
ANCILLARY SYSTEMS
BROOKFIELD AVENUE LANDFILL

Date: 01/17/2025 | **Inspected By: Claire Winter**

	INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
1	**ROADS**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	√	√	√	√	√	√	
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout		√	√	√	√	√	√	
	Roadway Pavement Condition	**NS**	√	√	**NS**	√	**NS**	√	Surface cracks were observed in roadway pavement in Zone 1, 4A, and 5.
2	**Walking Trails**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	**NS**	√	**NS**	**NS**	**NS**	**NS**	Rutting observed along walking trails in Zones 2, 4A, 4B, 5, and 6.
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout	√	√	√	√	√	√	√	
	Trail Stone Condition	√	√	√	√	√	√	√	
3	**Fencing , Locks, Gates**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Vandalism	√	√	√	√	√	√	√	
	Debris	√	√	√	√	√	√	√	
	Gate Alignment and Swing Action	√	√	√	√	√	√	√	
	Lock Lubrication and Function	√	√	√	√	√	√	√	
	Vegetation	√	√	√	√	√	√	√	
4	**Site Lighting**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Outage	√	√	√	√	√	√	√	
5	**LMS Confined Space Entry Signs**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√		√	√		√	√	
6	**Litter**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Illegal Dumping	√	√	√	√	√	√	√	

COMMENTS

Surface cracks in Zone 1 measure 0.5" to 2" wide. Remeasured in December 2024.

Surface cracks in Zone 5 measure 0.25" to 1.5" wide. Remeasured in December 2024.

Surface cracks in Zone 4A measure 0.25" to 1.5" wide. Remeasured in December 2024.

FORM DP-1

ANCILLARY SYSTEMS: ANS-1

JANUARY 2025

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
1/17/2025	Zone 1 and 4A	Surface pavement cracking	Parks performed cold patchwork jobs, some areas still have wide cracks.
1/17/2025	Zones 2, 4A, 4B, 5, and 6	Rutting at walking paths	Rutting volume calculated for future fill.

Date: 1/17/2025

Inspected By: Claire Winter

Signature: Claire Winter

FORM ANS-1
MONTHLY INSPECTION CHECKLIST
ANCILLARY SYSTEMS
BROOKFIELD AVENUE LANDFILL

Date: 02/21/2025 | **Inspected By: Zara Castillo**

	INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
1	**ROADS**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	√	√	√	√	√	√	
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout		√	√	√	√	√	√	
	Roadway Pavement Condition	**NS**	√	√	**NS**	√	**NS**	√	Surface cracks were observed in roadway pavement in Zone 1, 4A, and 5.
2	**Walking Trails**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	**NS**	√	**NS**	**NS**	**NS**	**NS**	Rutting observed along walking trails in Zones 2, 4A, 4B, 5, and 6.
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout	√	√	√	√	√	√	√	
	Trail Stone Condition	√	√	√	√	√	√	√	
3	**Fencing , Locks, Gates**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Vandalism	√	√	√	√	√	√	√	
	Debris	√	√	√	√	√	√	√	
	Gate Alignment and Swing Action	√	√	√	√	√	√	√	
	Lock Lubrication and Function	√	√	√	√	√	√	√	
	Vegetation	√	√	√	√	√	√	√	
4	**Site Lighting**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Outage	√	√	√	√	√	√	√	
5	**LMS Confined Space Entry Signs**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√		√	√		√	√	
6	**Litter**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Illegal Dumping	√	√	√	√	√	√	√	

COMMENTS

Surface cracks in Zone 1 measure 0.5" to 2" wide. Remeasured in December 2024.

Surface cracks in Zone 5 measure 0.25" to 1.5" wide. Remeasured in December 2024.

Surface cracks in Zone 4A measure 0.25" to 1.5" wide. Remeasured in December 2024.

FORM DP-1

ANCILLARY SYSTEMS: ANS-1

FEBRUARY 2025

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
2/21/2025	Zone 1 and 4A	Surface pavement cracking	Parks performed cold patchwork jobs, some areas still have wide cracks.
2/21/2025	Zones 2, 4A, 4B, 5, and 6	Rutting at walking paths	Rutting volume calculated for future fill.

Date: 2/21/2025

Inspected By: Zara Castillo

Signature: Zara Castillo

FORM ANS-1

MONTHLY INSPECTION CHECKLIST

ANCILLARY SYSTEMS

BROOKFIELD AVENUE LANDFILL

Date: 03/18/2025 | **Inspected By: Abigail Donnelly**

	INSPECTION TASK	INSPECTION ZONE NUMBER							REMARKS
1	**ROADS**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	√	√	√	√	√	√	
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout		√	√	√	√	√	√	
	Roadway Pavement Condition	**NS**	√	√	**NS**	√	**NS**	√	Surface cracks were observed in roadway pavement in Zone 1, 4A, and 5.
2	**Walking Trails**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Rutting	√	**NS**	√	**NS**	**NS**	**NS**	**NS**	Rutting observed along walking trails in Zones 2, 4A, 4B, 5, and 6.
	Depression/Settlement	√	√	√	√	√	√	√	
	Washout	√	√	√	√	√	√	√	
	Trail Stone Condition	√	√	√	√	√	√	√	
3	**Fencing , Locks, Gates**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Vandalism	√	√	√	√	√	√	√	
	Debris	√	√	√	√	√	√	√	
	Gate Alignment and Swing Action	√	√	√	√	√	√	√	
	Lock Lubrication and Function	√	√	√	√	√	√	√	
	Vegetation	√	√	√	√	√	√	√	
4	**Site Lighting**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√	√	√	√	√	√	√	
	Outage	√	√	√	√	√	√	√	
5	**LMS Confined Space Entry Signs**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Damage	√		√	√		√	√	
6	**Litter**	**1**	**2**	**3**	**4A**	**4B**	**5**	**6**	
	Illegal Dumping	√	√	√	√	√	√	√	

COMMENTS

Surface cracks in Zone 1 measure 0.5" to 2" wide. Remeasured in December 2024.

Surface cracks in Zone 5 measure 0.25" to 1.5" wide. Remeasured in December 2024.

Surface cracks in Zone 4A measure 0.25" to 1.5" wide. Remeasured in December 2024.

FORM DP-1

ANCILLARY SYSTEMS: ANS-1

MARCH 2025

DESCRIPTION OF DEFICIENCIES AND PROBLEMS

BROOKFIELD AVENUE LANDFILL

Date	Location	Description	Corrective Action Taken
3/18/2025	Zone 1 and 4A	Surface pavement cracking	Parks performed cold patchwork jobs, some areas still have wide cracks.
3/18/2025	Zones 2, 4A, 4B, 5, and 6	Rutting at walking paths	Rutting volume calculated for future fill.

Date: 3/18/2025

Inspected By: Abigail Donnelly

Signature: 

APPENDIX H

LANDFILL SURFACE EMISSIONS MONITORING (SEM) REPORTS

July 14, 2020
File No. 07215056.00

Mr. Wes Lindemuth
TRC
575 Arthur Kill Road
Staten Island, NY 10308

Subject: Brookfield Avenue Landfill

Surface Emissions Monitoring Report June 2020

Dear Wes:

On June 23, 2020, SCS Field Services (SCS-FS) conducted semi-annual surface emissions monitoring (SEM) at the Brookfield Avenue Landfill (Landfill). This monitoring was performed in order to satisfy the requirements of the NYC Department of Environmental Protection's Operation, Maintenance, and Monitoring Services Contract, section 2.4.2.B. – Surface Emission Monitoring. Although the monitoring was not performed for compliance with the Environmental Protection Agency's New Source Performance Standards (NSPS) for landfills, SCS-FS performed the SEM according to the procedures stipulated by the NSPS, as specified in 40 CFR 60.755 (c) and (d), and 40 CFR 60, Appendix A, Method 21.

SEM took place over a monitoring route on the landfill as shown on the attached Landfill Gas Collection Record Drawing, dated July 23, 2015, supplied by Layout, Inc. and attached to this report in ***Attachment 1***. A total of 477 points on the landfill were tested for emissions of volatile organic compounds (VOC), as methane, using a Foxboro TVA-1000B flame ionization detector. The TVA was calibrated using zero air and 500 parts per million (ppm) methane calibration gas. Upwind and downwind locations were monitored and recorded on the Calibration and Pertinent Data Form, provided in ***Attachment 2***. The monitoring data are presented in ***Table 1***, ***Attachment 3***.

Observations

None of the monitoring points over the area surveyed had an emission level exceeding 500 parts per million above background. No further monitoring is required for this SEM event.

SCS-FS appreciates the opportunity to provide our services. Please contact either of the undersigned should you require further information or assistance.

Sincerely,

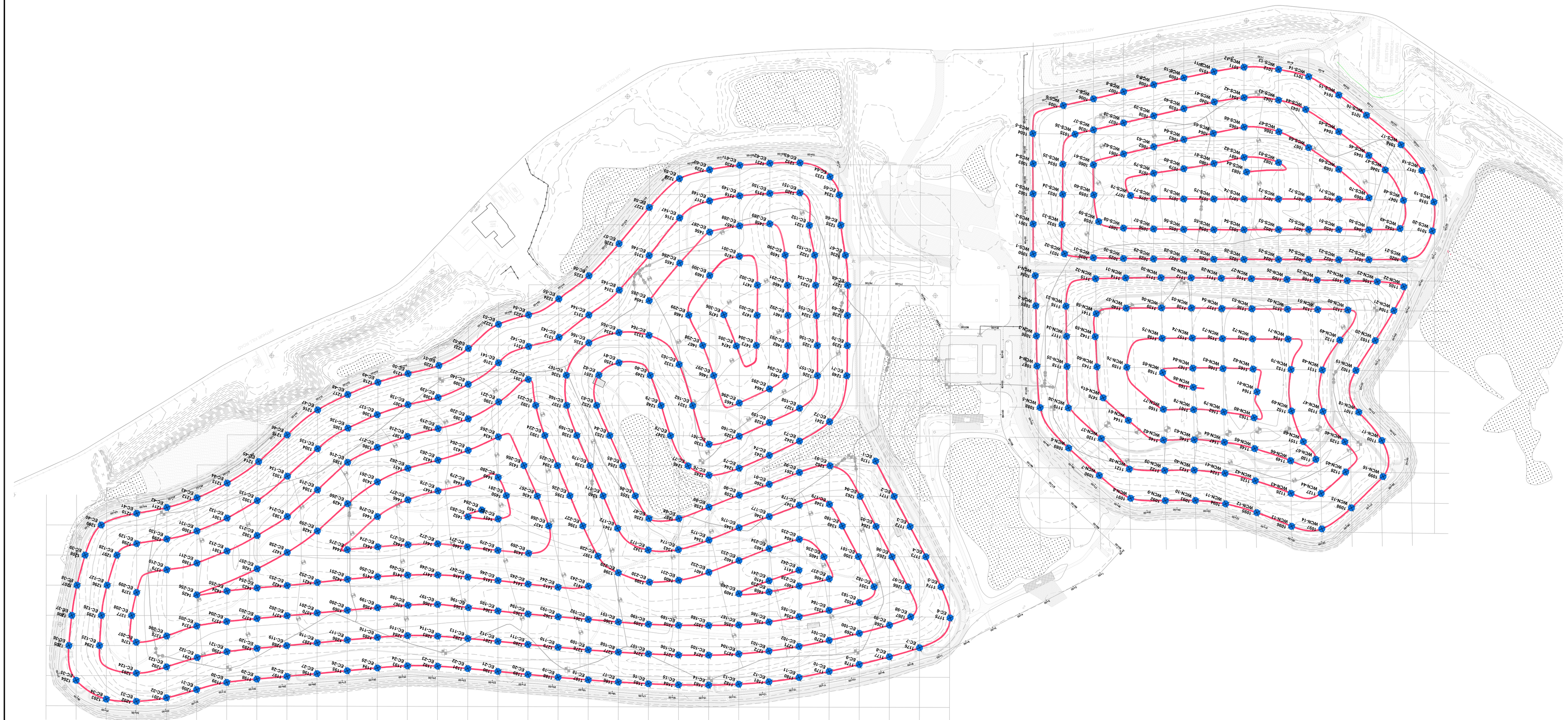
Mike Marks
Project Superintendent
SCS Field Services

Scott Schoffner
Project Manager
SCS Field Services

Attachments

ATTACHMENT 1

SEM ROUTE


SURFACE EMISSIONS MONITORING PLAN
BROOKFIELD AVENUE LANDFILL REMEDIATION
CITY OF NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BROOKFIELD CONSTRUCTION ASSOCIATES, LLC
136 CENTRAL AVENUE
CLARK, NJ 07066
Drawn By: MP
Checked: JPL
Scale: 1" = 150'
Date: 07-23-15
Proj. No.: 2857
Page: 1 of 1
CONTRACT NO. LF-BAL-1G
Paul Emilius Jr.
Professional Land Surveyor
N.Y. License No. 50203
Date
Layout Inc.
PROFESSIONAL LAND SURVEYORS
CONSTRUCTION SURVEYING SPECIALISTS
GPS CONSULTANTS
1 Emin Road, Unit 8
Clifton, N.J. 07014
Ph: 973-249-0900 Fax: 973-249-0988
0 75 150 300 450
(IN FEET)
1 inch = 150 ft.
BROOKFIELD AVENUE
Brookfield Avenue Landfill
Brookfield Avenue
Brookfield Avenue
Brookfield Avenue

ATTACHMENT 2

CALIBRATION AND PERTINENT DATA FORMS

SCS FIELD SERVICES

NSPS Surface Emissions Monitoring
Calibration and Pertinent Data Form

Date: 06/23/20 Site: Brookfield Ave Landfill Job Number: 07220079.03

Technician(s): Doug Cordisco

Weather Observations

Wind Speed: 11 MPH Wind Direction: SE Barometric Pressure: 29.77 "Hg

Air Temperature: 83 °F General Weather Conditions: Clear

Calibration Information

Instrument Info Make/Model: TVA 1000 Serial No: 34945693

Cal Gas Info	Manufacturer	Lot #	Expiration Date	Concentration
Span Gas:	GASCO	LBJ-X02AI99CP104282-3	11/21/2023	513 ppm
Zero Gas:	SpecAir	4828301	10/1/2021	0 ppm

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. ***The calibration precision must be less than or equal to 10% of the calibration gas value.***

Trial	Zero Air Reading (ppm)	Cal Gas Reading (ppm)	|Cal Gas Conc. – Cal Gas Reading|
1	0.7	500	13
2	0.4	500	13
3	0.3	500	13
		Average Difference:	13

Calibration Precision = Average Difference / Cal. Gas Conc. X 100%

= 13 / 513 X 100%

= 2.53 %

Pre-monitoring Response Time Check

Procedure: Introduce zero concentration methane/H2S into the instrument. Quickly change to the calibration gas and record stabilized reading. Record the amount of time it took the instrument to read 90% of the stabilized reading. ***This average response time must be less than or equal to 30 seconds.***

Trial	Stabilized Reading on Cal Gas	90% of Stabilized Reading	Time to Reach 90% of Stabilized Reading (Seconds)
1	500	450	15
2	500	450	12
3	500	450	12
		Average Response Time:	13

Background Concentration Checks

Upwind Location Description: SE of site on perimeter road Reading: 1.76 ppm

Downwind Location Description: NW of site on perimeter road Reading: 1.63 ppm

Average Background Reading: 1.70 ppm

Post-monitoring Calibration Precision Check

Zero Air Reading: 0.4 ppm Cal Gas Reading: 507 ppm

Notes/Comments:

GASCO AFFILIATES, LLC.

320 Scarlet Blvd.
Oldsmar, FL 34677
(800) 910-0051
fax: (866) 755-8920
www.gascogas.com

CERTIFICATE OF ANALYSIS

Date: November 21, 2019
Order Number: 6047370
Lot Number: LBJ-X02AI99CP104282-3

Customer: Pine Environmental Services LLC

Use Before: 11/21/2023

Component	Specification (+/- 5%)	Analytical Result (+/- 2%)
Methane	500 PPM	513 PPM
Air	Balance	Balance

Cylinder Size: 3.6 Cu. Ft.
Contents: 103 Liter

Valve: 5/8" -18UNF
Pressure: 1000 psig

The calibration gas prepared by Gasco is considered a certified standard. It is prepared by gravimetric, or partial pressure techniques. The calibration standard provided is certified against Gasco's G.M.I.S. (Gas Manufacturer's Intermediate Standard) which is either prepared by weights traceable to the National Institute of Standards and Technology (NIST) or by using NIST Standard Reference Materials where available.

Analyst:

Glenn Velez

22 Albiston Way
Auburn, ME 04210
800-292-6218
207-777-6218
Fax 207-777-6215
www.specair.com

Date: 10/10/2018

Certificate of Analysis

Customer:
QED ENVIRONMENTAL SYSTEMS

Order #: 1434035
Purchase Order #: 129892

Results are reported in mole percent, unless otherwise indicated. Mixes are prepared via partial pressure methods, or gravimetrically, using high load high sensitivity electronic scales. Prior to use, scales are verified for accuracy using applicable NIST traceable weights; analyses are calibrated against reference materials traceable to NIST weights and/or NIST gas reference materials.

Cylinder Size: 105L **CGA Connection:** C10 **Fill Pressure:** 1000 PSI

Analysis: Air Batch Analysis **Lot #:** 4828301

Component(s):	Requested Concentration(s):	Actual Concentration(s):
Oxygen	19.5%-23.5%	20.9%
Moisture	< 3 PPM	1 PPM
THC	< 0.1 PPM	< 0.1 PPM
CO/CO2	< 1 PPM	< 1 PPM

Expiration Date: 10/2021

Comments: MEETS OR EXCEEDS ULTRA ZERO GRADE AIR

Approved By:

Ron Abbott

CGAIR-0

AIR: ULTRA ZERO GRADE

CGAIR-0

The information contained herein has been prepared at your request by qualified experts. While we believe that the information is accurate within the limits of the analytical methods employed, and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability arising out of the use of the information contained herein exceed the fee established for providing such information.

ATTACHMENT 3

SEM DATA

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December 18, 2020
File No. 07215056.00

Mr. Wes Lindemuth
TRC
575 Arthur Kill Road
Staten Island, NY 10308

Subject: Brookfield Avenue Landfill

Surface Emissions Monitoring Report December 2020

Dear Wes:

On December 1, 2020, SCS Field Services (SCS-FS) conducted semi-annual surface emissions monitoring (SEM) at the Brookfield Avenue Landfill (Landfill). This monitoring was performed in order to satisfy the requirements of the NYC Department of Environmental Protection's Operation, Maintenance, and Monitoring Services Contract, section 2.4.2.B. – Surface Emission Monitoring. Although the monitoring was not performed for compliance with the Environmental Protection Agency's New Source Performance Standards (NSPS) for landfills, SCS-FS performed the SEM according to the procedures stipulated by the NSPS, as specified in 40 CFR 60.755 (c) and (d), and 40 CFR 60, Appendix A, Method 21.

SEM took place over a monitoring route on the landfill as shown on the attached Landfill Gas Collection Record Drawing, dated July 23, 2015, supplied by Layout, Inc. and attached to this report in ***Attachment 1***. A total of 477 points on the landfill were tested for emissions of volatile organic compounds (VOC), as methane, using a Foxboro TVA-1000B flame ionization detector. The TVA was calibrated using zero air and 500 parts per million (ppm) methane calibration gas. Upwind and downwind locations were monitored and recorded on the Calibration and Pertinent Data Form, provided in ***Attachment 2***. The monitoring data are presented in ***Table 1***, ***Attachment 3***.

Observations

None of the monitoring points over the area surveyed had an emission level exceeding 500 parts per million above background. No further monitoring is required for this SEM event.

SCS-FS appreciates the opportunity to provide our services. Please contact either of the undersigned should you require further information or assistance.

Sincerely,

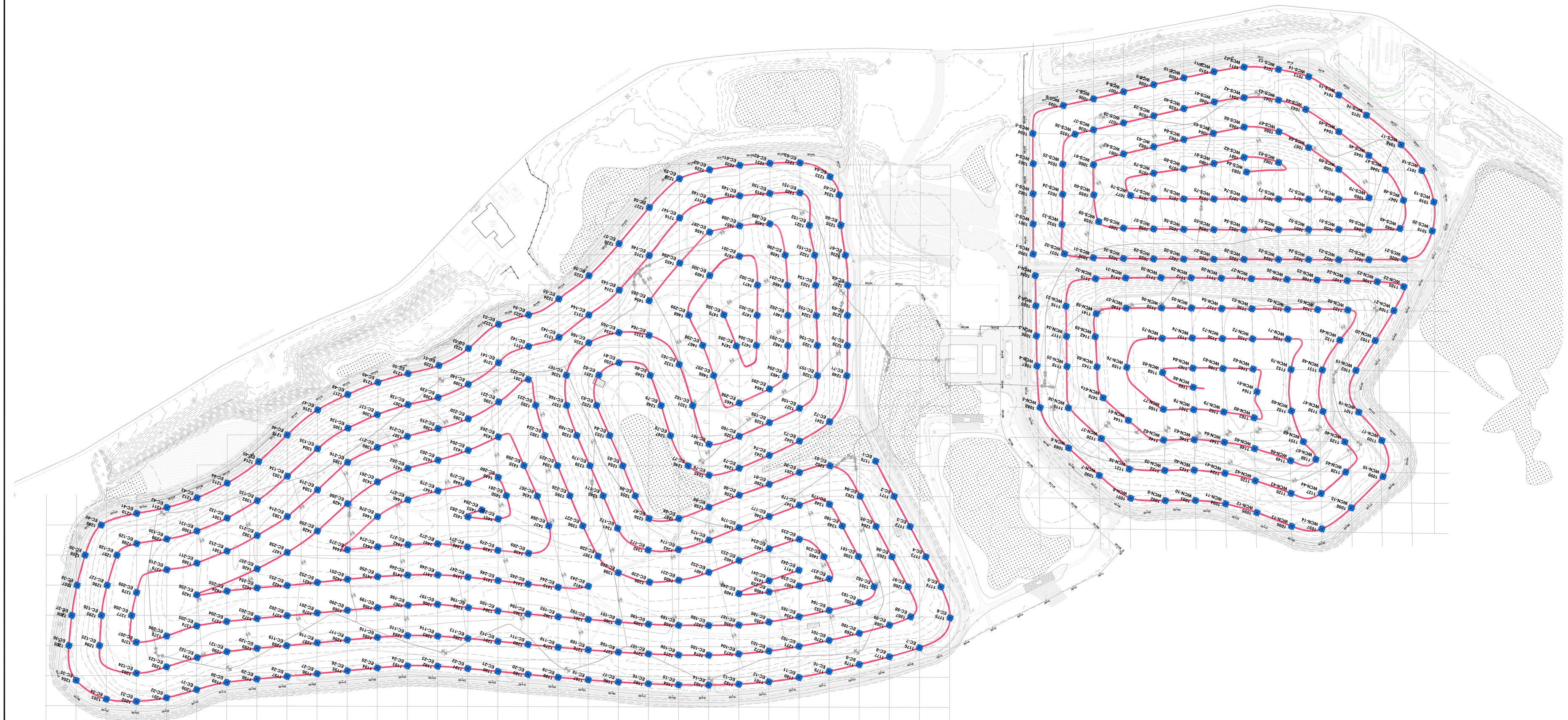
Mike Marks
Project Superintendent
SCS Field Services

Scott Schoffner
Project Manager
SCS Field Services

Attachments

ATTACHMENT 1

SEM ROUTE


SURFACE EMISSIONS MONITORING PLAN
BROOKFIELD AVENUE LANDFILL REMEDIATION
CITY OF NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BROOKFIELD CONSTRUCTION ASSOCIATES, LLC
136 CENTRAL AVENUE
CLARK, NJ 07066
Drawn By: MP
Checked: JPL
Scale: 1" = 150'
Date: 07-23-15
Proj. No.: 2857
Page: 1 of 1
CONTRACT NO. LF-BAL-1G
Paul Emilius Jr.
Professional Land Surveyor
N.Y. License No. 50203
Date
Layout Inc.
PROFESSIONAL LAND SURVEYORS
CONSTRUCTION SURVEYING SPECIALISTS
GPS CONSULTANTS
1 Emin Road, Unit 8
Clifton, N.J. 07014
Ph: 973-249-0900 Fax: 973-249-0988
0 75 150 300 450
(IN FEET)
1 inch = 150 ft.
BROOKFIELD AVENUE
Brookfield Avenue Landfill
Brookfield Avenue
Brookfield Avenue
Brookfield Avenue

ATTACHMENT 2

CALIBRATION AND PERTINENT DATA FORMS

SCS FIELD SERVICES

NSPS Surface Emissions Monitoring
Calibration and Pertinent Data Form

Date: 12/01/20 Site: Brookfield Ave Landfill Job Number: 0722079.00

Technician(s): Mike Byk

Weather Observations

Wind Speed: 10 MPH Wind Direction: SW Barometric Pressure: 29.53 "Hg

Air Temperature: 50 °F General Weather Conditions: Sunny

Calibration Information

Instrument Info Make/Model: TVA 2020 Serial No: 202018093665

Cal Gas Info	Manufacturer	Lot #	Expiration Date	Concentration
Span Gas:	GASCO	LBJ-X02AI99CP104282-3	11/21/2023	513 ppm
Zero Gas:	SpecAir	4919810	7/1/2022	0 ppm

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. ***The calibration precision must be less than or equal to 10% of the calibration gas value.***

Trial	Zero Air Reading (ppm)	Cal Gas Reading (ppm)	|Cal Gas Conc. – Cal Gas Reading|
1	0.1	501	12
2	0.2	497	16
3	0	498	15
		Average Difference:	14

Calibration Precision = Average Difference / Cal. Gas Conc. X 100%

= 14 / 513 X 100%

= 2.79 %

Pre-monitoring Response Time Check

Procedure: Introduce zero concentration methane/H2S into the instrument. Quickly change to the calibration gas and record stabilized reading. Record the amount of time it took the instrument to read 90% of the stabilized reading. ***This average response time must be less than or equal to 30 seconds.***

Trial	Stabilized Reading on Cal Gas	90% of Stabilized Reading	Time to Reach 90% of Stabilized Reading (Seconds)
1	501	451	8
2	497	447	7
3	498	448	6
		Average Response Time:	7

Background Concentration Checks

Upwind Location Description: SW of site on perimeter road Reading: 2.60 ppm

Downwind Location Description: NE of site on perimeter road Reading: 3.10 ppm

Average Background Reading: 2.85 ppm

Post-monitoring Calibration Precision Check

Zero Air Reading: 0.1 ppm Cal Gas Reading: 498 ppm

Notes/Comments:

22 Albiston Way
Auburn, ME 04210
800-292-6218
207-777-6218
Fax 207-777-6215
www.specair.com

Date: 07/17/2019

Certificate of Analysis

Customer:
QED ENVIRONMENTAL SYSTEMS

Order #: 1592262
Purchase Order #: 132967

Results are reported in mole percent, unless otherwise indicated. Mixes are prepared via partial pressure methods, or gravimetrically, using high load high sensitivity electronic scales. Prior to use, scales are verified for accuracy using applicable NIST traceable weights; analyses are calibrated against reference materials traceable to NIST weights and/or NIST gas reference materials.

Cylinder Size: 105L **CGA Connection:** C10 **Fill Pressure:** 1000 PSI

Analysis: Air Batch Analysis

Lot #: 4919810

Component(s):	Requested Concentration(s):	Actual Concentration(s):
Oxygen	19.5%-23.5%	21.2%
Moisture	< 3 PPM	0.7 PPM
THC	< 0.1 PPM	< 0.1 PPM
CO/CO2	< 1 PPM	< 1 PPM

Expiration Date: 07/2022

Comments: MEETS OR EXCEEDS ULTRA ZERO AIR

Approved By:

Ron Abbott J.

Ron Abbott

CGAIR-0
AIR: ULTRA ZERO GRADE
CGAIR-0

The information contained herein has been prepared at your request by qualified experts. While we believe that the information is accurate within the limits of the analytical methods employed, and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability arising out of the use of the information contained herein exceed the fee established for providing such information.

GASCO AFFILIATES, LLC.

320 Scarlet Blvd.
Oldsmar, FL 34677
(800) 910-0051
fax: (866) 755-8920
www.gascogas.com

CERTIFICATE OF ANALYSIS

Date: November 21, 2019
Order Number: 6047370
Lot Number: LBJ-X02AI99CP104282-3

Customer: Pine Environmental Services LLC

Use Before: 11/21/2023

Component	Specification (+/- 5%)	Analytical Result (+/- 2%)
Methane	500 PPM	513 PPM
Air	Balance	Balance

Cylinder Size: 3.6 Cu. Ft.
Contents: 103 Liter

Valve: 5/8" -18UNF
Pressure: 1000 psig

The calibration gas prepared by Gasco is considered a certified standard. It is prepared by gravimetric, or partial pressure techniques. The calibration standard provided is certified against Gasco's G.M.I.S. (Gas Manufacturer's Intermediate Standard) which is either prepared by weights traceable to the National Institute of Standards and Technology (NIST) or by using NIST Standard Reference Materials where available.

Analyst:

Glenn Velez

ATTACHMENT 3

SEM DATA

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□r□□□□□d □□□□□□□□d□□, □□□□□□ □□□d, □□□ □r□

□□□□ □r □, 2020

□ag	□D □on□□ □pp□ □	Notes
□□3□	1	
□□37	1	
□□38	1	
□□3□	1	
□□40	1	
□□41	1	
□□42	1	
□□43	1	
□□44	1	
□□45	1	
□□4□	1	
□□47	1	
□□48	1	
□□4□	1	
□□50	1	
□□51	1	
□□52	1	
□□53	1	
□□54	1	
□□55	1	
□□5□	1	
□□57	1	
□□58	1	
□□5□	1	
□□□0	1	
□□□1	1	
□□□2	1	
□□□3	1	
□□□4	1	
□□□5	1	
□□□□	1	
□□□7	1	
□□□8	1	
□□□□	1	
□□70	1	

pp□ □parts per □i□ion
nd □not dete□ted
<1 □□ess t□an 1

□□□□□ □. □□□□□□□ □M□□□□□ □□ □□□□□□□ □□□□□□□
□r□□□□□d □□□□□□□□d□□, □□□□□□ □□□d, □□□ □r□

□□□□ □r □, 2020

□ag	□D □on□□ □pp□ □	Notes
□□□71	1	
□□□72	1	
□□□73	2	
□□□74	2	
□□□75	1	
□□□7□	2	
□□□77	1	
□□□78	1	
□□□7□	2	
□□□80	1	
□□□81	1	
□□□82	1	
□□□83	1	
□□□84	1	
□□□85	2	
□□□8□	1	
□□□87	1	
□□□88	1	
□□□8□	1	
□□□□0	1	
□□□□1	1	
□□□□2	1	
□□□□3	1	
□□□□4	1	
□□□□5	1	
□□□□□	1	
□□□□7	1	
□□□□8	<1	
□□□□□	<1	
□□□100	1	
□□□101	<1	
□□□102	<1	
□□□103	<1	
□□□104	<1	
□□□105	<1	

□□□□□ □. □□□□□□□ □M□□□□□ □□ □□□□□□□ □□□□□□□
□r□□□□□d □□□□□□□□d□□, □□□□□□ □□□d, □□□ □r□

□□□□ □r □, 2020

□ag	□D □on□□ □pp□ □	Notes
□□10□	<1	
□□107	<1	
□□108	<1	
□□10□	<1	
□□110	<1	
□□111	<1	
□□112	<1	
□□113	<1	
□□114	<1	
□□115	<1	
□□11□	<1	
□□117	<1	
□□118	<1	
□□11□	<1	
□□120	1	
□□121	<1	
□□122	1	
□□123	3	
□□124	2	
□□125	3	
□□12□	1	
□□127	<1	
□□128	<1	
□□12□	<1	
□□130	<1	
□□131	<1	
□□132	<1	
□□133	<1	
□□134	<1	
□□135	<1	
□□13□	<1	
□□137	<1	
□□138	<1	
□□13□	<1	
□□140	<1	

pp□ □parts per □i□ion
nd □not dete□ted
<1 □□ess t□an 1

□□□□□ □. □□□□□□□ □M□□□□□ □□ □□□□□□□□ □□□□□□□
□r□□□□□□d □□□□□□□□d□□□, □□□□□□ □□□□d, □□□ □□r□

□□□□□ □□r □, 2020

□ag	□□D □on□□ □pp□ □	Notes
□□□141	<1	
□□□142	<1	
□□□143	<1	
□□□144	<1	
□□□145	<1	
□□□14□	<1	
□□□147	<1	
□□□148	<1	
□□□14□	<1	
□□□150	<1	
□□□151	<1	
□□□152	<1	
□□□153	1	
□□□154	<1	
□□□155	<1	
□□□15□	<1	
□□□157	<1	
□□□158	<1	
□□□15□	1	
□□□1□0	1	
□□□1□1	1	
□□□1□2	1	
□□□1□3	1	
□□□1□4	1	
□□□1□5	<1	
□□□1□□	<1	
□□□1□7	<1	
□□□1□8	<1	
□□□1□□	<1	
□□□170	<1	
□□□171	<1	
□□□172	<1	
□□□173	<1	
□□□174	<1	
□□□175	<1	

pp□ □parts per □i□ion
nd □not dete□ted
<1 □□ess t□an 1

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□r□□□□□d □□□□□□□□d□□, □□□□□□ □□□d, □□□ □r□

□□□□ □r □, 2020

□ag	□D □on□□ □pp□ □	Notes
□□17□	<1	
□□177	<1	
□□178	<1	
□□17□	<1	
□□180	<1	
□□181	<1	
□□182	<1	
□□183	<1	
□□184	<1	
□□185	<1	
□□18□	<1	
□□187	<1	
□□188	1	
□□18□	1	
□□1□0	1	
□□1□1	1	
□□1□2	1	
□□1□3	1	
□□1□4	<1	
□□1□5	<1	
□□1□□	<1	
□□1□7	<1	
□□1□8	<1	
□□1□□	<1	
□□200	<1	
□□201	<1	
□□202	<1	
□□203	<1	
□□204	<1	
□□205	<1	
□□20□	<1	
□□207	<1	
□□208	<1	
□□20□	<1	
□□210	<1	

pp□ □parts per □i□ion
nd □not dete□ted
<1 □□ess t□an 1

□□□ □□□□□ □□□□□□□□
717□□71□5102

□□□□ □r □, 2020

□ag	□D □on□□ □pp□ □	Notes
□□211	<1	
□□212	<1	
□□213	<1	
□□214	<1	
□□215	<1	
□□21□	<1	
□□217	<1	
□□218	<1	
□□21□	<1	
□□220	<1	
□□221	<1	
□□222	<1	
□□223	<1	
□□224	<1	
□□225	<1	
□□22□	<1	
□□227	<1	
□□228	<1	
□□22□	<1	
□□230	<1	
□□231	<1	
□□232	<1	
□□233	<1	
□□234	<1	
□□235	<1	
□□23□	<1	
□□237	<1	
□□238	<1	
□□23□	<1	
□□240	<1	
□□241	<1	
□□242	<1	
□□243	<1	
□□244	<1	
□□245	<1	

pp□ □parts per □i□ion
nd □not dete□ted
<1 □□ess t□an 1

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□r□□□□□d □□□□□□□□d□□, □□□□□□ □□□d, □□□ □r□

□□□□ □r □, 2020

□ag	□D □on□□ □pp□ □	Notes
□□24□	<1	
□□247	<1	
□□248	<1	
□□24□	<1	
□□250	<1	
□□251	<1	
□□252	<1	
□□253	<1	
□□254	<1	
□□255	<1	
□□25□	<1	
□□257	<1	
□□258	<1	
□□25□	<1	
□□2□0	1	
□□2□1	<1	
□□2□2	<1	
□□2□3	<1	
□□2□4	<1	
□□2□5	<1	
□□2□□	<1	
□□2□7	<1	
□□2□8	<1	
□□2□□	<1	
□□270	<1	
□□271	<1	
□□272	<1	
□□273	<1	
□□274	<1	
□□275	<1	
□□27□	<1	
□□277	<1	
□□278	<1	
□□27□	<1	
□□280	<1	

pp□ □parts per □i□ion
nd □not dete□ted
<1 □□ess t□an 1

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□r□□□□□□d □□□□□□□□d□□□, □□□□□□ □□□□d, □□□ □□r□

□□□□□ □□r □, 2020

□ag	□D □on□□ □pp□ □	Notes
□□□281	<1	
□□□282	<1	
□□□283	<1	
□□□284	<1	
□□□285	<1	
□□□28□	<1	
□□□287	<1	
□□□288	<1	
□□□28□	<1	
□□□2□0	<1	
□□□2□1	<1	
□□□2□2	<1	
□□□2□3	<1	
□□□2□4	<1	
□□□2□5	<1	
□□□2□□	<1	
□□□2□7	<1	
□□□2□8	<1	
□□□2□□	<1	
□□□300	<1	
□□□301	<1	
□□□302	<1	
□□□303	<1	
□□□304	<1	
□□□305	<1	
□□□30□	<1	□nd of □ast □e□□route
□ □S□1	nd	Start of □ est □e□□Sout□route
□ □S□2	nd	
□ □S□3	nd	
□ □S□4	nd	
□ □S□5	nd	
□ □S□□	nd	
□ □S□7	nd	
□ □S□8	nd	
□ □S□□	nd	

pp□ □parts per □i□ion
nd □not dete□ted
<1 □□ess t□an 1

□□□□□ □. □□□□□□□ □M□□□□□ □□ □□□□□□□ □□□□□□□
□r□□□□□□d □□□□□□□□d□□□, □□□□□□ □□□□d, □□□ □□r□

□□□□□ □□r □, 2020

□ag	□D □on□□ □pp□ □	Notes
□ □S□10	nd	
□ □S□11	nd	
□ □S□12	nd	
□ □S□13	nd	
□ □S□14	nd	
□ □S□15	nd	
□ □S□1□	nd	
□ □S□17	nd	
□ □S□18	<1	
□ □S□1□	nd	
□ □S□20	nd	
□ □S□21	nd	
□ □S□22	nd	
□ □S□23	nd	
□ □S□24	nd	
□ □S□25	nd	
□ □S□2□	<1	
□ □S□27	<1	
□ □S□28	<1	
□ □S□2□	<1	
□ □S□30	<1	
□ □S□31	<1	
□ □S□32	<1	
□ □S□33	<1	
□ □S□34	<1	
□ □S□35	<1	
□ □S□3□	<1	
□ □S□37	<1	
□ □S□38	<1	
□ □S□3□	<1	
□ □S□40	<1	
□ □S□41	<1	
□ □S□42	<1	
□ □S□43	<1	
□ □S□44	<1	

pp□ □parts per □i□ion
nd □not dete□ted
<1 □□ess t□an 1

□□□□□ □. □□□□□□□ □M□□□□□ □□ □□□□□□□ □□□□□□□
□r□□□□□□d □□□□□□□□d□□, □□□□□□ □□□d, □□ □r□

□□□□ □r □, 2020

□ag	□D □on□□ □pp□ □	Notes
□ □S□45	<1	
□ □S□4□	<1	
□ □S□47	<1	
□ □S□48	<1	
□ □S□4□	<1	
□ □S□50	<1	
□ □S□51	<1	
□ □S□52	<1	
□ □S□53	<1	
□ □S□54	<1	
□ □S□55	<1	
□ □S□5□	<1	
□ □S□57	<1	
□ □S□58	<1	
□ □S□5□	<1	
□ □S□□0	<1	
□ □S□□1	<1	
□ □S□□2	<1	
□ □S□□3	<1	
□ □S□□4	<1	
□ □S□□5	<1	
□ □S□□□	<1	
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□ □S□□8	<1	
□ □S□□□	<1	
□ □S□70	<1	
□ □S□71	<1	
□ □S□72	<1	
□ □S□73	<1	
□ □S□74	<1	
□ □S□75	<1	
□ □S□7□	<1	
□ □S□77	<1	
□ □S□78	<1	
□ □S□7□	<1	

pp□ □parts per □i□ion
nd □not dete□ted
<1 □□ess t□an 1

□□□□□ □. □□□□□□□ □M□□□□□ □□ □□□□□□□ □□□□□□□
□r□□□□□□d □□□□□□□□d□□□, □□□□□□ □□□□d, □□□ □□r□

□□□□ □□r □, 2020

□ag	□D □on□□ □pp□ □	Notes
□ □S□80	<1	
□ □S□81	<1	
□ □S□82	<1	
□ □S□83	<1	
□ □S□84	<1	□nd of □ est □e□□Sout□route
□ □N□1	<1	□ est □e□□Nort□route
□ □N□2	<1	
□ □N□3	<1	
□ □N□4	<1	
□ □N□5	<1	
□ □N□□	<1	
□ □N□7	<1	
□ □N□8	<1	
□ □N□□	30	
□ □N□10	<1	
□ □N□11	<1	
□ □N□12	<1	
□ □N□13	<1	
□ □N□14	<1	
□ □N□15	<1	
□ □N□1□	<1	
□ □N□17	<1	
□ □N□18	<1	
□ □N□1□	<1	
□ □N□20	<1	
□ □N□21	<1	
□ □N□22	<1	
□ □N□23	<1	
□ □N□24	<1	
□ □N□25	<1	
□ □N□2□	<1	
□ □N□27	5	
□ □N□28	3	
□ □N□2□	1	
□ □N□30	<1	

pp□ □parts per □i□ion
nd □not dete□ted
<1 □□ess t□an 1

□□□□□ □. □□□□□□□ □M□□□□□ □□ □□□□□□□ □□□□□□□
□r□□□□□d □□□□□□□□d□□, □□□□□□ □□□d, □□□ □r□

□□□□ □r □, 2020

□ag	□D □on□□ □pp□ □	Notes
□ □N□31	<1	
□ □N□32	<1	
□ □N□33	<1	
□ □N□34	<1	
□ □N□35	<1	
□ □N□3□	<1	
□ □N□37	<1	
□ □N□38	<1	
□ □N□3□	<1	
□ □N□40	<1	
□ □N□41	<1	
□ □N□42	<1	
□ □N□43	<1	
□ □N□44	<1	
□ □N□45	28	
□ □N□4□	<1	
□ □N□47	<1	
□ □N□48	<1	
□ □N□4□	<1	
□ □N□50	<1	
□ □N□51	<1	
□ □N□52	<1	
□ □N□53	<1	
□ □N□54	<1	
□ □N□55	<1	
□ □N□5□	<1	
□ □N□57	<1	
□ □N□58	<1	
□ □N□5□	<1	
□ □N□□0	<1	
□ □N□□1a	<1	
□ □N□□1	<1	
□ □N□□2	<1	
□ □N□□3	2	
□ □N□□4	<1	

pp□ □parts per □i□ion
nd □not dete□ted
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□ □N□□	<1	
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□ □N□8	<1	
□ □N□□	<1	
□ □N□70	<1	
□ □N□71	<1	
□ □N□72	<1	
□ □N□73	<1	
□ □N□74	41	
□ □N□75	<1	
□ □N□7□	<1	
□ □N□77	<1	
□ □N□78	2	
□ □N□7□	<1	
□ □N□80	<1	
□ □N□81	<1	
□ □N□82	<1	
□ □N□83	1	
□ □N□84	<1	
□ □N□85	<1	
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June 29, 2021
File No. 07215056.00

Mr. Wes Lindemuth
TRC
575 Arthur Kill Road
Staten Island, NY 10308

Subject: Brookfield Avenue Landfill

Surface Emissions Monitoring Report June 2021

Dear Wes:

On June 3, 2021, SCS Field Services (SCS-FS) conducted semi-annual surface emissions monitoring (SEM) at the Brookfield Avenue Landfill (Landfill). This monitoring was performed in order to satisfy the requirements of the NYC Department of Environmental Protection's Operation, Maintenance, and Monitoring Services Contract, section 2.4.2.B. – Surface Emission Monitoring. Although the monitoring was not performed for compliance with the Environmental Protection Agency's New Source Performance Standards (NSPS) for landfills, SCS-FS performed the SEM according to the procedures stipulated by the NSPS, as specified in 40 CFR 60.755 (c) and (d), and 40 CFR 60, Appendix A, Method 21.

SEM took place over a monitoring route on the landfill as shown on the attached Landfill Gas Collection Record Drawing, dated July 23, 2015, supplied by Layout, Inc. and attached to this report in ***Attachment 1***. A total of 477 points on the landfill were tested for emissions of volatile organic compounds (VOC), as methane, using a Foxboro TVA-1000B flame ionization detector. The TVA was calibrated using zero air and 500 parts per million (ppm) methane calibration gas. Upwind and downwind locations were monitored and recorded on the Calibration and Pertinent Data Form, provided in ***Attachment 2***. The monitoring data are presented in ***Table 1***, ***Attachment 3***.

Observations

None of the monitoring points over the area surveyed had an emission level exceeding 500 parts per million above background. No further monitoring is required for this SEM event.

SCS-FS appreciates the opportunity to provide our services. Please contact either of the undersigned should you require further information or assistance.

Sincerely,

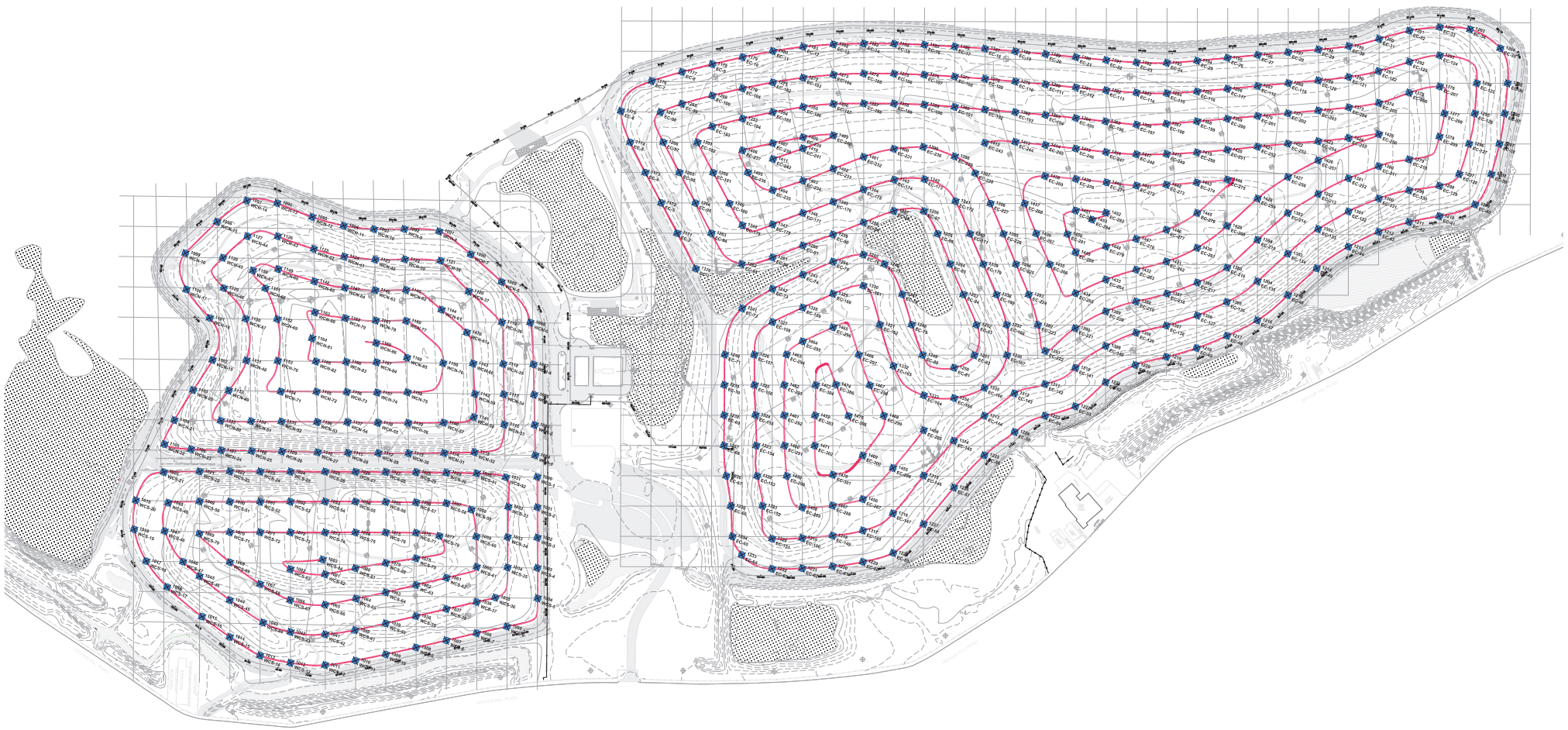
Mike Marks
Project Superintendent
SCS Field Services

Scott Schoffner
Project Manager
SCS Field Services

Attachments

ATTACHMENT 1

SEM ROUTE



CONTRACT NO. LF-BAL-1G

Paul Emilius Jr.
Professional Land Surveyor
N.Y. License No. 50203
Date

0 75 150 300 450
(IN FEET)
1 inch = 150 ft.

Layout Inc.
PROFESSIONAL LAND SURVEYORS
CONSTRUCTION SURVEYING SPECIALISTS
GPS CONSULTANTS
1 Erwin Road, Unit 8
Clifton, N.J. 07014
Ph: 973-249-0900 Fax: 973-249-0988

SURFACE EMISSIONS MONITORING PLAN

BROOKFIELD AVENUE LANDFILL REMEDIATION

Prepared For:
CITY OF NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

BROOKFIELD CONSTRUCTION ASSOCIATES, LLC
136 CENTRAL AVENUE
CLARK, NJ 07066

Drawn By:	MP
Checked:	JPL
Scale:	1" = 150'
Date:	07-23-15
Proj. No.:	2857
Page:	1 of 1

User Name : Layoutinc Date/Time : Tue, 28 Jul 2015 - 11:47pm Path/Name : C:\Layout\Brookfield\2857-Brookfield-Landfill\CAD_SP\Drawings\2857-SURFACE EMISSION MONITORING.dwg - Layout Tab : BROOKFIELD LANDFILL SURFACE EMISSION MONITORING-PMS

ATTACHMENT 2

CALIBRATION AND PERTINENT DATA FORMS

SCS FIELD SERVICES

NSPS Surface Emissions Monitoring
Calibration and Pertinent Data Form

Date: 06/03/21 Site: Brookfield Landfill Job Number: 07220079.00

Technician(s): Doug Cordisco

Weather Observations

Wind Speed: 4 MPH Wind Direction: East Barometric Pressure: 30.08 "Hg

Air Temperature: 61 °F General Weather Conditions: Cloudy

Calibration Information

Instrument Info Make/Model: TVA 2020 Serial No: 202016011102

Cal Gas Info	Manufacturer	Lot #	Expiration Date	Concentration
Span Gas:	GASCO	LBJ-X02AI99CP104282-3	11/21/2023	513 ppm
Zero Gas:	SpecAir	4919810	7/1/2022	0 ppm

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. ***The calibration precision must be less than or equal to 10% of the calibration gas value.***

Trial	Zero Air Reading (ppm)	Cal Gas Reading (ppm)	|Cal Gas Conc. – Cal Gas Reading|
1	0.2	494	19
2	0.1	496	17
3	0.11	491	22
		Average Difference:	19

Calibration Precision = Average Difference / Cal. Gas Conc. X 100%

= 19 / 513 X 100%

= 3.77 %

Pre-monitoring Response Time Check

Procedure: Introduce zero concentration methane/H2S into the instrument. Quickly change to the calibration gas and record stabilized reading. Record the amount of time it took the instrument to read 90% of the stabilized reading. ***This average response time must be less than or equal to 30 seconds.***

Trial	Stabilized Reading on Cal Gas	90% of Stabilized Reading	Time to Reach 90% of Stabilized Reading (Seconds)
1	494	445	7
2	496	446	7
3	491	442	9
		Average Response Time:	8

Background Concentration Checks

Upwind Location Description: East of site on perimeter road Reading: 0.60 ppm

Downwind Location Description: West of site on perimeter road Reading: 1.10 ppm

Average Background Reading: 0.85 ppm

Post-monitoring Calibration Precision Check

Zero Air Reading: 0.3 ppm Cal Gas Reading: 493 ppm

Notes/Comments:

22 Albiston Way
Auburn, ME 04210
800-292-6218
207-777-6218
Fax 207-777-6215
www.specair.com

Date: 07/17/2019

Certificate of Analysis

Customer:
QED ENVIRONMENTAL SYSTEMS

Order #: 1592262
Purchase Order #: 132967

Results are reported in mole percent, unless otherwise indicated. Mixes are prepared via partial pressure methods, or gravimetrically, using high load high sensitivity electronic scales. Prior to use, scales are verified for accuracy using applicable NIST traceable weights; analyses are calibrated against reference materials traceable to NIST weights and/or NIST gas reference materials.

Cylinder Size: 105L **CGA Connection:** C10 **Fill Pressure:** 1000 PSI

Analysis: Air Batch Analysis

Lot #: 4919810

Component(s):	Requested Concentration(s):	Actual Concentration(s):
Oxygen	19.5%-23.5%	21.2%
Moisture	< 3 PPM	0.7 PPM
THC	< 0.1 PPM	< 0.1 PPM
CO/CO2	< 1 PPM	< 1 PPM

Expiration Date: 07/2022

Comments: MEETS OR EXCEEDS ULTRA ZERO AIR

Approved By:

Ron Abbott

CGAIR-0
AIR: ULTRA ZERO GRADE
CGAIR-0

The information contained herein has been prepared at your request by qualified experts. While we believe that the information is accurate within the limits of the analytical methods employed, and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability arising out of the use of the information contained herein exceed the fee established for providing such information.

GASCO AFFILIATES, LLC.

320 Scarlet Blvd.
Oldsmar, FL 34677
(800) 910-0051
fax: (866) 755-8920
www.gascogas.com

CERTIFICATE OF ANALYSIS

Date: November 21, 2019
Order Number: 6047370
Lot Number: LBJ-X02AI99CP104282-3

Customer: Pine Environmental Services LLC

Use Before: 11/21/2023

Component	Specification (+/- 5%)	Analytical Result (+/- 2%)
Methane	500 PPM	513 PPM
Air	Balance	Balance

Cylinder Size: 3.6 Cu. Ft.
Contents: 103 Liter

Valve: 5/8" -18UNF
Pressure: 1000 psig

The calibration gas prepared by Gasco is considered a certified standard. It is prepared by gravimetric, or partial pressure techniques. The calibration standard provided is certified against Gasco's G.M.I.S. (Gas Manufacturer's Intermediate Standard) which is either prepared by weights traceable to the National Institute of Standards and Technology (NIST) or by using NIST Standard Reference Materials where available.

Analyst:

Glenn Velez

ATTACHMENT 3

SEM DATA

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 3, 2021

Tag	FID Conc. (ppm)	Notes
EC-1	nd	Start of route; East Cell
EC-2	nd	
EC-3	nd	
EC-4	nd	
EC-5	nd	
EC-6	nd	
EC-7	nd	
EC-8	nd	
EC-9	nd	
EC-10	nd	
EC-11	nd	
EC-12	nd	
EC-13	nd	
EC-14	nd	
EC-15	nd	
EC-16	nd	
EC-17	nd	
EC-18	nd	
EC-19	nd	
EC-20	nd	
EC-21	nd	
EC-22	nd	
EC-23	nd	
EC-24	nd	
EC-25	3	
EC-26	nd	
EC-27	nd	
EC-28	nd	
EC-29	nd	
EC-30	nd	
EC-31	nd	
EC-32	nd	
EC-33	nd	
EC-34	nd	
EC-35	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 3, 2021

Tag	FID Conc. (ppm)	Notes
EC-36	nd	
EC-37	nd	
EC-38	nd	
EC-39	nd	
EC-40	nd	
EC-41	nd	
EC-42	nd	
EC-43	nd	
EC-44	nd	
EC-45	nd	
EC-46	nd	
EC-47	nd	
EC-48	nd	
EC-49	nd	
EC-50	nd	
EC-51	nd	
EC-52	nd	
EC-53	nd	
EC-54	nd	
EC-55	nd	
EC-56	nd	
EC-57	2	
EC-58	nd	
EC-59	nd	
EC-60	nd	
EC-61	nd	
EC-62	nd	
EC-63	nd	
EC-64	nd	
EC-65	nd	
EC-66	nd	
EC-67	nd	
EC-68	nd	
EC-69	nd	
EC-70	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 3, 2021

Tag	FID Conc. (ppm)	Notes
EC-71	nd	
EC-72	nd	
EC-73	nd	
EC-74	nd	
EC-75	nd	
EC-76	nd	
EC-77	nd	
EC-78	nd	
EC-79	nd	
EC-80	nd	
EC-81	nd	
EC-82	nd	
EC-83	nd	
EC-84	nd	
EC-85	nd	
EC-86	nd	
EC-87	3	
EC-88	nd	
EC-89	nd	
EC-90	nd	
EC-91	nd	
EC-92	nd	
EC-93	nd	
EC-94	nd	
EC-95	nd	
EC-96	nd	
EC-97	nd	
EC-98	nd	
EC-99	nd	
EC-100	nd	
EC-101	nd	
EC-102	nd	
EC-103	nd	
EC-104	nd	
EC-105	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 3, 2021

Tag	FID Conc. (ppm)	Notes
EC-106	nd	
EC-107	nd	
EC-108	nd	
EC-109	nd	
EC-110	nd	
EC-111	nd	
EC-112	nd	
EC-113	nd	
EC-114	nd	
EC-115	2	
EC-116	nd	
EC-117	nd	
EC-118	nd	
EC-119	nd	
EC-120	nd	
EC-121	nd	
EC-122	nd	
EC-123	14	
EC-124	nd	
EC-125	nd	
EC-126	nd	
EC-127	nd	
EC-128	nd	
EC-129	nd	
EC-130	nd	
EC-131	nd	
EC-132	nd	
EC-133	nd	
EC-134	nd	
EC-135	nd	
EC-136	nd	
EC-137	nd	
EC-138	nd	
EC-139	nd	
EC-140	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 3, 2021

Tag	FID Conc. (ppm)	Notes
EC-141	nd	
EC-142	nd	
EC-143	nd	
EC-144	nd	
EC-145	nd	
EC-146	nd	
EC-147	nd	
EC-148	nd	
EC-149	nd	
EC-150	nd	
EC-151	nd	
EC-152	nd	
EC-153	nd	
EC-154	nd	
EC-155	nd	
EC-156	nd	
EC-157	nd	
EC-158	nd	
EC-159	nd	
EC-160	nd	
EC-161	nd	
EC-162	nd	
EC-163	nd	
EC-164	nd	
EC-165	nd	
EC-166	nd	
EC-167	nd	
EC-168	nd	
EC-169	nd	
EC-170	nd	
EC-171	nd	
EC-172	nd	
EC-173	nd	
EC-174	nd	
EC-175	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 3, 2021

Tag	FID Conc. (ppm)	Notes
EC-176	nd	
EC-177	nd	
EC-178	nd	
EC-179	nd	
EC-180	nd	
EC-181	nd	
EC-182	nd	
EC-183	nd	
EC-184	nd	
EC-185	nd	
EC-186	nd	
EC-187	nd	
EC-188	nd	
EC-189	nd	
EC-190	nd	
EC-191	nd	
EC-192	nd	
EC-193	nd	
EC-194	nd	
EC-195	nd	
EC-196	nd	
EC-197	nd	
EC-198	nd	
EC-199	nd	
EC-200	nd	
EC-201	nd	
EC-202	nd	
EC-203	nd	
EC-204	nd	
EC-205	nd	
EC-206	nd	
EC-207	nd	
EC-208	nd	
EC-209	nd	
EC-210	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 3, 2021

Tag	FID Conc. (ppm)	Notes
EC-211	nd	
EC-212	nd	
EC-213	nd	
EC-214	nd	
EC-215	nd	
EC-216	nd	
EC-217	nd	
EC-218	nd	
EC-219	nd	
EC-220	nd	
EC-221	nd	
EC-222	nd	
EC-223	nd	
EC-224	nd	
EC-225	nd	
EC-226	nd	
EC-227	nd	
EC-228	nd	
EC-229	nd	
EC-230	4	
EC-231	11	
EC-232	nd	
EC-233	nd	
EC-234	nd	
EC-235	nd	
EC-236	nd	
EC-237	nd	
EC-238	nd	
EC-239	nd	
EC-240	nd	
EC-241	nd	
EC-242	nd	
EC-243	nd	
EC-244	nd	
EC-245	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 3, 2021

Tag	FID Conc. (ppm)	Notes
EC-246	nd	
EC-247	nd	
EC-248	nd	
EC-249	nd	
EC-250	nd	
EC-251	nd	
EC-252	nd	
EC-253	nd	
EC-254	nd	
EC-255	nd	
EC-256	nd	
EC-257	nd	
EC-258	nd	
EC-259	nd	
EC-260	nd	
EC-261	nd	
EC-262	nd	
EC-263	nd	
EC-264	nd	
EC-265	nd	
EC-266	nd	
EC-267	nd	
EC-268	nd	
EC-269	nd	
EC-270	nd	
EC-271	nd	
EC-272	nd	
EC-273	nd	
EC-274	nd	
EC-275	nd	
EC-276	nd	
EC-277	nd	
EC-278	nd	
EC-279	nd	
EC-280	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 3, 2021

Tag	FID Conc. (ppm)	Notes
EC-281	nd	
EC-282	nd	
EC-283	nd	
EC-284	nd	
EC-285	nd	
EC-286	nd	
EC-287	nd	
EC-288	nd	
EC-289	nd	
EC-290	nd	
EC-291	nd	
EC-292	nd	
EC-293	nd	
EC-294	nd	
EC-295	nd	
EC-296	nd	
EC-297	nd	
EC-298	nd	
EC-299	nd	
EC-300	nd	
EC-301	nd	
EC-302	nd	
EC-303	nd	
EC-304	nd	
EC-305	nd	
EC-306	nd	End of East Cell route
WCS-1	nd	Start of West Cell South route
WCS-2	nd	
WCS-3	nd	
WCS-4	nd	
WCS-5	nd	
WCS-6	nd	
WCS-7	nd	
WCS-8	nd	
WCS-9	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 3, 2021

Tag	FID Conc. (ppm)	Notes
WCS-10	nd	
WCS-11	nd	
WCS-12	nd	
WCS-13	nd	
WCS-14	nd	
WCS-15	nd	
WCS-16	nd	
WCS-17	nd	
WCS-18	nd	
WCS-19	nd	
WCS-20	nd	
WCS-21	nd	
WCS-22	nd	
WCS-23	nd	
WCS-24	nd	
WCS-25	nd	
WCS-26	nd	
WCS-27	nd	
WCS-28	nd	
WCS-29	nd	
WCS-30	nd	
WCS-31	<1	
WCS-32	nd	
WCS-33	nd	
WCS-34	nd	
WCS-35	3	
WCS-36	nd	
WCS-37	nd	
WCS-38	nd	
WCS-39	nd	
WCS-40	nd	
WCS-41	4	
WCS-42	nd	
WCS-43	nd	
WCS-44	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 3, 2021

Tag	FID Conc. (ppm)	Notes
WCS-45	nd	
WCS-46	nd	
WCS-47	nd	
WCS-48	nd	
WCS-49	nd	
WCS-50	nd	
WCS-51	nd	
WCS-52	nd	
WCS-53	nd	
WCS-54	nd	
WCS-55	nd	
WCS-56	nd	
WCS-57	nd	
WCS-58	nd	
WCS-59	nd	
WCS-60	nd	
WCS-61	nd	
WCS-62	nd	
WCS-63	nd	
WCS-64	nd	
WCS-65	nd	
WCS-66	nd	
WCS-67	nd	
WCS-68	nd	
WCS-69	nd	
WCS-70	nd	
WCS-71	nd	
WCS-72	nd	
WCS-73	nd	
WCS-74	nd	
WCS-75	nd	
WCS-76	nd	
WCS-77	nd	
WCS-78	nd	
WCS-79	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 3, 2021

Tag	FID Conc. (ppm)	Notes
WCS-80	nd	
WCS-81	nd	
WCS-82	nd	
WCS-83	nd	
WCS-84	nd	End of West Cell South route
WCN-1	nd	West Cell North route
WCN-2	2	
WCN-3	1	
WCN-4	<1	
WCN-5	<1	
WCN-6	<1	
WCN-7	<1	
WCN-8	<1	
WCN-9	<1	
WCN-10	nd	
WCN-11	nd	
WCN-12	nd	
WCN-13	nd	
WCN-14	nd	
WCN-15	nd	
WCN-16	nd	
WCN-17	nd	
WCN-18	nd	
WCN-19	nd	
WCN-20	nd	
WCN-21	nd	
WCN-22	nd	
WCN-23	nd	
WCN-24	nd	
WCN-25	nd	
WCN-26	nd	
WCN-27	nd	
WCN-28	<1	
WCN-29	nd	
WCN-30	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 3, 2021

Tag	FID Conc. (ppm)	Notes
WCN-31	nd	
WCN-32	nd	
WCN-33	nd	
WCN-34	nd	
WCN-35	nd	
WCN-36	nd	
WCN-37	nd	
WCN-38	nd	
WCN-39	nd	
WCN-40	nd	
WCN-41	nd	
WCN-42	nd	
WCN-43	nd	
WCN-44	nd	
WCN-45	nd	
WCN-46	nd	
WCN-47	nd	
WCN-48	nd	
WCN-49	nd	
WCN-50	nd	
WCN-51	nd	
WCN-52	nd	
WCN-53	nd	
WCN-54	nd	
WCN-55	nd	
WCN-56	nd	
WCN-57	nd	
WCN-58	nd	
WCN-59	nd	
WCN-60	nd	
WCN-61a	nd	
WCN-61	nd	
WCN-62	nd	
WCN-63	nd	
WCN-64	1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 3, 2021

Tag	FID Conc. (ppm)	Notes
WCN-65	nd	
WCN-66	nd	
WCN-67	nd	
WCN-68	nd	
WCN-69	nd	
WCN-70	nd	
WCN-71	nd	
WCN-72	nd	
WCN-73	nd	
WCN-74	nd	
WCN-75	nd	
WCN-76	nd	
WCN-77	nd	
WCN-78	nd	
WCN-79	nd	
WCN-80	nd	
WCN-81	nd	
WCN-82	nd	
WCN-83	nd	
WCN-84	nd	
WCN-85	nd	
WCN-86	nd	End of West Cell North route

ppm - parts per million
nd - not detected
<1 - less than 1

December 10, 2021
File No. 07215056.00

Mr. Wes Lindemuth
TRC
575 Arthur Kill Road
Staten Island, NY 10308

Subject: Brookfield Avenue Landfill

Surface Emissions Monitoring Report October 2021

Dear Wes:

On October 22, 2021, SCS Field Services (SCS-FS) conducted semi-annual surface emissions monitoring (SEM) at the Brookfield Avenue Landfill (Landfill). This monitoring was performed in order to satisfy the requirements of the NYC Department of Environmental Protection's Operation, Maintenance, and Monitoring Services Contract, section 2.4.2.B. – Surface Emission Monitoring. Although the monitoring was not performed for compliance with the Environmental Protection Agency's New Source Performance Standards (NSPS) for landfills, SCS-FS performed the SEM according to the procedures stipulated by the NSPS, as specified in 40 CFR 60.755 (c) and (d), and 40 CFR 60, Appendix A, Method 21.

SEM took place over a monitoring route on the landfill as shown on the attached Landfill Gas Collection Record Drawing, dated July 23, 2015, supplied by Layout, Inc. and attached to this report in ***Attachment 1***. A total of 477 points on the landfill were tested for emissions of volatile organic compounds (VOC), as methane, using a Foxboro TVA-1000B flame ionization detector. The TVA was calibrated using zero air and 500 parts per million (ppm) methane calibration gas. Upwind and downwind locations were monitored and recorded on the Calibration and Pertinent Data Form, provided in ***Attachment 2***. The monitoring data are presented in ***Table 1***, ***Attachment 3***.

Observations

None of the monitoring points over the area surveyed had an emission level exceeding 500 parts per million above background. No further monitoring is required for this SEM event.

SCS-FS appreciates the opportunity to provide our services. Please contact either of the undersigned should you require further information or assistance.

Sincerely,

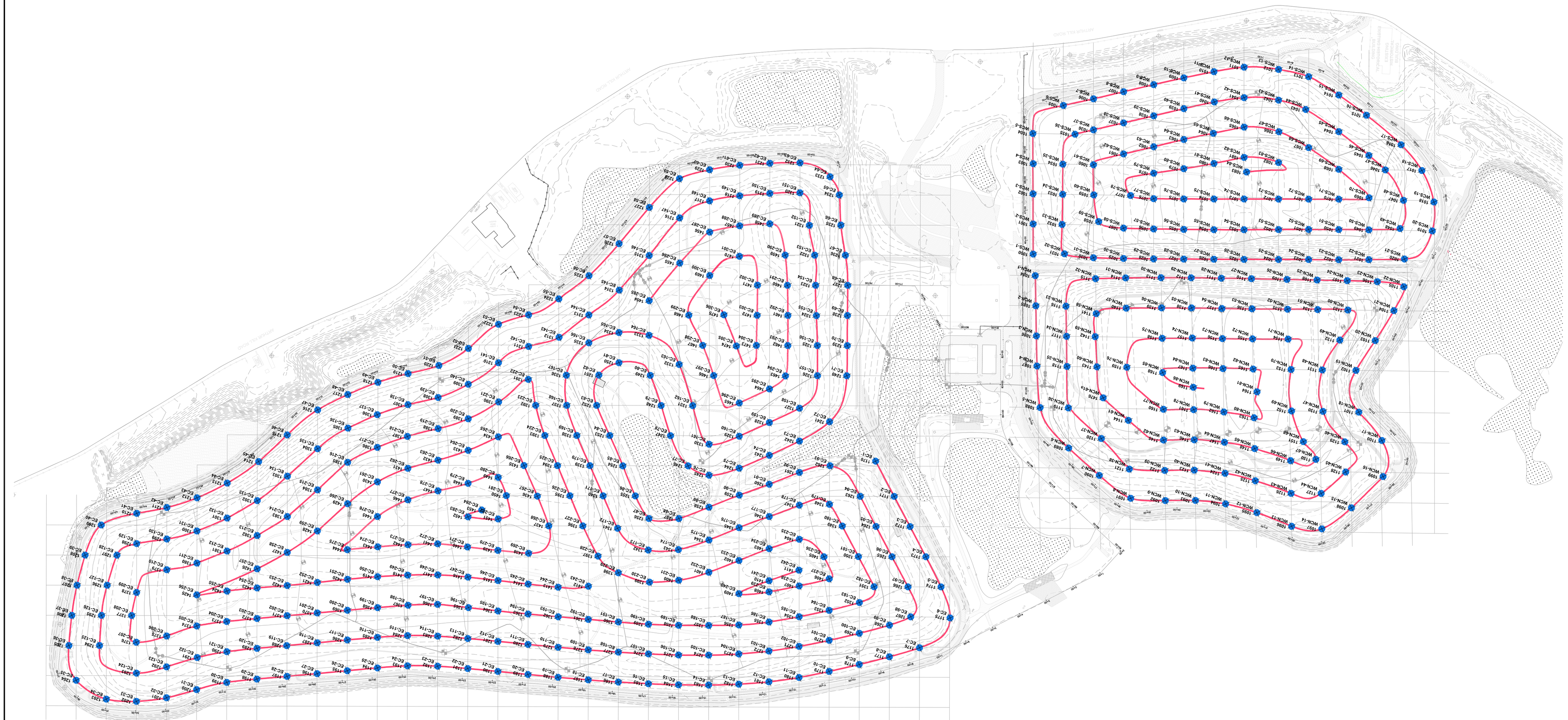
Mike Marks
Project Superintendent
SCS Field Services

Scott Schoffner
Project Manager
SCS Field Services

Attachments

ATTACHMENT 1

SEM ROUTE


SURFACE EMISSIONS MONITORING PLAN
BROOKFIELD AVENUE LANDFILL REMEDIATION
CITY OF NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BROOKFIELD CONSTRUCTION ASSOCIATES, LLC
136 CENTRAL AVENUE
CLARK, NJ 07066
Drawn By: MP
Checked: JPL
Scale: 1" = 150'
Date: 07-23-15
Proj. No.: 2857
Page: 1 of 1
CONTRACT NO. LF-BAL-1G
Paul Emilius Jr.
Professional Land Surveyor
N.Y. License No. 50203
Date
Layout Inc.
PROFESSIONAL LAND SURVEYORS
CONSTRUCTION SURVEYING SPECIALISTS
GPS CONSULTANTS
1 Emin Road, Unit 8
Clifton, N.J. 07014
Ph: 973-249-0900 Fax: 973-249-0988
0 75 150 300 450
(IN FEET)
1 inch = 150 ft.
BROOKFIELD AVENUE
Brookfield Avenue Landfill
Brookfield Avenue
Brookfield Avenue
Brookfield Avenue

ATTACHMENT 2

CALIBRATION AND PERTINENT DATA FORMS

SCS FIELD SERVICES

NSPS Surface Emissions Monitoring
Calibration and Pertinent Data Form

Date: 10/22/21 Site: Brookfield Landfill Job Number: 07220079.00

Technician(s): Doug Cordisco

Weather Observations

Wind Speed: 10 MPH Wind Direction: West Barometric Pressure: 29.96 "Hg

Air Temperature: 61 °F General Weather Conditions: Fair

Calibration Information

Instrument Info Make/Model: TVA1000B Serial No: 414006484

Cal Gas Info	Manufacturer	Lot #	Expiration Date	Concentration
Span Gas:	GASCO	304-402042371-1	4/10/2025	500 ppm
Zero Gas:	GASCO	IBJ-1-15	11/15/2023	0 ppm

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. ***The calibration precision must be less than or equal to 10% of the calibration gas value.***

Trial	Zero Air Reading (ppm)	Cal Gas Reading (ppm)	|Cal Gas Conc. – Cal Gas Reading|
1	0.1	501	1
2	0.1	503	3
3	0.1	501	1
		Average Difference:	2

Calibration Precision = Average Difference / Cal. Gas Conc. X 100%

= 2 / 500 X 100%

= 0.33 %

Pre-monitoring Response Time Check

Procedure: Introduce zero concentration methane/H2S into the instrument. Quickly change to the calibration gas and record stabilized reading. Record the amount of time it took the instrument to read 90% of the stabilized reading. ***This average response time must be less than or equal to 30 seconds.***

Trial	Stabilized Reading on Cal Gas	90% of Stabilized Reading	Time to Reach 90% of Stabilized Reading (Seconds)
1	501	451	5
2	503	453	5
3	501	451	5
		Average Response Time:	5

Background Concentration Checks

Upwind Location Description: West of site on perimeter road Reading: 1.92 ppm

Downwind Location Description: East of site on perimeter road Reading: 2.06 ppm

Average Background Reading: 1.99 ppm

Post-monitoring Calibration Precision Check

Zero Air Reading: 0.6 ppm Cal Gas Reading: 511 ppm

Notes/Comments:

GASCO AFFILIATES, LLC.

320 Scarlet Blvd.
Oldsmar, FL 34677
(800) 910-0051
fax: (866) 755-8920
www.gascogas.com

CERTIFICATE OF ANALYSIS

Date: September 30, 2021
Customer: Pine Environmental Services LLC
Order Number: 6061463
Lot Number: 304-402042371-1
Use Before: 04/10/2025

Component	Requested Concentration	Analytical Result (+/- 2%)
Methane	500 PPM	500 PPM
Air	Balance	Balance

Cylinder Size: 1.2 Cu. Ft.
Contents: 34 Liter
Valve: CGA 600
Pressure: 500 psig

Product composition verified by direct comparison to calibration standards traceable to N.I.S.T. weights and/ or N.I.S.T. Gas Mixture reference materials.

Analyst:

Matthew Creighton
MATTHEW CREIGHTON

GASCO AFFILIATES, LLC.

320 Scarlet Blvd.
Oldsmar, FL 34677
(800) 910-0051
fax: (866) 755-8920
www.gascogas.com

CERTIFICATE OF ANALYSIS

Date: September 30, 2021
Order Number: 6047220
Lot Number: IBJ-1-15
Part Number: AI UZP34

Customer: Pine Environmental

Use Before: 11/15/2023

Component	Specification	Analytical Result (+/- 2%)
Oxygen	20.9% vol.	20.9% vol. THC <0.1 PPM
Nitrogen	Balance	Balance

Cylinder Size: 1.2 Cu. Ft.
Contents: 34 Liter

Valve: CGA 600
Pressure: 500 psig

The calibration gas prepared by Gasco is considered a certified standard. It is prepared by gravimetric, or partial pressure techniques. The calibration standard provided is certified against Gasco's G.M.I.S. (Gas Manufacturer's Intermediate Standard) which is either prepared by weights traceable to the National Institute of Standards and Technology (NIST) or by using NIST Standard Reference Materials where available.

Analyst:

Glenn Velez

ATTACHMENT 3

SEM DATA

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 22, 2021

Tag	FID Conc. (ppm)	Notes
EC-1	3	Start of route; East Cell
EC-2	3	
EC-3	3	
EC-4	3	
EC-5	3	
EC-6	4	
EC-7	4	
EC-8	4	
EC-9	4	
EC-10	3	
EC-11	4	
EC-12	4	
EC-13	4	
EC-14	4	
EC-15	4	
EC-16	5	
EC-17	5	
EC-18	5	
EC-19	5	
EC-20	4	
EC-21	5	
EC-22	5	
EC-23	4	
EC-24	4	
EC-25	5	
EC-26	5	
EC-27	5	
EC-28	4	
EC-29	5	
EC-30	5	
EC-31	4	
EC-32	4	
EC-33	5	
EC-34	5	
EC-35	4	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 22, 2021

Tag	FID Conc. (ppm)	Notes
EC-36	4	
EC-37	4	
EC-38	4	
EC-39	4	
EC-40	5	
EC-41	5	
EC-42	5	
EC-43	5	
EC-44	5	
EC-45	5	
EC-46	5	
EC-47	5	
EC-48	5	
EC-49	5	
EC-50	5	
EC-51	5	
EC-52	5	
EC-53	5	
EC-54	6	
EC-55	5	
EC-56	6	
EC-57	5	
EC-58	5	
EC-59	5	
EC-60	5	
EC-61	5	
EC-62	6	
EC-63	5	
EC-64	6	
EC-65	5	
EC-66	5	
EC-67	5	
EC-68	5	
EC-69	5	
EC-70	6	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 22, 2021

Tag	FID Conc. (ppm)	Notes
EC-71	6	
EC-72	6	
EC-73	6	
EC-74	6	
EC-75	6	
EC-76	6	
EC-77	6	
EC-78	6	
EC-79	6	
EC-80	6	
EC-81	6	
EC-82	6	
EC-83	6	
EC-84	6	
EC-85	5	
EC-86	5	
EC-87	6	
EC-88	5	
EC-89	5	
EC-90	5	
EC-91	5	
EC-92	5	
EC-93	5	
EC-94	7	
EC-95	6	
EC-96	7	
EC-97	6	
EC-98	5	
EC-99	5	
EC-100	6	
EC-101	5	
EC-102	5	
EC-103	5	
EC-104	6	
EC-105	5	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 22, 2021

Tag	FID Conc. (ppm)	Notes
EC-106	5	
EC-107	5	
EC-108	5	
EC-109	5	
EC-110	5	
EC-111	6	
EC-112	6	
EC-113	5	
EC-114	6	
EC-115	6	
EC-116	7	
EC-117	6	
EC-118	6	
EC-119	6	
EC-120	6	
EC-121	6	
EC-122	6	
EC-123	6	
EC-124	7	
EC-125	7	
EC-126	7	
EC-127	7	
EC-128	7	
EC-129	6	
EC-130	6	
EC-131	6	
EC-132	6	
EC-133	7	
EC-134	6	
EC-135	6	
EC-136	7	
EC-137	6	
EC-138	6	
EC-139	6	
EC-140	6	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 22, 2021

Tag	FID Conc. (ppm)	Notes
EC-141	6	
EC-142	5	
EC-143	6	
EC-144	6	
EC-145	7	
EC-146	7	
EC-147	7	
EC-148	7	
EC-149	7	
EC-150	7	
EC-151	7	
EC-152	7	
EC-153	7	
EC-154	7	
EC-155	7	
EC-156	6	
EC-157	7	
EC-158	7	
EC-159	7	
EC-160	6	
EC-161	6	
EC-162	6	
EC-163	6	
EC-164	7	
EC-165	7	
EC-166	7	
EC-167	8	
EC-168	7	
EC-169	7	
EC-170	7	
EC-171	7	
EC-172	7	
EC-173	7	
EC-174	7	
EC-175	7	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 22, 2021

Tag	FID Conc. (ppm)	Notes
EC-176	7	
EC-177	7	
EC-178	8	
EC-179	7	
EC-180	7	
EC-181	7	
EC-182	7	
EC-183	7	
EC-184	8	
EC-185	8	
EC-186	7	
EC-187	7	
EC-188	7	
EC-189	8	
EC-190	7	
EC-191	8	
EC-192	7	
EC-193	8	
EC-194	8	
EC-195	7	
EC-196	7	
EC-197	7	
EC-198	6	
EC-199	7	
EC-200	7	
EC-201	7	
EC-202	7	
EC-203	7	
EC-204	7	
EC-205	7	
EC-206	7	
EC-207	7	
EC-208	8	
EC-209	9	
EC-210	8	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 22, 2021

Tag	FID Conc. (ppm)	Notes
EC-211	7	
EC-212	8	
EC-213	8	
EC-214	8	
EC-215	8	
EC-216	8	
EC-217	8	
EC-218	8	
EC-219	9	
EC-220	7	
EC-221	8	
EC-222	7	
EC-223	7	
EC-224	7	
EC-225	8	
EC-226	8	
EC-227	9	
EC-228	9	
EC-229	8	
EC-230	8	
EC-231	8	
EC-232	8	
EC-233	9	
EC-234	8	
EC-235	7	
EC-236	8	
EC-237	8	
EC-238	9	
EC-239	8	
EC-240	8	
EC-241	8	
EC-242	8	
EC-243	8	
EC-244	8	
EC-245	8	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 22, 2021

Tag	FID Conc. (ppm)	Notes
EC-246	8	
EC-247	8	
EC-248	8	
EC-249	8	
EC-250	8	
EC-251	8	
EC-252	8	
EC-253	8	
EC-254	8	
EC-255	9	
EC-256	8	
EC-257	9	
EC-258	9	
EC-259	9	
EC-260	9	
EC-261	9	
EC-262	8	
EC-263	8	
EC-264	8	
EC-265	8	
EC-266	8	
EC-267	8	
EC-268	8	
EC-269	8	
EC-270	9	
EC-271	8	
EC-272	8	
EC-273	10	
EC-274	8	
EC-275	9	
EC-276	9	
EC-277	8	
EC-278	9	
EC-279	8	
EC-280	9	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 22, 2021

Tag	FID Conc. (ppm)	Notes
EC-281	8	
EC-282	8	
EC-283	8	
EC-284	8	
EC-285	8	
EC-286	8	
EC-287	8	
EC-288	8	
EC-289	9	
EC-290	9	
EC-291	8	
EC-292	8	
EC-293	9	
EC-294	9	
EC-295	8	
EC-296	8	
EC-297	8	
EC-298	8	
EC-299	8	
EC-300	8	
EC-301	8	
EC-302	9	
EC-303	8	
EC-304	8	
EC-305	8	
EC-306	8	End of East Cell route
WCS-1	8	Start of West Cell South route
WCS-2	8	
WCS-3	8	
WCS-4	8	
WCS-5	9	
WCS-6	9	
WCS-7	9	
WCS-8	8	
WCS-9	9	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 22, 2021

Tag	FID Conc. (ppm)	Notes
WCS-10	8	
WCS-11	8	
WCS-12	8	
WCS-13	8	
WCS-14	9	
WCS-15	8	
WCS-16	8	
WCS-17	8	
WCS-18	8	
WCS-19	8	
WCS-20	9	
WCS-21	9	
WCS-22	9	
WCS-23	9	
WCS-24	9	
WCS-25	8	
WCS-26	8	
WCS-27	8	
WCS-28	8	
WCS-29	8	
WCS-30	9	
WCS-31	9	
WCS-32	9	
WCS-33	9	
WCS-34	19	
WCS-35	9	
WCS-36	9	
WCS-37	8	
WCS-38	8	
WCS-39	9	
WCS-40	9	
WCS-41	9	
WCS-42	10	
WCS-43	9	
WCS-44	9	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 22, 2021

Tag	FID Conc. (ppm)	Notes
WCS-45	9	
WCS-46	9	
WCS-47	9	
WCS-48	10	
WCS-49	10	
WCS-50	10	
WCS-51	10	
WCS-52	10	
WCS-53	9	
WCS-54	9	
WCS-55	10	
WCS-56	9	
WCS-57	9	
WCS-58	10	
WCS-59	9	
WCS-60	9	
WCS-61	9	
WCS-62	9	
WCS-63	10	
WCS-64	10	
WCS-65	9	
WCS-66	9	
WCS-67	10	
WCS-68	9	
WCS-69	9	
WCS-70	9	
WCS-71	10	
WCS-72	9	
WCS-73	9	
WCS-74	9	
WCS-75	9	
WCS-76	9	
WCS-77	9	
WCS-78	10	
WCS-79	9	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 22, 2021

Tag	FID Conc. (ppm)	Notes
WCS-80	9	
WCS-81	9	
WCS-82	9	
WCS-83	9	
WCS-84	9	End of West Cell South route
WCN-1	4	West Cell North route
WCN-2	4	
WCN-3	4	
WCN-4	5	
WCN-5	5	
WCN-6	5	
WCN-7	6	
WCN-8	6	
WCN-9	6	
WCN-10	6	
WCN-11	6	
WCN-12	6	
WCN-13	5	
WCN-14	6	
WCN-15	5	
WCN-16	5	
WCN-17	5	
WCN-18	5	
WCN-19	5	
WCN-20	6	
WCN-21	5	
WCN-22	6	
WCN-23	6	
WCN-24	6	
WCN-25	6	
WCN-26	6	
WCN-27	6	
WCN-28	6	
WCN-29	6	
WCN-30	6	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 22, 2021

Tag	FID Conc. (ppm)	Notes
WCN-31	6	
WCN-32	6	
WCN-33	6	
WCN-34	6	
WCN-35	7	
WCN-36	7	
WCN-37	7	
WCN-38	7	
WCN-39	7	
WCN-40	8	
WCN-41	7	
WCN-42	7	
WCN-43	6	
WCN-44	7	
WCN-45	7	
WCN-46	7	
WCN-47	7	
WCN-48	7	
WCN-49	7	
WCN-50	7	
WCN-51	7	
WCN-52	8	
WCN-53	7	
WCN-54	7	
WCN-55	8	
WCN-56	7	
WCN-57	8	
WCN-58	7	
WCN-59	7	
WCN-60	7	
WCN-61a	7	
WCN-61	7	
WCN-62	7	
WCN-63	7	
WCN-64	7	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 22, 2021

Tag	FID Conc. (ppm)	Notes
WCN-65	7	
WCN-66	7	
WCN-67	7	
WCN-68	7	
WCN-69	7	
WCN-70	7	
WCN-71	7	
WCN-72	7	
WCN-73	7	
WCN-74	7	
WCN-75	7	
WCN-76	7	
WCN-77	7	
WCN-78	8	
WCN-79	7	
WCN-80	8	
WCN-81	8	
WCN-82	7	
WCN-83	7	
WCN-84	7	
WCN-85	8	
WCN-86	4	End of West Cell North route

ppm - parts per million
nd - not detected
<1 - less than 1

June 29, 2022
File No. 07215056.00

Mr. Wes Lindemuth
TRC
575 Arthur Kill Road
Staten Island, NY 10308

Subject: Brookfield Avenue Landfill

Surface Emissions Monitoring Report June 2022

Dear Wes:

On June 8, 2022, SCS Field Services (SCS-FS) conducted semi-annual surface emissions monitoring (SEM) at the Brookfield Avenue Landfill (Landfill). This monitoring was performed in order to satisfy the requirements of the NYC Department of Environmental Protection's Operation, Maintenance, and Monitoring Services Contract, section 2.4.2.B. – Surface Emission Monitoring. Although the monitoring was not performed for compliance with the Environmental Protection Agency's National Emissions Standards for Hazardous Air Pollutants (NESHAP) for landfills, SCS-FS performed the SEM according to the procedures stipulated by the NESHAP, as specified in 40 CFR 63.1960(c) and (d), and 40 CFR 60, Appendix A, Method 21.

SEM took place over a monitoring route on the landfill as shown on the attached Landfill Gas Collection Record Drawing, dated July 23, 2015, supplied by Layout, Inc. and attached to this report in ***Attachment 1***. A total of 477 points on the landfill were tested for emissions of volatile organic compounds (VOC), as methane, using a Foxboro TVA-1000B flame ionization detector. The TVA was calibrated using zero air and 500 parts per million (ppm) methane calibration gas. Upwind and downwind locations were monitored and recorded on the Calibration and Pertinent Data Form, provided in ***Attachment 2***. The monitoring data are presented in ***Table 1***, ***Attachment 3***.

Observations

None of the monitoring points over the area surveyed had an emission level exceeding 500 parts per million above background. No further monitoring is required for this SEM event.

SCS-FS appreciates the opportunity to provide our services. Please contact either of the undersigned should you require further information or assistance.

Sincerely,

Mike Marks
Senior Project Superintendent
SCS Field Services

Scott Schoffner
Project Manager
SCS Field Services

Attachments

ATTACHMENT 1

SEM ROUTE

User Name : LayoutInc Date\Time : Tue, 28 Jul 2015 - 1:14pm Path\Name : C:\Layout\Brookfield\2857-Brookfield-Landfill\CIVIL 3D\Drawings\2857-SURFACE EMISSION MONITORING.dwg - Layout Tab : BROOKFIELD LANDFILL SURFACE EMISSION MONITORING-PNTS

CONTRACT NO. LF-BAL-1G

SURFACE EMISSIONS MONITORING PLAN	Drawn By: MP
BROOKFIELD AVENUE LANDFILL REMEDIATION	Checked: JPL
Prepared For: CITY OF NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION	Scale: 1" = 150'
	Date: 07-23-15
BROOKFIELD CONSTRUCTION ASSOCIATES, LLC 136 CENTRAL AVENUE CLARK, NJ 07066	Proj. No.: 2857
	Page: 1 of 1

0 75 150 300 450
(IN FEET)
1 inch = 150 ft.

Layout Inc.
PROFESSIONAL LAND SURVEYORS
CONSTRUCTION SURVEYING SPECIALISTS
GPS CONSULTANTS
1 Entin Road, Unit 8
Clifton, N.J. 07014
Ph: 973-249-0900 Fax: 973-249-0988

Date
Paul Emilius Jr.
Professional Land Surveyor
N.Y. License No. 50203

ATTACHMENT 2

CALIBRATION AND PERTINENT DATA FORMS

SCS FIELD SERVICES

NESHAP Surface Emissions Monitoring
Calibration and Pertinent Data Form

Date: 06/08/22 Site: Brookfield Landfill Job Number: 07220079.00

Technician(s): Caleb Brown

Weather Observations

Wind Speed: 9 MPH Wind Direction: East Barometric Pressure: 30.07 "Hg

Air Temperature: 79 °F General Weather Conditions: Clear

Calibration Information

Instrument Info Make/Model: TVA 2020 Serial No: 202016093665

Cal Gas Info	Manufacturer	Lot #	Expiration Date	Concentration
Span Gas:	SpecAir	4035462	12/1/2023	490 ppm
Zero Gas:	SpecAir	4031866	11/1/2023	0 ppm

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. ***The calibration precision must be less than or equal to 10% of the calibration gas value.***

Trial	Zero Air Reading (ppm)	Cal Gas Reading (ppm)	|Cal Gas Conc. – Cal Gas Reading|
1	0.3	496	6
2	0.5	488	2
3	0.3	501	11
		Average Difference:	6

Calibration Precision = Average Difference / Cal. Gas Conc. X 100%

= 6 / 490 X 100%

= 1.29 %

Pre-monitoring Response Time Check

Procedure: Introduce zero concentration methane/H2S into the instrument. Quickly change to the calibration gas and record stabilized reading. Record the amount of time it took the instrument to read 90% of the stabilized reading. ***This average response time must be less than or equal to 30 seconds.***

Trial	Stabilized Reading on Cal Gas	90% of Stabilized Reading	Time to Reach 90% of Stabilized Reading (Seconds)
1	496	446	7
2	488	439	6
3	501	451	6
		Average Response Time:	6

Background Concentration Checks

Upwind Location Description: East of site on access road Reading: 1.10 ppm

Downwind Location Description: West of site on access road Reading: 1.90 ppm

Average Background Reading: 1.50 ppm

Post-monitoring Calibration Precision Check

Zero Air Reading: 0.1 ppm Cal Gas Reading: 495 ppm

Notes/Comments:

22 Albiston Way
Auburn, ME 04210
800-292-6218
207-777-6218
Fax 207-777-6215
www.specair.com

Date: 11/13/2020

Certificate of Analysis

Customer:
QED ENVIRONMENTAL SYSTEM

Order #: 1858955
Purchase Order #: 138414

Cylinder Size: 105L **CGA Connection:** C10 **Fill Pressure:** 1000 PSI

Analysis: Air Batch Analysis

Lot #: 4031866

Component(s):	Requested Concentration(s):	Actual Concentration(s):
Oxygen	19.5% - 23.5%	21.0%
Moisture	< 3 PPM	0.2 PPM
THC	< 0.1 PPM	< 0.1 PPM
CO/CO2	< 1 PPM	< 0.1 PPM

Expiration Date: 11/2023

Comments: MEETS OR EXCEEDS SPECIFICATION FOR ULTRA ZERO AIR

Approved By:

Kyle Christianson

Part #
CGAIR-0

QTY
1

Wednesday, November 18, 2020

FGA - R2 / O / 22

• Results are reported in mole percent, unless otherwise indicated. Mixes are prepared via partial p sensitivity electronic scales. Prior to use, scales are verified for accuracy using applicable NIST trac materials traceable to NIST weights and/or NIST gas reference materials. d high ence

• The information contained herein has been prepared at your request by qualified experts. While we believe that the information is accurate within the limits of the analytical methods employed, and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability arising out of the use of the information contained herein exceed the fee established for providing such information.

• This certifies that the instruments used for this analysis have been calibrated in compliance with the specifications in the order using SI/NIST traceable standards. When a statement of conformity is made, accept/reject decisions consider the measurement uncertainty and the specification tolerance. When the measurand and uncertainty are reported, measurement uncertainties are declared in the analytical results and the analytical results are not adjusted to consider measurement uncertainties.

SpecAir Specialty Gases
A DIVISION OF MAINEOXY

22 Albiston Way
Auburn, ME 04210
800-292-6218
207-777-6218
Fax 207-777-6215
www.specair.com

Certificate of Analysis

Date: 12/29/2020

Order #: 1884559
Purchase Order #: 139020

Customer:
QED ENVIRONMENTAL SYSTEMS

Cylinder Size: 105L **CGA Connection:** C10 **Fill Pressure:** 1000 PSI

Lot #: 4035462

Analysis: Certified Batch Analysis

Component(s):	Requested Concentration(s):	Actual Concentration(s):
Methane	500 PPM	490 PPM
Air	BALANCE	BALANCE

Expiration Date: 12/2023

Approved By:

Kyle Christianson

Part #
CGCH4-500

QTY
1

Monday, January 11, 2021

FGA - R101	/ O /	15
QED - SHIP	/ S /	12

• Results are reported in mole percent, unless otherwise indicated. Mixes are prepared via partial pressure methods, or gravimetrically, using high load high sensitivity electronic scales. Prior to use, scales are verified for accuracy using applicable NIST traceable weights; analyses are calibrated against reference materials traceable to NIST weights and/or NIST gas reference materials.
• The information contained herein has been prepared at your request by qualified experts. While we believe that the information is accurate within the limits of the analytical methods employed, and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability arising out of the use of the information contained herein exceed the fee established for providing such information.
• This certifies that the instruments used for this analysis have been calibrated in compliance with the specifications in the order using SI/NIST traceable standards. When a statement of conformity is made, accept/reject decisions consider the measurement uncertainty and the specification tolerance. When the measurand and uncertainty are reported, measurement uncertainties are declared in the analytical results and the analytical results are not adjusted to consider measurement uncertainties.

ATTACHMENT 3

SEM DATA

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 8, 2022

Tag	FID Conc. (ppm)	Notes
EC-1	2	Start of route; East Cell
EC-2	2	
EC-3	2	
EC-4	2	
EC-5	2	
EC-6	1	
EC-7	1	
EC-8	1	
EC-9	1	
EC-10	1	
EC-11	1	
EC-12	1	
EC-13	1	
EC-14	1	
EC-15	1	
EC-16	1	
EC-17	1	
EC-18	1	
EC-19	1	
EC-20	1	
EC-21	1	
EC-22	1	
EC-23	1	
EC-24	1	
EC-25	1	
EC-26	1	
EC-27	1	
EC-28	1	
EC-29	1	
EC-30	1	
EC-31	1	
EC-32	1	
EC-33	1	
EC-34	1	
EC-35	1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 8, 2022

Tag	FID Conc. (ppm)	Notes
EC-36	1	
EC-37	1	
EC-38	1	
EC-39	1	
EC-40	1	
EC-41	1	
EC-42	<1	
EC-43	<1	
EC-44	<1	
EC-45	<1	
EC-46	1	
EC-47	<1	
EC-48	<1	
EC-49	<1	
EC-50	<1	
EC-51	<1	
EC-52	<1	
EC-53	<1	
EC-54	<1	
EC-55	<1	
EC-56	<1	
EC-57	<1	
EC-58	<1	
EC-59	<1	
EC-60	<1	
EC-61	<1	
EC-62	<1	
EC-63	<1	
EC-64	<1	
EC-65	<1	
EC-66	<1	
EC-67	<1	
EC-68	<1	
EC-69	<1	
EC-70	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 8, 2022

Tag	FID Conc. (ppm)	Notes
EC-71	<1	
EC-72	<1	
EC-73	<1	
EC-74	<1	
EC-75	<1	
EC-76	<1	
EC-77	<1	
EC-78	<1	
EC-79	<1	
EC-80	<1	
EC-81	<1	
EC-82	<1	
EC-83	<1	
EC-84	<1	
EC-85	<1	
EC-86	<1	
EC-87	<1	
EC-88	<1	
EC-89	<1	
EC-90	<1	
EC-91	<1	
EC-92	<1	
EC-93	<1	
EC-94	<1	
EC-95	<1	
EC-96	<1	
EC-97	<1	
EC-98	<1	
EC-99	<1	
EC-100	<1	
EC-101	<1	
EC-102	<1	
EC-103	<1	
EC-104	<1	
EC-105	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 8, 2022

Tag	FID Conc. (ppm)	Notes
EC-106	<1	
EC-107	<1	
EC-108	<1	
EC-109	<1	
EC-110	<1	
EC-111	<1	
EC-112	<1	
EC-113	<1	
EC-114	<1	
EC-115	<1	
EC-116	<1	
EC-117	<1	
EC-118	<1	
EC-119	<1	
EC-120	<1	
EC-121	<1	
EC-122	<1	
EC-123	<1	
EC-124	<1	
EC-125	<1	
EC-126	<1	
EC-127	<1	
EC-128	<1	
EC-129	<1	
EC-130	<1	
EC-131	<1	
EC-132	<1	
EC-133	<1	
EC-134	<1	
EC-135	<1	
EC-136	<1	
EC-137	<1	
EC-138	<1	
EC-139	<1	
EC-140	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 8, 2022

Tag	FID Conc. (ppm)	Notes
EC-141	<1	
EC-142	<1	
EC-143	<1	
EC-144	<1	
EC-145	<1	
EC-146	<1	
EC-147	<1	
EC-148	<1	
EC-149	<1	
EC-150	<1	
EC-151	<1	
EC-152	<1	
EC-153	<1	
EC-154	<1	
EC-155	<1	
EC-156	<1	
EC-157	<1	
EC-158	<1	
EC-159	<1	
EC-160	<1	
EC-161	<1	
EC-162	<1	
EC-163	<1	
EC-164	<1	
EC-165	<1	
EC-166	<1	
EC-167	<1	
EC-168	<1	
EC-169	<1	
EC-170	<1	
EC-171	<1	
EC-172	<1	
EC-173	<1	
EC-174	<1	
EC-175	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 8, 2022

Tag	FID Conc. (ppm)	Notes
EC-176	<1	
EC-177	<1	
EC-178	<1	
EC-179	<1	
EC-180	<1	
EC-181	<1	
EC-182	<1	
EC-183	<1	
EC-184	<1	
EC-185	<1	
EC-186	<1	
EC-187	<1	
EC-188	<1	
EC-189	<1	
EC-190	<1	
EC-191	<1	
EC-192	<1	
EC-193	<1	
EC-194	<1	
EC-195	<1	
EC-196	<1	
EC-197	<1	
EC-198	<1	
EC-199	<1	
EC-200	<1	
EC-201	<1	
EC-202	<1	
EC-203	<1	
EC-204	<1	
EC-205	<1	
EC-206	<1	
EC-207	<1	
EC-208	<1	
EC-209	<1	
EC-210	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 8, 2022

Tag	FID Conc. (ppm)	Notes
EC-211	<1	
EC-212	<1	
EC-213	<1	
EC-214	<1	
EC-215	<1	
EC-216	<1	
EC-217	<1	
EC-218	<1	
EC-219	<1	
EC-220	<1	
EC-221	<1	
EC-222	<1	
EC-223	<1	
EC-224	<1	
EC-225	<1	
EC-226	<1	
EC-227	<1	
EC-228	<1	
EC-229	<1	
EC-230	<1	
EC-231	<1	
EC-232	<1	
EC-233	<1	
EC-234	<1	
EC-235	<1	
EC-236	<1	
EC-237	<1	
EC-238	<1	
EC-239	<1	
EC-240	<1	
EC-241	<1	
EC-242	<1	
EC-243	<1	
EC-244	<1	
EC-245	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 8, 2022

Tag	FID Conc. (ppm)	Notes
EC-246	<1	
EC-247	<1	
EC-248	<1	
EC-249	<1	
EC-250	<1	
EC-251	<1	
EC-252	<1	
EC-253	<1	
EC-254	<1	
EC-255	<1	
EC-256	<1	
EC-257	<1	
EC-258	<1	
EC-259	<1	
EC-260	<1	
EC-261	<1	
EC-262	<1	
EC-263	<1	
EC-264	<1	
EC-265	<1	
EC-266	<1	
EC-267	<1	
EC-268	<1	
EC-269	<1	
EC-270	<1	
EC-271	<1	
EC-272	<1	
EC-273	<1	
EC-274	<1	
EC-275	<1	
EC-276	<1	
EC-277	<1	
EC-278	<1	
EC-279	<1	
EC-280	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 8, 2022

Tag	FID Conc. (ppm)	Notes
EC-281	<1	
EC-282	<1	
EC-283	<1	
EC-284	<1	
EC-285	<1	
EC-286	<1	
EC-287	<1	
EC-288	<1	
EC-289	<1	
EC-290	<1	
EC-291	<1	
EC-292	<1	
EC-293	<1	
EC-294	<1	
EC-295	<1	
EC-296	<1	
EC-297	<1	
EC-298	<1	
EC-299	<1	
EC-300	<1	
EC-301	<1	
EC-302	<1	
EC-303	<1	
EC-304	<1	
EC-305	<1	
EC-306	<1	End of East Cell route
WCS-1	<1	Start of West Cell South route
WCS-2	<1	
WCS-3	<1	
WCS-4	<1	
WCS-5	<1	
WCS-6	<1	
WCS-7	<1	
WCS-8	<1	
WCS-9	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 8, 2022

Tag	FID Conc. (ppm)	Notes
WCS-10	<1	
WCS-11	<1	
WCS-12	<1	
WCS-13	<1	
WCS-14	<1	
WCS-15	<1	
WCS-16	<1	
WCS-17	<1	
WCS-18	<1	
WCS-19	<1	
WCS-20	<1	
WCS-21	<1	
WCS-22	nd	
WCS-23	nd	
WCS-24	nd	
WCS-25	nd	
WCS-26	nd	
WCS-27	nd	
WCS-28	nd	
WCS-29	nd	
WCS-30	<1	
WCS-31	nd	
WCS-32	nd	
WCS-33	nd	
WCS-34	6	
WCS-35	<1	
WCS-36	nd	
WCS-37	nd	
WCS-38	nd	
WCS-39	nd	
WCS-40	nd	
WCS-41	2	
WCS-42	nd	
WCS-43	nd	
WCS-44	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 8, 2022

Tag	FID Conc. (ppm)	Notes
WCS-45	nd	
WCS-46	nd	
WCS-47	nd	
WCS-48	nd	
WCS-49	nd	
WCS-50	<1	
WCS-51	nd	
WCS-52	nd	
WCS-53	nd	
WCS-54	2	
WCS-55	nd	
WCS-56	nd	
WCS-57	1	
WCS-58	nd	
WCS-59	nd	
WCS-60	nd	
WCS-61	nd	
WCS-62	nd	
WCS-63	nd	
WCS-64	nd	
WCS-65	nd	
WCS-66	nd	
WCS-67	nd	
WCS-68	nd	
WCS-69	nd	
WCS-70	nd	
WCS-71	nd	
WCS-72	nd	
WCS-73	nd	
WCS-74	nd	
WCS-75	nd	
WCS-76	nd	
WCS-77	nd	
WCS-78	nd	
WCS-79	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 8, 2022

Tag	FID Conc. (ppm)	Notes
WCS-80	nd	
WCS-81	nd	
WCS-82	nd	
WCS-83	nd	
WCS-84	nd	End of West Cell South route
WCN-1	nd	West Cell North route
WCN-2	nd	
WCN-3	nd	
WCN-4	nd	
WCN-5	nd	
WCN-6	nd	
WCN-7	nd	
WCN-8	nd	
WCN-9	nd	
WCN-10	nd	
WCN-11	nd	
WCN-12	nd	
WCN-13	2	
WCN-14	<1	
WCN-15	nd	
WCN-16	nd	
WCN-17	nd	
WCN-18	nd	
WCN-19	nd	
WCN-20	nd	
WCN-21	nd	
WCN-22	nd	
WCN-23	nd	
WCN-24	nd	
WCN-25	nd	
WCN-26	nd	
WCN-27	nd	
WCN-28	nd	
WCN-29	nd	
WCN-30	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 8, 2022

Tag	FID Conc. (ppm)	Notes
WCN-31	nd	
WCN-32	nd	
WCN-33	nd	
WCN-34	nd	
WCN-35	nd	
WCN-36	nd	
WCN-37	nd	
WCN-38	nd	
WCN-39	nd	
WCN-40	nd	
WCN-41	nd	
WCN-42	nd	
WCN-43	nd	
WCN-44	nd	
WCN-45	nd	
WCN-46	nd	
WCN-47	nd	
WCN-48	nd	
WCN-49	nd	
WCN-50	nd	
WCN-51	nd	
WCN-52	nd	
WCN-53	nd	
WCN-54	nd	
WCN-55	nd	
WCN-56	nd	
WCN-57	nd	
WCN-58	nd	
WCN-59	nd	
WCN-60	nd	
WCN-61a	nd	
WCN-61	nd	
WCN-62	nd	
WCN-63	nd	
WCN-64	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

June 8, 2022

Tag	FID Conc. (ppm)	Notes
WCN-65	nd	
WCN-66	nd	
WCN-67	nd	
WCN-68	nd	
WCN-69	nd	
WCN-70	nd	
WCN-71	nd	
WCN-72	nd	
WCN-73	nd	
WCN-74	nd	
WCN-75	nd	
WCN-76	nd	
WCN-77	nd	
WCN-78	nd	
WCN-79	nd	
WCN-80	nd	
WCN-81	nd	
WCN-82	nd	
WCN-83	nd	
WCN-84	nd	
WCN-85	nd	
WCN-86	nd	End of West Cell North route

ppm - parts per million
nd - not detected
<1 - less than 1

November 21, 2022
File No. 07215056.00

Mr. Wes Lindemuth
TRC
575 Arthur Kill Road
Staten Island, NY 10308

Subject: Brookfield Avenue Landfill

Surface Emissions Monitoring Report October 2022

Dear Wes:

On October 31, 2022, SCS Field Services (SCS-FS) conducted semi-annual surface emissions monitoring (SEM) at the Brookfield Avenue Landfill (Landfill). This monitoring was performed in order to satisfy the requirements of the NYC Department of Environmental Protection's Operation, Maintenance, and Monitoring Services Contract, section 2.4.2.B. – Surface Emission Monitoring. Although the monitoring was not performed for compliance with the Environmental Protection Agency's National Emissions Standards for Hazardous Air Pollutants (NESHAP) for landfills, SCS-FS performed the SEM according to the procedures stipulated by the NESHAP, as specified in 40 CFR 63.1960(c) and (d), and 40 CFR 60, Appendix A, Method 21.

SEM took place over a monitoring route on the landfill as shown on the attached Landfill Gas Collection Record Drawing, dated July 23, 2015, supplied by Layout, Inc. and attached to this report in ***Attachment 1***. A total of 477 points on the landfill were tested for emissions of volatile organic compounds (VOC), as methane, using a Foxboro TVA-1000B flame ionization detector. The TVA was calibrated using zero air and 500 parts per million (ppm) methane calibration gas. Upwind and downwind locations were monitored and recorded on the Calibration and Pertinent Data Form, provided in ***Attachment 2***. The monitoring data are presented in ***Table 1***, ***Attachment 3***.

Observations

None of the monitoring points over the area surveyed had an emission level exceeding 500 parts per million above background. No further monitoring is required for this SEM event.

SCS-FS appreciates the opportunity to provide our services. Please contact either of the undersigned should you require further information or assistance.

Sincerely,

Mike Marks
Senior Project Superintendent
SCS Field Services

Scott Schoffner
Project Manager
SCS Field Services

Attachments

ATTACHMENT 1

SEM ROUTE

CONTRACT NO. LF-BAL-1G

Paul Emilius Jr. Professional Land Surveyor N.Y. License No. 50203 Date	0 75 150 300 450 (IN FEET) 1 inch = 150 ft.	SURFACE EMISSIONS MONITORING PLAN	Drawn By: MP
		BROOKFIELD AVENUE LANDFILL REMEDIATION	Checked: JPL
	Layout Inc. PROFESSIONAL LAND SURVEYORS CONSTRUCTION SURVEYING SPECIALISTS GPS CONSULTANTS 1 Entin Road, Unit 8 Clifton, N.J. 07014 Ph: 973-249-0900 Fax: 973-249-0988	Prepared For: CITY OF NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION	Scale: 1" = 150'
			Date: 07-23-15
		BROOKFIELD CONSTRUCTION ASSOCIATES, LLC 136 CENTRAL AVENUE CLARK, NJ 07066	Proj. No.: 2857
			Page: 1 of 1

User Name : LayoutInc Date\Time : Tue, 28 Jul 2015 - 1:14pm Path\Name : C:\Layout\Brookfield\2857-Brookfield-Landfill\CIVIL 3D\Drawings\2857-SURFACE EMISSION MONITORING.dwg - Layout Tab : BROOKFIELD LANDFILL SURFACE EMISSION MONITORING-PNTS

ATTACHMENT 2

CALIBRATION AND PERTINENT DATA FORMS

SCS FIELD SERVICES

NESHAP Surface Emissions Monitoring
Calibration and Pertinent Data Form

Date: 10/31/22 Site: Brookfield Landfill Job Number: 07220079.00

Technician(s): Zac Brooks

Weather Observations

Wind Speed: 3 MPH Wind Direction: SW Barometric Pressure: 30.09 "Hg

Air Temperature: 54 °F General Weather Conditions: Sunny

Calibration Information

Instrument Info Make/Model: TVA2020 Serial No: 20034847

Cal Gas Info	Manufacturer	Lot #	Expiration Date	Concentration
Span Gas:	SpecAir	4132302	11/1/2024	495 ppm
Zero Gas:	SpecAir	4123701	8/1/2024	0 ppm

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. ***The calibration precision must be less than or equal to 10% of the calibration gas value.***

Trial	Zero Air Reading (ppm)	Cal Gas Reading (ppm)	|Cal Gas Conc. – Cal Gas Reading|
1	0.11	505	10
2	0.17	503	8
3	0.3	502	7
		Average Difference:	8

Calibration Precision = Average Difference / Cal. Gas Conc. X 100%

= 8 / 495 X 100%

= 1.68 %

Pre-monitoring Response Time Check

Procedure: Introduce zero concentration methane/H2S into the instrument. Quickly change to the calibration gas and record stabilized reading. Record the amount of time it took the instrument to read 90% of the stabilized reading. ***This average response time must be less than or equal to 30 seconds.***

Trial	Stabilized Reading on Cal Gas	90% of Stabilized Reading	Time to Reach 90% of Stabilized Reading (Seconds)
1	505	455	8
2	503	453	8
3	502	452	8
		Average Response Time:	8

Background Concentration Checks

Upwind Location Description: SW of site on access road Reading: 2.70 ppm

Downwind Location Description: NE of site on access road Reading: 3.40 ppm

Average Background Reading: 3.05 ppm

Post-monitoring Calibration Precision Check

Zero Air Reading: 1.7 ppm Cal Gas Reading: 512 ppm

Notes/Comments:

SpecAir Specialty Gases
A DIVISION OF MAINEOXY

22 Albiston Way
Auburn, ME 04210
800-292-6218
207-777-6218
Fax 207-777-6215
www.specair.com

Date: 08/25/2021

Certificate of Analysis

Customer:
QED ENVIRONMENTAL SYSTEMS

Order #: 2014101
Purchase Order #: 141582

Cylinder Size: 105L **CGA Connection:** C10 **Fill Pressure:** 1000 PSI

Analysis: Air Batch Analysis

Lot #: 4123701

Component(s):	Requested Concentration(s):	Actual Concentration(s):
Oxygen	19.5% - 23.5%	21.7%
Moisture	< 3 PPM	2.0 PPM
THC	< 0.1 PPM	< 0.1 PPM
CO/CO2	< 1 PPM	< 0.1 PPM

Expiration Date: 08/2024

Comments: MEETS OR EXCEEDS SPECIFICATIONS FOR ULTRA ZERO AIR

Approved By:

Ron Abbott

Part # CGAIR-0
QTY 1
Wednesday, September 01, 2021
GAS - 22 / O / 25

- Results are reported in mole percent, unless otherwise indicated. Mixes are prepared via partial pressure methods, or gravimetrically, using high load high sensitivity electronic scales. Prior to use, scales are verified for accuracy using applicable NIST traceable weights; analyses are calibrated against reference materials traceable to NIST weights and/or NIST gas reference materials.
- The information contained herein has been prepared at your request by qualified experts. While we believe that the information is accurate within the limits of the analytical methods employed, and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability arising out of the use of the information contained herein exceed the fee established for providing such information.
- This certifies that the instruments used for this analysis have been calibrated in compliance with the specifications in the order using SI/NIST traceable standards. When a statement of conformity is made, accept/reject decisions consider the measurement uncertainty and the specification tolerance. When the measurand and uncertainty are reported, measurement uncertainties are declared in the analytical results and the analytical results are not adjusted to consider measurement uncertainties.

22 Albiston Way
Auburn, ME 04210
800-292-6218
207-777-6218
Fax 207-777-6215
www.specair.com

Date: 11/19/2021

Certificate of Analysis

Customer:
QED ENVIRONMENTAL SYSTEMS

Order #: 2064462
Purchase Order #: 142555

Cylinder Size: 34L **CGA Connection:** C10 **Fill Pressure:** 500 PSI

Analysis: Certified Batch Analysis **Lot #:** 4132302

Component(s):	Requested Concentration(s):	Actual Concentration(s):
Methane	500 PPM	495 PPM
Air	BALANCE	BALANCE

Expiration Date: 11/2024

Comments: MIX MADE USING DIGITAL BALANCES CALIBRATED TO NIST TRACEABLE WEIGHTS / ACCURACY: +/- 2%
METHOD OF PREPARATION: GRAVIMETRIC / PRESSURE TRANSFILLING
ANALYTICAL PRINCIPLE: GC (TCD)

Approved By:

Ron Abbott

- Results are reported in mole percent, unless otherwise indicated. Mixes are prepared via partial pressure methods, or gravimetrically, using high load high sensitivity electronic scales. Prior to use, scales are verified for accuracy using applicable NIST traceable weights; analyses are calibrated against reference materials traceable to NIST weights and/or NIST gas reference materials.
- The information contained herein has been prepared at your request by qualified experts. While we believe that the information is accurate within the limits of the analytical methods employed, and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability arising out of the use of the information contained herein exceed the fee established for providing such information.
- This certifies that the instruments used for this analysis have been calibrated in compliance with the specifications in the order using SI/NIST traceable standards. When a statement of conformity is made, accept/reject decisions consider the measurement uncertainty and the specification tolerance. When the measurand and uncertainty are reported, measurement uncertainties are declared in the analytical results and the analytical results are not adjusted to consider measurement uncertainties.

ATTACHMENT 3

SEM DATA

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 31, 2022

Tag	FID Conc. (ppm)	Notes
EC-1	4	Start of route; East Cell
EC-2	4	
EC-3	4	
EC-4	4	
EC-5	4	
EC-6	4	
EC-7	4	
EC-8	6	
EC-9	7	
EC-10	5	
EC-11	4	
EC-12	4	
EC-13	5	
EC-14	4	
EC-15	4	
EC-16	4	
EC-17	4	
EC-18	4	
EC-19	4	
EC-20	4	
EC-21	4	
EC-22	4	
EC-23	4	
EC-24	4	
EC-25	4	
EC-26	4	
EC-27	4	
EC-28	4	
EC-29	4	
EC-30	4	
EC-31	4	
EC-32	4	
EC-33	4	
EC-34	4	
EC-35	4	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 31, 2022

Tag	FID Conc. (ppm)	Notes
EC-36	4	
EC-37	4	
EC-38	4	
EC-39	4	
EC-40	4	
EC-41	4	
EC-42	4	
EC-43	4	
EC-44	3	
EC-45	3	
EC-46	4	
EC-47	4	
EC-48	4	
EC-49	3	
EC-50	3	
EC-51	3	
EC-52	3	
EC-53	3	
EC-54	3	
EC-55	3	
EC-56	3	
EC-57	3	
EC-58	3	
EC-59	3	
EC-60	3	
EC-61	3	
EC-62	4	
EC-63	3	
EC-64	3	
EC-65	4	
EC-66	3	
EC-67	3	
EC-68	3	
EC-69	3	
EC-70	3	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 31, 2022

Tag	FID Conc. (ppm)	Notes
EC-71	3	
EC-72	3	
EC-73	3	
EC-74	3	
EC-75	3	
EC-76	4	
EC-77	4	
EC-78	4	
EC-79	4	
EC-80	4	
EC-81	4	
EC-82	4	
EC-83	4	
EC-84	4	
EC-85	4	
EC-86	4	
EC-87	4	
EC-88	4	
EC-89	4	
EC-90	4	
EC-91	4	
EC-92	3	
EC-93	3	
EC-94	3	
EC-95	3	
EC-96	3	
EC-97	3	
EC-98	3	
EC-99	3	
EC-100	3	
EC-101	3	
EC-102	4	
EC-103	4	
EC-104	3	
EC-105	4	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 31, 2022

Tag	FID Conc. (ppm)	Notes
EC-106	4	
EC-107	4	
EC-108	4	
EC-109	4	
EC-110	4	
EC-111	4	
EC-112	4	
EC-113	4	
EC-114	3	
EC-115	3	
EC-116	3	
EC-117	3	
EC-118	4	
EC-119	5	
EC-120	3	
EC-121	3	
EC-122	4	
EC-123	4	
EC-124	4	
EC-125	4	
EC-126	4	
EC-127	4	
EC-128	4	
EC-129	4	
EC-130	4	
EC-131	3	
EC-132	4	
EC-133	4	
EC-134	4	
EC-135	4	
EC-136	4	
EC-137	4	
EC-138	4	
EC-139	4	
EC-140	4	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 31, 2022

Tag	FID Conc. (ppm)	Notes
EC-141	4	
EC-142	5	
EC-143	7	
EC-144	9	
EC-145	8	
EC-146	4	
EC-147	4	
EC-148	4	
EC-149	4	
EC-150	4	
EC-151	4	
EC-152	4	
EC-153	4	
EC-154	4	
EC-155	4	
EC-156	4	
EC-157	4	
EC-158	4	
EC-159	4	
EC-160	4	
EC-161	4	
EC-162	4	
EC-163	4	
EC-164	4	
EC-165	4	
EC-166	4	
EC-167	4	
EC-168	4	
EC-169	4	
EC-170	4	
EC-171	4	
EC-172	4	
EC-173	4	
EC-174	5	
EC-175	4	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 31, 2022

Tag	FID Conc. (ppm)	Notes
EC-176	5	
EC-177	5	
EC-178	5	
EC-179	4	
EC-180	4	
EC-181	5	
EC-182	5	
EC-183	4	
EC-184	5	
EC-185	5	
EC-186	5	
EC-187	5	
EC-188	5	
EC-189	5	
EC-190	4	
EC-191	5	
EC-192	5	
EC-193	5	
EC-194	5	
EC-195	5	
EC-196	4	
EC-197	5	
EC-198	5	
EC-199	5	
EC-200	4	
EC-201	4	
EC-202	4	
EC-203	5	
EC-204	8	
EC-205	4	
EC-206	4	
EC-207	4	
EC-208	4	
EC-209	4	
EC-210	6	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 31, 2022

Tag	FID Conc. (ppm)	Notes
EC-211	10	
EC-212	6	
EC-213	4	
EC-214	5	
EC-215	4	
EC-216	4	
EC-217	4	
EC-218	4	
EC-219	4	
EC-220	4	
EC-221	4	
EC-222	4	
EC-223	4	
EC-224	4	
EC-225	4	
EC-226	4	
EC-227	4	
EC-228	4	
EC-229	4	
EC-230	4	
EC-231	4	
EC-232	4	
EC-233	2	
EC-234	3	
EC-235	5	
EC-236	3	
EC-237	3	
EC-238	3	
EC-239	4	
EC-240	4	
EC-241	4	
EC-242	4	
EC-243	4	
EC-244	4	
EC-245	4	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 31, 2022

Tag	FID Conc. (ppm)	Notes
EC-246	4	
EC-247	4	
EC-248	4	
EC-249	4	
EC-250	4	
EC-251	4	
EC-252	4	
EC-253	4	
EC-254	4	
EC-255	4	
EC-256	nd	
EC-257	nd	
EC-258	4	
EC-259	4	
EC-260	4	
EC-261	5	
EC-262	4	
EC-263	5	
EC-264	5	
EC-265	4	
EC-266	4	
EC-267	4	
EC-268	4	
EC-269	5	
EC-270	4	
EC-271	4	
EC-272	4	
EC-273	4	
EC-274	5	
EC-275	5	
EC-276	4	
EC-277	5	
EC-278	5	
EC-279	5	
EC-280	5	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 31, 2022

Tag	FID Conc. (ppm)	Notes
EC-281	5	
EC-282	5	
EC-283	5	
EC-284	5	
EC-285	5	
EC-286	5	
EC-287	5	
EC-288	5	
EC-289	5	
EC-290	4	
EC-291	4	
EC-292	4	
EC-293	4	
EC-294	2	
EC-295	1	
EC-296	2	
EC-297	2	
EC-298	2	
EC-299	2	
EC-300	2	
EC-301	2	
EC-302	2	
EC-303	2	
EC-304	2	
EC-305	3	
EC-306	3	End of East Cell route
WCS-1	9	Start of West Cell South route
WCS-2	10	
WCS-3	10	
WCS-4	10	
WCS-5	9	
WCS-6	10	
WCS-7	10	
WCS-8	10	
WCS-9	10	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 31, 2022

Tag	FID Conc. (ppm)	Notes
WCS-10	10	
WCS-11	10	
WCS-12	10	
WCS-13	10	
WCS-14	9	
WCS-15	8	
WCS-16	9	
WCS-17	8	
WCS-18	8	
WCS-19	9	
WCS-20	9	
WCS-21	9	
WCS-22	9	
WCS-23	10	
WCS-24	10	
WCS-25	10	
WCS-26	10	
WCS-27	10	
WCS-28	10	
WCS-29	10	
WCS-30	10	
WCS-31	10	
WCS-32	10	
WCS-33	10	
WCS-34	10	
WCS-35	10	
WCS-36	10	
WCS-37	10	
WCS-38	10	
WCS-39	10	
WCS-40	10	
WCS-41	10	
WCS-42	9	
WCS-43	10	
WCS-44	10	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 31, 2022

Tag	FID Conc. (ppm)	Notes
WCS-45	9	
WCS-46	9	
WCS-47	10	
WCS-48	10	
WCS-49	10	
WCS-50	9	
WCS-51	9	
WCS-52	9	
WCS-53	9	
WCS-54	9	
WCS-55	9	
WCS-56	9	
WCS-57	9	
WCS-58	9	
WCS-59	18	
WCS-60	13	
WCS-61	11	
WCS-62	10	
WCS-63	15	
WCS-64	12	
WCS-65	9	
WCS-66	9	
WCS-67	9	
WCS-68	10	
WCS-69	9	
WCS-70	9	
WCS-71	9	
WCS-72	10	
WCS-73	10	
WCS-74	9	
WCS-75	9	
WCS-76	9	
WCS-77	9	
WCS-78	9	
WCS-79	9	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 31, 2022

Tag	FID Conc. (ppm)	Notes
WCS-80	9	
WCS-81	9	
WCS-82	9	
WCS-83	9	
WCS-84	9	End of West Cell South route
WCN-1	9	West Cell North route
WCN-2	9	
WCN-3	9	
WCN-4	9	
WCN-5	9	
WCN-6	8	
WCN-7	8	
WCN-8	8	
WCN-9	8	
WCN-10	8	
WCN-11	8	
WCN-12	9	
WCN-13	8	
WCN-14	8	
WCN-15	9	
WCN-16	9	
WCN-17	9	
WCN-18	9	
WCN-19	9	
WCN-20	9	
WCN-21	9	
WCN-22	9	
WCN-23	9	
WCN-24	9	
WCN-25	9	
WCN-26	9	
WCN-27	9	
WCN-28	9	
WCN-29	9	
WCN-30	9	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 31, 2022

Tag	FID Conc. (ppm)	Notes
WCN-31	9	
WCN-32	9	
WCN-33	9	
WCN-34	9	
WCN-35	9	
WCN-36	9	
WCN-37	9	
WCN-38	9	
WCN-39	9	
WCN-40	9	
WCN-41	9	
WCN-42	10	
WCN-43	11	
WCN-44	10	
WCN-45	9	
WCN-46	10	
WCN-47	10	
WCN-48	9	
WCN-49	9	
WCN-50	9	
WCN-51	9	
WCN-52	9	
WCN-53	3	
WCN-54	3	
WCN-55	3	
WCN-56	3	
WCN-57	4	
WCN-58	4	
WCN-59	4	
WCN-60	4	
WCN-61a	4	
WCN-61	nd	
WCN-62	4	
WCN-63	4	
WCN-64	4	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 31, 2022

Tag	FID Conc. (ppm)	Notes
WCN-65	4	
WCN-66	4	
WCN-67	4	
WCN-68	4	
WCN-69	4	
WCN-70	3	
WCN-71	4	
WCN-72	3	
WCN-73	3	
WCN-74	3	
WCN-75	4	
WCN-76	3	
WCN-77	4	
WCN-78	3	
WCN-79	3	
WCN-80	4	
WCN-81	4	
WCN-82	4	
WCN-83	4	
WCN-84	4	
WCN-85	4	
WCN-86	4	End of West Cell North route

ppm - parts per million
nd - not detected
<1 - less than 1

May 31, 2023
File No. 07215056.00

Mr. Wes Lindemuth
TRC
575 Arthur Kill Road
Staten Island, NY 10308

Subject: Brookfield Avenue Landfill

Surface Emissions Monitoring Report May 2023

Dear Wes:

On May 25, 2023, SCS Field Services (SCS-FS) conducted semi-annual surface emissions monitoring (SEM) at the Brookfield Avenue Landfill (Landfill). This monitoring was performed in order to satisfy the requirements of the NYC Department of Environmental Protection's Operation, Maintenance, and Monitoring Services Contract, section 2.4.2.B. – Surface Emission Monitoring. Although the monitoring was not performed for compliance with the Environmental Protection Agency's National Emissions Standards for Hazardous Air Pollutants (NESHAP) for landfills, SCS-FS performed the SEM according to the procedures stipulated by the NESHAP, as specified in 40 CFR 63.1960(c) and (d), and 40 CFR 60, Appendix A, Method 21.

SEM took place over a monitoring route on the landfill as shown on the attached Landfill Gas Collection Record Drawing, dated July 23, 2015, supplied by Layout, Inc. and attached to this report in ***Attachment 1***. A total of 477 points on the landfill were tested for emissions of volatile organic compounds (VOC), as methane, using a Foxboro TVA-2020 flame ionization detector. The TVA was calibrated using zero air and 500 parts per million (ppm) methane calibration gas. Upwind and downwind locations were monitored and recorded on the Calibration and Pertinent Data Form, provided in ***Attachment 2***. The monitoring data are presented in ***Table 1***, ***Attachment 3***.

Observations

None of the monitoring points over the area surveyed had an emission level exceeding 500 parts per million above background. No further monitoring is required for this SEM event.

SCS-FS appreciates the opportunity to provide our services. Please contact either of the undersigned should you require further information or assistance.

Sincerely,

Mike Marks
Senior Project Superintendent
SCS Field Services

Scott Schoffner
Project Manager
SCS Field Services

Attachments

ATTACHMENT 1

SEM ROUTE

User Name : LayoutInc   Date\Time : Tue, 28 Jul 2015 - 1:14pm   Path\Name : C:\Layout\Brookfield\2857-Brookfield-Landfill\CIVIL 3D\Drawings\2857-SURFACE EMISSION MONITORING.dwg - Layout Tab : BROOKFIELD LANDFILL SURFACE EMISSION MONITORING-PNTS

CONTRACT NO. LF-BAL-1G

Paul Emilius Jr. Professional Land Surveyor N.Y. License No. 50203 Date	0 75 150 300 450 (IN FEET) 1 inch = 150 ft.	SURFACE EMISSIONS MONITORING PLAN	Drawn By: MP
		BROOKFIELD AVENUE LANDFILL REMEDIATION	Checked: JPL
	Layout Inc. PROFESSIONAL LAND SURVEYORS CONSTRUCTION SURVEYING SPECIALISTS GPS CONSULTANTS 1 Entin Road, Unit 8 Clifton, N.J. 07014 Ph: 973-249-0900 Fax: 973-249-0988	Prepared For: CITY OF NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION	Scale: 1" = 150'
			Date: 07-23-15
		BROOKFIELD CONSTRUCTION ASSOCIATES, LLC 136 CENTRAL AVENUE CLARK, NJ 07066	Proj. No.: 2857
			Page: 1 of 1

ATTACHMENT 2

CALIBRATION AND PERTINENT DATA FORMS

SCS FIELD SERVICES

NESHAP Surface Emissions Monitoring
Calibration and Pertinent Data Form

Date: 05/25/23 Site: Brookfield Landfill Job Number: 07220079.00

Technician(s): Issac Bailey

Weather Observations

Wind Speed: 6 MPH Wind Direction: North Barometric Pressure: 30.12 "Hg

Air Temperature: 61 °F General Weather Conditions: Clear

Calibration Information

Instrument Info Make/Model: TVA 2020 Serial No: 16093665

Cal Gas Info	Manufacturer	Lot #	Expiration Date	Concentration
Span Gas:	SpecAir	4132302	11/1/2024	495 ppm
Zero Gas:	SpecAir	4123701	8/1/2024	0 ppm

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. ***The calibration precision must be less than or equal to 10% of the calibration gas value.***

Trial	Zero Air Reading (ppm)	Cal Gas Reading (ppm)	|Cal Gas Conc. – Cal Gas Reading|
1	0.1	500	5
2	0	500	5
3	0	502	7
		Average Difference:	6

Calibration Precision = Average Difference / Cal. Gas Conc. X 100%

= 6 / 495 X 100%

= 1.14 %

Pre-monitoring Response Time Check

Procedure: Introduce zero concentration methane/H2S into the instrument. Quickly change to the calibration gas and record stabilized reading. Record the amount of time it took the instrument to read 90% of the stabilized reading. ***This average response time must be less than or equal to 30 seconds.***

Trial	Stabilized Reading on Cal Gas	90% of Stabilized Reading	Time to Reach 90% of Stabilized Reading (Seconds)
1	500	450	4
2	500	450	4
3	502	452	4
		Average Response Time:	4

Background Concentration Checks

Upwind Location Description: North of site on access road Reading: 1.54 ppm

Downwind Location Description: South of site on access road Reading: 1.82 ppm

Average Background Reading: 1.68 ppm

Post-monitoring Calibration Precision Check

Zero Air Reading: 0.89 ppm Cal Gas Reading: 469 ppm

Notes/Comments:

SpecAir Specialty Gases
A DIVISION OF MAINEOXY

22 Albiston Way
Auburn, ME 04210
800-292-6218
207-777-6218
Fax 207-777-6215
www.specair.com

Date: 08/25/2021

Certificate of Analysis

Customer:
QED ENVIRONMENTAL SYSTEMS

Order #: 2014101
Purchase Order #: 141582

Cylinder Size: 105L **CGA Connection:** C10 **Fill Pressure:** 1000 PSI

Analysis: Air Batch Analysis

Lot #: 4123701

Component(s):	Requested Concentration(s):	Actual Concentration(s):
Oxygen	19.5% - 23.5%	21.7%
Moisture	< 3 PPM	2.0 PPM
THC	< 0.1 PPM	< 0.1 PPM
CO/CO2	< 1 PPM	< 0.1 PPM

Expiration Date: 08/2024

Comments: MEETS OR EXCEEDS SPECIFICATIONS FOR ULTRA ZERO AIR

Approved By:

Ron Abbott

Part # CGAIR-0
QTY 1
Wednesday, September 01, 2021
GAS - 22 / O / 25

- Results are reported in mole percent, unless otherwise indicated. Mixes are prepared via partial pressure methods, or gravimetrically, using high load high sensitivity electronic scales. Prior to use, scales are verified for accuracy using applicable NIST traceable weights; analyses are calibrated against reference materials traceable to NIST weights and/or NIST gas reference materials.
- The information contained herein has been prepared at your request by qualified experts. While we believe that the information is accurate within the limits of the analytical methods employed, and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability arising out of the use of the information contained herein exceed the fee established for providing such information.
- This certifies that the instruments used for this analysis have been calibrated in compliance with the specifications in the order using SI/NIST traceable standards. When a statement of conformity is made, accept/reject decisions consider the measurement uncertainty and the specification tolerance. When the measurand and uncertainty are reported, measurement uncertainties are declared in the analytical results and the analytical results are not adjusted to consider measurement uncertainties.

22 Albiston Way
Auburn, ME 04210
800-292-6218
207-777-6218
Fax 207-777-6215
www.specair.com

Date: 11/19/2021

Certificate of Analysis

Customer:
QED ENVIRONMENTAL SYSTEMS

Order #: 2064462
Purchase Order #: 142555

Cylinder Size: 34L **CGA Connection:** C10 **Fill Pressure:** 500 PSI

Analysis: Certified Batch Analysis **Lot #:** 4132302

Component(s):	Requested Concentration(s):	Actual Concentration(s):
Methane	500 PPM	495 PPM
Air	BALANCE	BALANCE

Expiration Date: 11/2024

Comments: MIX MADE USING DIGITAL BALANCES CALIBRATED TO NIST TRACEABLE WEIGHTS / ACCURACY: +/- 2%
METHOD OF PREPARATION: GRAVIMETRIC / PRESSURE TRANSFILLING
ANALYTICAL PRINCIPLE: GC (TCD)

Approved By:

Ron Abbott

- Results are reported in mole percent, unless otherwise indicated. Mixes are prepared via partial pressure methods, or gravimetrically, using high load high sensitivity electronic scales. Prior to use, scales are verified for accuracy using applicable NIST traceable weights; analyses are calibrated against reference materials traceable to NIST weights and/or NIST gas reference materials.
- The information contained herein has been prepared at your request by qualified experts. While we believe that the information is accurate within the limits of the analytical methods employed, and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability arising out of the use of the information contained herein exceed the fee established for providing such information.
- This certifies that the instruments used for this analysis have been calibrated in compliance with the specifications in the order using SI/NIST traceable standards. When a statement of conformity is made, accept/reject decisions consider the measurement uncertainty and the specification tolerance. When the measurand and uncertainty are reported, measurement uncertainties are declared in the analytical results and the analytical results are not adjusted to consider measurement uncertainties.

ATTACHMENT 3

SEM DATA

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

May 25, 2023

Tag	FID Conc. (ppm)	Notes
EC-1	2	Start of route; East Cell
EC-2	2	
EC-3	1	
EC-4	2	
EC-5	1	
EC-6	1	
EC-7	1	
EC-8	1	
EC-9	1	
EC-10	1	
EC-11	1	
EC-12	1	
EC-13	1	
EC-14	1	
EC-15	1	
EC-16	1	
EC-17	1	
EC-18	1	
EC-19	1	
EC-20	1	
EC-21	1	
EC-22	1	
EC-23	1	
EC-24	1	
EC-25	1	
EC-26	1	
EC-27	1	
EC-28	1	
EC-29	1	
EC-30	1	
EC-31	1	
EC-32	1	
EC-33	1	
EC-34	1	
EC-35	1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

May 25, 2023

Tag	FID Conc. (ppm)	Notes
EC-36	1	
EC-37	1	
EC-38	1	
EC-39	1	
EC-40	1	
EC-41	1	
EC-42	1	
EC-43	1	
EC-44	1	
EC-45	1	
EC-46	1	
EC-47	1	
EC-48	1	
EC-49	1	
EC-50	1	
EC-51	1	
EC-52	1	
EC-53	1	
EC-54	1	
EC-55	1	
EC-56	1	
EC-57	1	
EC-58	1	
EC-59	1	
EC-60	1	
EC-61	<1	
EC-62	1	
EC-63	1	
EC-64	1	
EC-65	1	
EC-66	1	
EC-67	1	
EC-68	1	
EC-69	<1	
EC-70	1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

May 25, 2023

Tag	FID Conc. (ppm)	Notes
EC-71	<1	
EC-72	1	
EC-73	<1	
EC-74	<1	
EC-75	<1	
EC-76	<1	
EC-77	1	
EC-78	1	
EC-79	<1	
EC-80	1	
EC-81	<1	
EC-82	<1	
EC-83	<1	
EC-84	<1	
EC-85	<1	
EC-86	<1	
EC-87	<1	
EC-88	<1	
EC-89	<1	
EC-90	<1	
EC-91	<1	
EC-92	<1	
EC-93	<1	
EC-94	<1	
EC-95	<1	
EC-96	<1	
EC-97	<1	
EC-98	<1	
EC-99	<1	
EC-100	<1	
EC-101	<1	
EC-102	<1	
EC-103	<1	
EC-104	<1	
EC-105	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

May 25, 2023

Tag	FID Conc. (ppm)	Notes
EC-106	<1	
EC-107	<1	
EC-108	<1	
EC-109	<1	
EC-110	<1	
EC-111	<1	
EC-112	<1	
EC-113	<1	
EC-114	<1	
EC-115	<1	
EC-116	<1	
EC-117	<1	
EC-118	<1	
EC-119	<1	
EC-120	<1	
EC-121	<1	
EC-122	<1	
EC-123	<1	
EC-124	<1	
EC-125	<1	
EC-126	<1	
EC-127	<1	
EC-128	<1	
EC-129	<1	
EC-130	<1	
EC-131	<1	
EC-132	<1	
EC-133	<1	
EC-134	<1	
EC-135	<1	
EC-136	<1	
EC-137	<1	
EC-138	<1	
EC-139	<1	
EC-140	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

May 25, 2023

Tag	FID Conc. (ppm)	Notes
EC-141	<1	
EC-142	<1	
EC-143	<1	
EC-144	<1	
EC-145	<1	
EC-146	<1	
EC-147	<1	
EC-148	<1	
EC-149	<1	
EC-150	<1	
EC-151	<1	
EC-152	<1	
EC-153	<1	
EC-154	<1	
EC-155	<1	
EC-156	<1	
EC-157	<1	
EC-158	<1	
EC-159	<1	
EC-160	<1	
EC-161	<1	
EC-162	<1	
EC-163	<1	
EC-164	<1	
EC-165	<1	
EC-166	<1	
EC-167	<1	
EC-168	<1	
EC-169	<1	
EC-170	<1	
EC-171	<1	
EC-172	<1	
EC-173	<1	
EC-174	<1	
EC-175	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

May 25, 2023

Tag	FID Conc. (ppm)	Notes
EC-176	<1	
EC-177	<1	
EC-178	<1	
EC-179	<1	
EC-180	<1	
EC-181	<1	
EC-182	<1	
EC-183	<1	
EC-184	<1	
EC-185	<1	
EC-186	<1	
EC-187	<1	
EC-188	<1	
EC-189	<1	
EC-190	<1	
EC-191	<1	
EC-192	<1	
EC-193	<1	
EC-194	<1	
EC-195	<1	
EC-196	<1	
EC-197	<1	
EC-198	<1	
EC-199	<1	
EC-200	<1	
EC-201	<1	
EC-202	<1	
EC-203	<1	
EC-204	<1	
EC-205	<1	
EC-206	<1	
EC-207	<1	
EC-208	<1	
EC-209	<1	
EC-210	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

May 25, 2023

Tag	FID Conc. (ppm)	Notes
EC-211	<1	
EC-212	<1	
EC-213	<1	
EC-214	<1	
EC-215	<1	
EC-216	<1	
EC-217	<1	
EC-218	<1	
EC-219	<1	
EC-220	<1	
EC-221	<1	
EC-222	<1	
EC-223	<1	
EC-224	<1	
EC-225	<1	
EC-226	<1	
EC-227	<1	
EC-228	<1	
EC-229	<1	
EC-230	<1	
EC-231	<1	
EC-232	<1	
EC-233	<1	
EC-234	<1	
EC-235	<1	
EC-236	<1	
EC-237	<1	
EC-238	<1	
EC-239	<1	
EC-240	<1	
EC-241	<1	
EC-242	<1	
EC-243	<1	
EC-244	<1	
EC-245	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

May 25, 2023

Tag	FID Conc. (ppm)	Notes
EC-246	<1	
EC-247	<1	
EC-248	<1	
EC-249	<1	
EC-250	<1	
EC-251	<1	
EC-252	<1	
EC-253	<1	
EC-254	<1	
EC-255	<1	
EC-256	<1	
EC-257	<1	
EC-258	<1	
EC-259	<1	
EC-260	<1	
EC-261	<1	
EC-262	<1	
EC-263	<1	
EC-264	<1	
EC-265	<1	
EC-266	<1	
EC-267	<1	
EC-268	<1	
EC-269	<1	
EC-270	<1	
EC-271	<1	
EC-272	<1	
EC-273	<1	
EC-274	<1	
EC-275	<1	
EC-276	<1	
EC-277	<1	
EC-278	<1	
EC-279	<1	
EC-280	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

May 25, 2023

Tag	FID Conc. (ppm)	Notes
EC-281	<1	
EC-282	<1	
EC-283	<1	
EC-284	<1	
EC-285	<1	
EC-286	<1	
EC-287	<1	
EC-288	<1	
EC-289	<1	
EC-290	<1	
EC-291	<1	
EC-292	<1	
EC-293	<1	
EC-294	<1	
EC-295	nd	
EC-296	<1	
EC-297	nd	
EC-298	nd	
EC-299	<1	
EC-300	<1	
EC-301	<1	
EC-302	nd	
EC-303	<1	
EC-304	nd	
EC-305	<1	
EC-306	nd	End of East Cell route
WCS-1	nd	Start of West Cell South route
WCS-2	nd	
WCS-3	nd	
WCS-4	nd	
WCS-5	nd	
WCS-6	nd	
WCS-7	nd	
WCS-8	nd	
WCS-9	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

May 25, 2023

Tag	FID Conc. (ppm)	Notes
WCS-10	nd	
WCS-11	nd	
WCS-12	nd	
WCS-13	nd	
WCS-14	nd	
WCS-15	nd	
WCS-16	nd	
WCS-17	nd	
WCS-18	nd	
WCS-19	nd	
WCS-20	nd	
WCS-21	nd	
WCS-22	nd	
WCS-23	nd	
WCS-24	nd	
WCS-25	nd	
WCS-26	nd	
WCS-27	nd	
WCS-28	nd	
WCS-29	nd	
WCS-30	nd	
WCS-31	nd	
WCS-32	nd	
WCS-33	nd	
WCS-34	2	
WCS-35	nd	
WCS-36	4	
WCS-37	nd	
WCS-38	nd	
WCS-39	nd	
WCS-40	nd	
WCS-41	nd	
WCS-42	nd	
WCS-43	nd	
WCS-44	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

May 25, 2023

Tag	FID Conc. (ppm)	Notes
WCS-45	nd	
WCS-46	nd	
WCS-47	nd	
WCS-48	nd	
WCS-49	nd	
WCS-50	nd	
WCS-51	nd	
WCS-52	nd	
WCS-53	nd	
WCS-54	nd	
WCS-55	nd	
WCS-56	nd	
WCS-57	nd	
WCS-58	nd	
WCS-59	<1	
WCS-60	nd	
WCS-61	nd	
WCS-62	nd	
WCS-63	nd	
WCS-64	nd	
WCS-65	nd	
WCS-66	nd	
WCS-67	nd	
WCS-68	nd	
WCS-69	nd	
WCS-70	nd	
WCS-71	nd	
WCS-72	nd	
WCS-73	nd	
WCS-74	nd	
WCS-75	nd	
WCS-76	nd	
WCS-77	<1	
WCS-78	nd	
WCS-79	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

May 25, 2023

Tag	FID Conc. (ppm)	Notes
WCS-80	nd	
WCS-81	nd	
WCS-82	nd	
WCS-83	nd	
WCS-84	nd	End of West Cell South route
WCN-1	nd	West Cell North route
WCN-2	nd	
WCN-3	nd	
WCN-4	nd	
WCN-5	nd	
WCN-6	nd	
WCN-7	nd	
WCN-8	nd	
WCN-9	nd	
WCN-10	nd	
WCN-11	nd	
WCN-12	nd	
WCN-13	nd	
WCN-14	nd	
WCN-15	nd	
WCN-16	nd	
WCN-17	nd	
WCN-18	nd	
WCN-19	nd	
WCN-20	nd	
WCN-21	nd	
WCN-22	nd	
WCN-23	nd	
WCN-24	nd	
WCN-25	nd	
WCN-26	nd	
WCN-27	nd	
WCN-28	nd	
WCN-29	nd	
WCN-30	4	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

May 25, 2023

Tag	FID Conc. (ppm)	Notes
WCN-31	nd	
WCN-32	nd	
WCN-33	nd	
WCN-34	nd	
WCN-35	nd	
WCN-36	nd	
WCN-37	nd	
WCN-38	nd	
WCN-39	nd	
WCN-40	1	
WCN-41	<1	
WCN-42	nd	
WCN-43	nd	
WCN-44	nd	
WCN-45	nd	
WCN-46	nd	
WCN-47	<1	
WCN-48	nd	
WCN-49	nd	
WCN-50	nd	
WCN-51	nd	
WCN-52	nd	
WCN-53	nd	
WCN-54	nd	
WCN-55	nd	
WCN-56	nd	
WCN-57	nd	
WCN-58	nd	
WCN-59	nd	
WCN-60	nd	
WCN-61a	nd	
WCN-61	nd	
WCN-62	nd	
WCN-63	nd	
WCN-64	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

May 25, 2023

Tag	FID Conc. (ppm)	Notes
WCN-65	nd	
WCN-66	nd	
WCN-67	nd	
WCN-68	nd	
WCN-69	nd	
WCN-70	nd	
WCN-71	nd	
WCN-72	nd	
WCN-73	nd	
WCN-74	nd	
WCN-75	nd	
WCN-76	nd	
WCN-77	nd	
WCN-78	nd	
WCN-79	nd	
WCN-80	nd	
WCN-81	nd	
WCN-82	nd	
WCN-83	nd	
WCN-84	nd	
WCN-85	nd	
WCN-86	nd	End of West Cell North route

ppm - parts per million
nd - not detected
<1 - less than 1

October 31, 2023
File No. 07215056.00

Mr. Wes Lindemuth
TRC
575 Arthur Kill Road
Staten Island, NY 10308

Subject: Brookfield Avenue Landfill

Surface Emissions Monitoring Report October 2023

Dear Wes:

On October 6, 2023, SCS Field Services (SCS-FS) conducted semi-annual surface emissions monitoring (SEM) at the Brookfield Avenue Landfill (Landfill). This monitoring was performed in order to satisfy the requirements of the NYC Department of Environmental Protection's Operation, Maintenance, and Monitoring Services Contract, section 2.4.2.B. – Surface Emission Monitoring. Although the monitoring was not performed for compliance with the Environmental Protection Agency's National Emissions Standards for Hazardous Air Pollutants (NESHAP) for landfills, SCS-FS performed the SEM according to the procedures stipulated by the NESHAP, as specified in 40 CFR 63.1960(c) and (d), and 40 CFR 60, Appendix A, Method 21.

SEM took place over a monitoring route on the landfill as shown on the attached Landfill Gas Collection Record Drawing, dated July 23, 2015, supplied by Layout, Inc. and attached to this report in ***Attachment 1***. A total of 477 points on the landfill were tested for emissions of volatile organic compounds (VOC), as methane, using a Foxboro TVA-2020 flame ionization detector. The TVA was calibrated using zero air and 500 parts per million (ppm) methane calibration gas. Upwind and downwind locations were monitored and recorded on the Calibration and Pertinent Data Form, provided in ***Attachment 2***. The monitoring data are presented in ***Table 1***, ***Attachment 3***.

Observations

None of the monitoring points over the area surveyed had an emission level exceeding 500 parts per million above background. No further monitoring is required for this SEM event.

SCS-FS appreciates the opportunity to provide our services. Please contact either of the undersigned should you require further information or assistance.

Sincerely,

Mike Marks
Senior Project Superintendent
SCS Field Services

Scott Schoffner
Senior Project Manager
SCS Field Services

Attachments

ATTACHMENT 1

SEM ROUTE

User Name : LayoutInc Date\Time : Tue, 28 Jul 2015 - 1:14pm Path\Name : C:\Layout\Brookfield\2857-Brookfield-Landfill\CIVIL 3D\Drawings\2857-SURFACE EMISSION MONITORING.dwg - Layout Tab : BROOKFIELD LANDFILL SURFACE EMISSION MONITORING-PNTS

CONTRACT NO. LF-BAL-1G

Paul Emilius Jr. Professional Land Surveyor N.Y. License No. 50203 Date	0 75 150 300 450 (IN FEET) 1 inch = 150 ft.	SURFACE EMISSIONS MONITORING PLAN	Drawn By: MP
		BROOKFIELD AVENUE LANDFILL REMEDIATION	Checked: JPL
	Layout Inc. PROFESSIONAL LAND SURVEYORS CONSTRUCTION SURVEYING SPECIALISTS GPS CONSULTANTS 1 Entin Road, Unit 8 Clifton, N.J. 07014 Ph: 973-249-0900 Fax: 973-249-0988	Prepared For: CITY OF NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION	Scale: 1" = 150' Date: 07-23-15
		BROOKFIELD CONSTRUCTION ASSOCIATES, LLC 136 CENTRAL AVENUE CLARK, NJ 07066	Proj. No.: 2857 Page: 1 of 1

ATTACHMENT 2

CALIBRATION AND PERTINENT DATA FORMS

SCS FIELD SERVICES

NESHAP Surface Emissions Monitoring
Calibration and Pertinent Data Form

Date: 10/06/23 Site: Brookfield Ave. Landfill Job Number: 07220079.00

Technician(s): Issac Bailey

Weather Observations

Wind Speed: 7 MPH Wind Direction: East Barometric Pressure: 30.05 "Hg

Air Temperature: 68 °F General Weather Conditions: Cloudy

Calibration Information

Instrument Info Make/Model: TVA 2020 Serial No: 18073530

Cal Gas Info	Manufacturer	Lot #	Expiration Date	Concentration
Span Gas:	SpecAir	4224302	8/1/2025	496 ppm
Zero Gas:	SpecAir	4314606	5/1/2026	0 ppm

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. ***The calibration precision must be less than or equal to 10% of the calibration gas value.***

Trial	Zero Air Reading (ppm)	Cal Gas Reading (ppm)	|Cal Gas Conc. – Cal Gas Reading|
1	0	499	3
2	0	499	3
3	0	500	4
		Average Difference:	3

Calibration Precision = Average Difference / Cal. Gas Conc. X 100%

= 3 / 496 X 100%

= 0.67 %

Pre-monitoring Response Time Check

Procedure: Introduce zero concentration methane/H2S into the instrument. Quickly change to the calibration gas and record stabilized reading. Record the amount of time it took the instrument to read 90% of the stabilized reading. ***This average response time must be less than or equal to 30 seconds.***

Trial	Stabilized Reading on Cal Gas	90% of Stabilized Reading	Time to Reach 90% of Stabilized Reading (Seconds)
1	499	449	4
2	499	449	4
3	500	450	4
		Average Response Time:	4

Background Concentration Checks

Upwind Location Description: East of site on access road Reading: 1.34 ppm

Downwind Location Description: West of site on access road Reading: 1.77 ppm

Average Background Reading: 1.56 ppm

Post-monitoring Calibration Precision Check

Zero Air Reading: 0.5 ppm Cal Gas Reading: 489 ppm

Notes/Comments:

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Auburn, ME 04210
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Fax 207-777-6215
www.specair.com

Date: 08/31/2022

Certificate of Analysis

Customer:
QED ENVIRONMENTAL SYSTEMS

Order #: 2225247
Purchase Order #: 145093

Cylinder Size: 105L **CGA Connection:** C10 **Fill Pressure:** 1000 PSI

Analysis: Certified Batch Analysis **Lot #:** 4224302

Component(s):	Requested Concentration(s):	Actual Concentration(s):
Methane	500 PPM	496 PPM
Air	BALANCE	BALANCE

Expiration Date: 08/2025

Comments: MIX MADE USING DIGITAL BALANCES CALIBRATED TO NIST TRACEABLE WEIGHTS / ACCURACY: +/- 2%
METHOD OF PREPARATION: GRAVIMETRIC / PRESSURE TRANSFILLING
ANALYTICAL PRINCIPLE: GC (TCD)

Approved By:

Ron Abbott

• Results are reported in mole percent, unless otherwise indicated. Mixes are prepared via partial pressure methods, or gravimetrically, using high load high sensitivity electronic scales. Prior to use, scales are verified for accuracy using applicable NIST traceable weights; analyses are calibrated against reference materials traceable to NIST weights and/or NIST gas reference materials.
• The information contained herein has been prepared at your request by qualified experts. While we believe that the information is accurate within the limits of the analytical methods employed, and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability arising out of the use of the information contained herein exceed the fee established for providing such information.
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207-777-6218
Fax 207-777-6215
www.specair.com

Date: 05/26/2023

Certificate of Analysis

Customer:
QED ENVIRONMENTAL SYSTEMS

Order #: 2381562
Purchase Order #: 147466

Cylinder Size: 105L **CGA Connection:** C10 **Fill Pressure:** 1000 PSI

Analysis: Air Batch Analysis **Lot #:** 4314606

Component(s):	Requested Concentration(s):	Actual Concentration(s):
Oxygen	19.5% - 23.5%	21.5%
Moisture	< 3 PPM	0.8 PPM
THC	< 0.1 PPM	< 0.1 PPM
CO/CO2	< 1 PPM	< 0.1 PPM

Expiration Date: 05/2026

Comments: MEETS OR EXCEEDS SPECIFICATIONS FOR ULTRA ZERO AIR

Approved By:

Ron Abbott

• Results are reported in mole percent, unless otherwise indicated. Mixes are prepared via partial pressure methods, or gravimetrically, using high load high sensitivity electronic scales. Prior to use, scales are verified for accuracy using applicable NIST traceable weights; analyses are calibrated against reference materials traceable to NIST weights and/or NIST gas reference materials.
• The information contained herein has been prepared at your request by qualified experts. While we believe that the information is accurate within the limits of the analytical methods employed, and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability arising out of the use of the information contained herein exceed the fee established for providing such information.
• This certifies that the instruments used for this analysis have been calibrated in compliance with the specifications in the order using SI/NIST traceable standards. When a statement of conformity is made, accept/reject decisions consider the measurement uncertainty and the specification tolerance. When the measurand and uncertainty are reported, measurement uncertainties are declared in the analytical results and the analytical results are not adjusted to consider measurement uncertainties.

ATTACHMENT 3

SEM DATA

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 6, 2023

Tag	FID Conc. (ppm)	Notes
EC-1	<1	Start of route; East Cell
EC-2	<1	
EC-3	<1	
EC-4	<1	
EC-5	<1	
EC-6	<1	
EC-7	<1	
EC-8	<1	
EC-9	<1	
EC-10	<1	
EC-11	<1	
EC-12	<1	
EC-13	<1	
EC-14	<1	
EC-15	<1	
EC-16	<1	
EC-17	<1	
EC-18	<1	
EC-19	<1	
EC-20	<1	
EC-21	<1	
EC-22	<1	
EC-23	<1	
EC-24	<1	
EC-25	<1	
EC-26	<1	
EC-27	<1	
EC-28	<1	
EC-29	<1	
EC-30	<1	
EC-31	<1	
EC-32	<1	
EC-33	<1	
EC-34	<1	
EC-35	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 6, 2023

Tag	FID Conc. (ppm)	Notes
EC-36	<1	
EC-37	<1	
EC-38	nd	
EC-39	nd	
EC-40	nd	
EC-41	nd	
EC-42	nd	
EC-43	nd	
EC-44	nd	
EC-45	nd	
EC-46	nd	
EC-47	nd	
EC-48	nd	
EC-49	nd	
EC-50	nd	
EC-51	nd	
EC-52	nd	
EC-53	nd	
EC-54	nd	
EC-55	nd	
EC-56	nd	
EC-57	nd	
EC-58	nd	
EC-59	nd	
EC-60	nd	
EC-61	nd	
EC-62	nd	
EC-63	nd	
EC-64	nd	
EC-65	nd	
EC-66	nd	
EC-67	nd	
EC-68	nd	
EC-69	nd	
EC-70	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 6, 2023

Tag	FID Conc. (ppm)	Notes
EC-71	nd	
EC-72	nd	
EC-73	nd	
EC-74	nd	
EC-75	nd	
EC-76	nd	
EC-77	nd	
EC-78	nd	
EC-79	nd	
EC-80	nd	
EC-81	nd	
EC-82	nd	
EC-83	nd	
EC-84	nd	
EC-85	nd	
EC-86	nd	
EC-87	nd	
EC-88	nd	
EC-89	nd	
EC-90	nd	
EC-91	nd	
EC-92	nd	
EC-93	nd	
EC-94	nd	
EC-95	nd	
EC-96	nd	
EC-97	nd	
EC-98	nd	
EC-99	nd	
EC-100	nd	
EC-101	nd	
EC-102	nd	
EC-103	nd	
EC-104	nd	
EC-105	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 6, 2023

Tag	FID Conc. (ppm)	Notes
EC-106	nd	
EC-107	nd	
EC-108	nd	
EC-109	nd	
EC-110	nd	
EC-111	nd	
EC-112	nd	
EC-113	nd	
EC-114	nd	
EC-115	nd	
EC-116	nd	
EC-117	nd	
EC-118	nd	
EC-119	nd	
EC-120	nd	
EC-121	nd	
EC-122	nd	
EC-123	nd	
EC-124	nd	
EC-125	nd	
EC-126	nd	
EC-127	nd	
EC-128	nd	
EC-129	nd	
EC-130	nd	
EC-131	nd	
EC-132	nd	
EC-133	nd	
EC-134	nd	
EC-135	nd	
EC-136	nd	
EC-137	nd	
EC-138	nd	
EC-139	nd	
EC-140	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 6, 2023

Tag	FID Conc. (ppm)	Notes
EC-141	nd	
EC-142	nd	
EC-143	nd	
EC-144	nd	
EC-145	nd	
EC-146	nd	
EC-147	nd	
EC-148	nd	
EC-149	nd	
EC-150	nd	
EC-151	nd	
EC-152	nd	
EC-153	nd	
EC-154	nd	
EC-155	6	
EC-156	nd	
EC-157	nd	
EC-158	nd	
EC-159	nd	
EC-160	nd	
EC-161	nd	
EC-162	nd	
EC-163	nd	
EC-164	nd	
EC-165	nd	
EC-166	nd	
EC-167	nd	
EC-168	nd	
EC-169	nd	
EC-170	nd	
EC-171	nd	
EC-172	nd	
EC-173	nd	
EC-174	nd	
EC-175	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 6, 2023

Tag	FID Conc. (ppm)	Notes
EC-176	nd	
EC-177	nd	
EC-178	nd	
EC-179	nd	
EC-180	nd	
EC-181	nd	
EC-182	nd	
EC-183	nd	
EC-184	nd	
EC-185	nd	
EC-186	nd	
EC-187	nd	
EC-188	nd	
EC-189	nd	
EC-190	nd	
EC-191	nd	
EC-192	nd	
EC-193	nd	
EC-194	nd	
EC-195	nd	
EC-196	nd	
EC-197	nd	
EC-198	nd	
EC-199	nd	
EC-200	nd	
EC-201	nd	
EC-202	nd	
EC-203	nd	
EC-204	nd	
EC-205	nd	
EC-206	nd	
EC-207	nd	
EC-208	nd	
EC-209	nd	
EC-210	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 6, 2023

Tag	FID Conc. (ppm)	Notes
EC-211	nd	
EC-212	nd	
EC-213	nd	
EC-214	nd	
EC-215	nd	
EC-216	nd	
EC-217	nd	
EC-218	nd	
EC-219	nd	
EC-220	nd	
EC-221	nd	
EC-222	nd	
EC-223	nd	
EC-224	nd	
EC-225	nd	
EC-226	nd	
EC-227	nd	
EC-228	nd	
EC-229	nd	
EC-230	nd	
EC-231	nd	
EC-232	nd	
EC-233	nd	
EC-234	nd	
EC-235	nd	
EC-236	nd	
EC-237	nd	
EC-238	nd	
EC-239	nd	
EC-240	nd	
EC-241	nd	
EC-242	nd	
EC-243	nd	
EC-244	nd	
EC-245	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 6, 2023

Tag	FID Conc. (ppm)	Notes
EC-246	nd	
EC-247	nd	
EC-248	nd	
EC-249	nd	
EC-250	nd	
EC-251	nd	
EC-252	nd	
EC-253	nd	
EC-254	nd	
EC-255	nd	
EC-256	nd	
EC-257	nd	
EC-258	nd	
EC-259	nd	
EC-260	nd	
EC-261	nd	
EC-262	nd	
EC-263	nd	
EC-264	nd	
EC-265	nd	
EC-266	nd	
EC-267	nd	
EC-268	nd	
EC-269	nd	
EC-270	nd	
EC-271	nd	
EC-272	nd	
EC-273	nd	
EC-274	nd	
EC-275	nd	
EC-276	nd	
EC-277	nd	
EC-278	nd	
EC-279	nd	
EC-280	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 6, 2023

Tag	FID Conc. (ppm)	Notes
EC-281	nd	
EC-282	nd	
EC-283	nd	
EC-284	nd	
EC-285	nd	
EC-286	nd	
EC-287	nd	
EC-288	nd	
EC-289	nd	
EC-290	nd	
EC-291	nd	
EC-292	nd	
EC-293	nd	
EC-294	nd	
EC-295	nd	
EC-296	nd	
EC-297	nd	
EC-298	nd	
EC-299	nd	
EC-300	nd	
EC-301	nd	
EC-302	nd	
EC-303	nd	
EC-304	nd	
EC-305	nd	
EC-306	nd	End of East Cell route
WCS-1	nd	Start of West Cell South route
WCS-2	nd	
WCS-3	nd	
WCS-4	nd	
WCS-5	nd	
WCS-6	nd	
WCS-7	nd	
WCS-8	nd	
WCS-9	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 6, 2023

Tag	FID Conc. (ppm)	Notes
WCS-10	nd	
WCS-11	nd	
WCS-12	nd	
WCS-13	nd	
WCS-14	nd	
WCS-15	nd	
WCS-16	nd	
WCS-17	nd	
WCS-18	nd	
WCS-19	nd	
WCS-20	nd	
WCS-21	nd	
WCS-22	nd	
WCS-23	nd	
WCS-24	nd	
WCS-25	nd	
WCS-26	nd	
WCS-27	nd	
WCS-28	nd	
WCS-29	nd	
WCS-30	nd	
WCS-31	nd	
WCS-32	nd	
WCS-33	nd	
WCS-34	nd	
WCS-35	nd	
WCS-36	nd	
WCS-37	nd	
WCS-38	nd	
WCS-39	nd	
WCS-40	nd	
WCS-41	nd	
WCS-42	nd	
WCS-43	nd	
WCS-44	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 6, 2023

Tag	FID Conc. (ppm)	Notes
WCS-45	nd	
WCS-46	nd	
WCS-47	nd	
WCS-48	nd	
WCS-49	nd	
WCS-50	nd	
WCS-51	nd	
WCS-52	nd	
WCS-53	nd	
WCS-54	nd	
WCS-55	nd	
WCS-56	nd	
WCS-57	nd	
WCS-58	nd	
WCS-59	nd	
WCS-60	nd	
WCS-61	nd	
WCS-62	nd	
WCS-63	nd	
WCS-64	nd	
WCS-65	nd	
WCS-66	nd	
WCS-67	nd	
WCS-68	nd	
WCS-69	nd	
WCS-70	nd	
WCS-71	nd	
WCS-72	nd	
WCS-73	nd	
WCS-74	nd	
WCS-75	nd	
WCS-76	nd	
WCS-77	nd	
WCS-78	nd	
WCS-79	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 6, 2023

Tag	FID Conc. (ppm)	Notes
WCS-80	nd	
WCS-81	nd	
WCS-82	nd	
WCS-83	nd	
WCS-84	nd	End of West Cell South route
WCN-1	nd	West Cell North route
WCN-2	nd	
WCN-3	4	
WCN-4	nd	
WCN-5	6	
WCN-6	nd	
WCN-7	nd	
WCN-8	nd	
WCN-9	nd	
WCN-10	nd	
WCN-11	nd	
WCN-12	nd	
WCN-13	nd	
WCN-14	nd	
WCN-15	nd	
WCN-16	nd	
WCN-17	nd	
WCN-18	nd	
WCN-19	nd	
WCN-20	nd	
WCN-21	nd	
WCN-22	nd	
WCN-23	nd	
WCN-24	nd	
WCN-25	nd	
WCN-26	nd	
WCN-27	nd	
WCN-28	nd	
WCN-29	nd	
WCN-30	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 6, 2023

Tag	FID Conc. (ppm)	Notes
WCN-31	nd	
WCN-32	nd	
WCN-33	nd	
WCN-34	nd	
WCN-35	nd	
WCN-36	nd	
WCN-37	nd	
WCN-38	nd	
WCN-39	nd	
WCN-40	nd	
WCN-41	nd	
WCN-42	nd	
WCN-43	nd	
WCN-44	nd	
WCN-45	nd	
WCN-46	nd	
WCN-47	nd	
WCN-48	nd	
WCN-49	nd	
WCN-50	nd	
WCN-51	nd	
WCN-52	nd	
WCN-53	nd	
WCN-54	nd	
WCN-55	<1	
WCN-56	nd	
WCN-57	nd	
WCN-58	nd	
WCN-59	nd	
WCN-60	nd	
WCN-61a	nd	
WCN-61	nd	
WCN-62	nd	
WCN-63	nd	
WCN-64	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 6, 2023

Tag	FID Conc. (ppm)	Notes
WCN-65	nd	
WCN-66	nd	
WCN-67	nd	
WCN-68	nd	
WCN-69	nd	
WCN-70	nd	
WCN-71	nd	
WCN-72	nd	
WCN-73	nd	
WCN-74	nd	
WCN-75	nd	
WCN-76	nd	
WCN-77	nd	
WCN-78	nd	
WCN-79	nd	
WCN-80	nd	
WCN-81	nd	
WCN-82	nd	
WCN-83	nd	
WCN-84	nd	
WCN-85	<1	
WCN-86	1	End of West Cell North route

ppm - parts per million
nd - not detected
<1 - less than 1

June 25, 2024
File No. 07215056.00

Mr. Wes Lindemuth
TRC
575 Arthur Kill Road
Staten Island, NY 10308

Subject: Brookfield Avenue Landfill

Surface Emissions Monitoring Report April 2024

Dear Wes:

On April 30, 2024, SCS Field Services (SCS-FS) conducted semi-annual surface emissions monitoring (SEM) at the Brookfield Avenue Landfill (Landfill). This monitoring was performed in order to satisfy the requirements of the NYC Department of Environmental Protection's Operation, Maintenance, and Monitoring Services Contract, section 2.4.2.B. – Surface Emission Monitoring. Although the monitoring was not performed for compliance with the Environmental Protection Agency's National Emissions Standards for Hazardous Air Pollutants (NESHAP) for landfills, SCS-FS performed the SEM according to the procedures stipulated by the NESHAP, as specified in 40 CFR 63.1960(c) and (d), and 40 CFR 60, Appendix A, Method 21.

SEM took place over a monitoring route on the landfill as shown on the attached Landfill Gas Collection Record Drawing, dated July 23, 2015, supplied by Layout, Inc. and attached to this report in ***Attachment 1***. A total of 477 points on the landfill were tested for emissions of volatile organic compounds (VOC), as methane, using a Foxboro TVA-2020 flame ionization detector. The TVA was calibrated using zero air and 500 parts per million (ppm) methane calibration gas. Upwind and downwind locations were monitored and recorded on the Calibration and Pertinent Data Form, provided in ***Attachment 2***. The monitoring data are presented in ***Table 1***, ***Attachment 3***.

Observations

None of the monitoring points over the area surveyed had an emission level exceeding 500 parts per million above background. No further monitoring is required for this SEM event.

SCS-FS appreciates the opportunity to provide our services. Please contact either of the undersigned should you require further information or assistance.

Sincerely,

Mike Marks
Senior Project Superintendent
SCS Field Services

Scott Schoffner
Regional Manager
SCS Field Services

Attachments

ATTACHMENT 1

SEM ROUTE

User Name : LayoutInc   Date\Time : Tue, 28 Jul 2015 - 1:14pm   Path\Name : C:\Layout\Brookfield\2857-Brookfield-Landfill\CIVIL 3D\Drawings\2857-SURFACE EMISSION MONITORING.dwg - Layout Tab : BROOKFIELD LANDFILL SURFACE EMISSION MONITORING-PNTS

CONTRACT NO. LF-BAL-1G

Paul Emilius Jr. Professional Land Surveyor N.Y. License No. 50203 Date	0 75 150 300 450 (IN FEET) 1 inch = 150 ft.	SURFACE EMISSIONS MONITORING PLAN	Drawn By: MP
		BROOKFIELD AVENUE LANDFILL REMEDIATION	Checked: JPL
	Layout Inc. PROFESSIONAL LAND SURVEYORS CONSTRUCTION SURVEYING SPECIALISTS GPS CONSULTANTS 1 Entin Road, Unit 8 Clifton, N.J. 07014 Ph: 973-249-0900 Fax: 973-249-0988	Prepared For: CITY OF NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION	Scale: 1" = 150'
			Date: 07-23-15
		BROOKFIELD CONSTRUCTION ASSOCIATES, LLC 136 CENTRAL AVENUE CLARK, NJ 07066	Proj. No.: 2857
			Page: 1 of 1

ATTACHMENT 2

CALIBRATION AND PERTINENT DATA FORMS

SCS FIELD SERVICES

NESHAP Surface Emissions Monitoring
Calibration and Pertinent Data Form

Date: 04/30/24 Site: Brookfield Ave. Landfill Job Number: 0722079.00

Technician(s): Sam Burgess

Weather Observations

Wind Speed: 9 MPH Wind Direction: ENE Barometric Pressure: 29.94 "Hg

Air Temperature: 57 °F General Weather Conditions: Cloudy

Calibration Information

Instrument Info Make/Model: Irwin INFICON AB Serial No: 92004572

Cal Gas Info	Manufacturer	Lot #	Expiration Date	Concentration
Span Gas:	SpecAir	4132302	11/1/2024	495 ppm
Zero Gas:	SpecAir	4320008	7/31/2026	0 ppm

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. ***The calibration precision must be less than or equal to 10% of the calibration gas value.***

Trial	Zero Air Reading (ppm)	Cal Gas Reading (ppm)	|Cal Gas Conc. – Cal Gas Reading|
1	0	498	3
2	0	495	0
3	0	494	1
		Average Difference:	1

Calibration Precision = Average Difference / Cal. Gas Conc. X 100%

= 1 / 495 X 100%

= 0.27 %

Pre-monitoring Response Time Check

Procedure: Introduce zero concentration methane/H2S into the instrument. Quickly change to the calibration gas and record stabilized reading. Record the amount of time it took the instrument to read 90% of the stabilized reading. ***This average response time must be less than or equal to 30 seconds.***

Trial	Stabilized Reading on Cal Gas	90% of Stabilized Reading	Time to Reach 90% of Stabilized Reading (Seconds)
1	498	448	7
2	495	446	7
3	494	445	7
		Average Response Time:	7

Background Concentration Checks

Upwind Location Description: NE of site on access road Reading: 0.00 ppm

Downwind Location Description: SW of site on access road Reading: 0.00 ppm

Average Background Reading: 0.00 ppm

Notes/Comments:

22 Albiston Way
Auburn, ME 04210
800-292-6218
207-777-6218
Fax 207-777-6215
www.specair.com

Date: 11/19/2021

Certificate of Analysis

Customer:
QED ENVIRONMENTAL SYSTEMS

Order #: 2064462
Purchase Order #: 142555

Cylinder Size: 34L **CGA Connection:** C10 **Fill Pressure:** 500 PSI

Analysis: Certified Batch Analysis **Lot #:** 4132302

Component(s):	Requested Concentration(s):	Actual Concentration(s):
Methane	500 PPM	495 PPM
Air	BALANCE	BALANCE

Expiration Date: 11/2024

Comments: MIX MADE USING DIGITAL BALANCES CALIBRATED TO NIST TRACEABLE WEIGHTS / ACCURACY: +/- 2%
METHOD OF PREPARATION: GRAVIMETRIC / PRESSURE TRANSFILLING
ANALYTICAL PRINCIPLE: GC (TCD)

Approved By:

Ron Abbott

- Results are reported in mole percent, unless otherwise indicated. Mixes are prepared via partial pressure methods, or gravimetrically, using high load high sensitivity electronic scales. Prior to use, scales are verified for accuracy using applicable NIST traceable weights; analyses are calibrated against reference materials traceable to NIST weights and/or NIST gas reference materials.
- The information contained herein has been prepared at your request by qualified experts. While we believe that the information is accurate within the limits of the analytical methods employed, and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability arising out of the use of the information contained herein exceed the fee established for providing such information.
- This certifies that the instruments used for this analysis have been calibrated in compliance with the specifications in the order using SI/NIST traceable standards. When a statement of conformity is made, accept/reject decisions consider the measurement uncertainty and the specification tolerance. When the measurand and uncertainty are reported, measurement uncertainties are declared in the analytical results and the analytical results are not adjusted to consider measurement uncertainties.

22 Albiston Way
Auburn, ME 04210
800-292-6218
207-777-6218
Fax 207-777-6215
www.specair.com

Date: 07/19/2023

Certificate of Analysis

Customer:
QED ENVIRONMENTAL SYSTEMS

Order #: 2414373
Purchase Order #: 147841

Cylinder Size: 105L **CGA Connection:** C10 **Fill Pressure:** 1000 PSI

Analysis: Air Batch Analysis **Lot #:** 4320008

Component(s):	Requested Concentration(s):	Actual Concentration(s):
Oxygen	19.5% - 23.5%	21.5%
Moisture	< 3 PPM	0.8 PPM
THC	< 0.1 PPM	< 0.1 PPM
CO/CO2	< 1 PPM	< 0.1 PPM

Expiration Date: 07/2026

Comments: MEETS OR EXCEEDS SPECIFICATIONS FOR ULTRA ZERO AIR

Approved By:

Ron Abbott

• Results are reported in mole percent, unless otherwise indicated. Mixes are prepared via partial pressure methods, or gravimetrically, using high load high sensitivity electronic scales. Prior to use, scales are verified for accuracy using applicable NIST traceable weights; analyses are calibrated against reference materials traceable to NIST weights and/or NIST gas reference materials.
• The information contained herein has been prepared at your request by qualified experts. While we believe that the information is accurate within the limits of the analytical methods employed, and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability arising out of the use of the information contained herein exceed the fee established for providing such information.
• This certifies that the instruments used for this analysis have been calibrated in compliance with the specifications in the order using SI/NIST traceable standards. When a statement of conformity is made, accept/reject decisions consider the measurement uncertainty and the specification tolerance. When the measurand and uncertainty are reported, measurement uncertainties are declared in the analytical results and the analytical results are not adjusted to consider measurement uncertainties.

ATTACHMENT 3

SEM DATA

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

April 30, 2024

Tag	FID Conc. (ppm)	Notes
EC-1	nd	Start of route; East Cell
EC-2	nd	
EC-3	nd	
EC-4	nd	
EC-5	nd	
EC-6	nd	
EC-7	nd	
EC-8	nd	
EC-9	nd	
EC-10	nd	
EC-11	nd	
EC-12	nd	
EC-13	nd	
EC-14	nd	
EC-15	1	
EC-16	nd	
EC-17	nd	
EC-18	nd	
EC-19	nd	
EC-20	nd	
EC-21	1	
EC-22	nd	
EC-23	nd	
EC-24	nd	
EC-25	nd	
EC-26	nd	
EC-27	nd	
EC-28	nd	
EC-29	nd	
EC-30	nd	
EC-31	nd	
EC-32	nd	
EC-33	nd	
EC-34	nd	
EC-35	1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

April 30, 2024

Tag	FID Conc. (ppm)	Notes
EC-36	nd	
EC-37	nd	
EC-38	nd	
EC-39	nd	
EC-40	nd	
EC-41	nd	
EC-42	nd	
EC-43	nd	
EC-44	nd	
EC-45	nd	
EC-46	nd	
EC-47	nd	
EC-48	nd	
EC-49	nd	
EC-50	nd	
EC-51	nd	
EC-52	nd	
EC-53	nd	
EC-54	3	
EC-55	nd	
EC-56	nd	
EC-57	nd	
EC-58	nd	
EC-59	1	
EC-60	nd	
EC-61	nd	
EC-62	nd	
EC-63	nd	
EC-64	nd	
EC-65	nd	
EC-66	nd	
EC-67	nd	
EC-68	nd	
EC-69	nd	
EC-70	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

April 30, 2024

Tag	FID Conc. (ppm)	Notes
EC-71	nd	
EC-72	nd	
EC-73	nd	
EC-74	nd	
EC-75	nd	
EC-76	nd	
EC-77	nd	
EC-78	nd	
EC-79	nd	
EC-80	nd	
EC-81	1	
EC-82	nd	
EC-83	nd	
EC-84	nd	
EC-85	nd	
EC-86	nd	
EC-87	nd	
EC-88	nd	
EC-89	nd	
EC-90	nd	
EC-91	nd	
EC-92	nd	
EC-93	nd	
EC-94	nd	
EC-95	nd	
EC-96	nd	
EC-97	nd	
EC-98	nd	
EC-99	nd	
EC-100	nd	
EC-101	nd	
EC-102	nd	
EC-103	nd	
EC-104	nd	
EC-105	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

April 30, 2024

Tag	FID Conc. (ppm)	Notes
EC-106	nd	
EC-107	nd	
EC-108	nd	
EC-109	nd	
EC-110	nd	
EC-111	nd	
EC-112	nd	
EC-113	nd	
EC-114	nd	
EC-115	nd	
EC-116	nd	
EC-117	nd	
EC-118	nd	
EC-119	nd	
EC-120	nd	
EC-121	nd	
EC-122	nd	
EC-123	nd	
EC-124	nd	
EC-125	nd	
EC-126	nd	
EC-127	nd	
EC-128	nd	
EC-129	nd	
EC-130	nd	
EC-131	nd	
EC-132	nd	
EC-133	nd	
EC-134	nd	
EC-135	nd	
EC-136	nd	
EC-137	1	
EC-138	nd	
EC-139	nd	
EC-140	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

April 30, 2024

Tag	FID Conc. (ppm)	Notes
EC-141	nd	
EC-142	nd	
EC-143	nd	
EC-144	nd	
EC-145	nd	
EC-146	nd	
EC-147	nd	
EC-148	nd	
EC-149	nd	
EC-150	nd	
EC-151	nd	
EC-152	nd	
EC-153	nd	
EC-154	nd	
EC-155	nd	
EC-156	nd	
EC-157	nd	
EC-158	nd	
EC-159	nd	
EC-160	nd	
EC-161	nd	
EC-162	nd	
EC-163	nd	
EC-164	nd	
EC-165	nd	
EC-166	nd	
EC-167	nd	
EC-168	nd	
EC-169	nd	
EC-170	nd	
EC-171	nd	
EC-172	nd	
EC-173	nd	
EC-174	nd	
EC-175	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

April 30, 2024

Tag	FID Conc. (ppm)	Notes
EC-176	nd	
EC-177	nd	
EC-178	nd	
EC-179	nd	
EC-180	nd	
EC-181	nd	
EC-182	nd	
EC-183	nd	
EC-184	nd	
EC-185	nd	
EC-186	2	
EC-187	nd	
EC-188	nd	
EC-189	nd	
EC-190	nd	
EC-191	nd	
EC-192	nd	
EC-193	1	
EC-194	nd	
EC-195	nd	
EC-196	nd	
EC-197	nd	
EC-198	nd	
EC-199	nd	
EC-200	nd	
EC-201	nd	
EC-202	nd	
EC-203	nd	
EC-204	nd	
EC-205	nd	
EC-206	nd	
EC-207	nd	
EC-208	nd	
EC-209	nd	
EC-210	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

April 30, 2024

Tag	FID Conc. (ppm)	Notes
EC-211	nd	
EC-212	nd	
EC-213	nd	
EC-214	nd	
EC-215	nd	
EC-216	nd	
EC-217	nd	
EC-218	nd	
EC-219	nd	
EC-220	nd	
EC-221	nd	
EC-222	nd	
EC-223	nd	
EC-224	nd	
EC-225	nd	
EC-226	nd	
EC-227	nd	
EC-228	nd	
EC-229	nd	
EC-230	nd	
EC-231	nd	
EC-232	nd	
EC-233	nd	
EC-234	nd	
EC-235	nd	
EC-236	nd	
EC-237	nd	
EC-238	nd	
EC-239	nd	
EC-240	nd	
EC-241	nd	
EC-242	nd	
EC-243	nd	
EC-244	nd	
EC-245	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

April 30, 2024

Tag	FID Conc. (ppm)	Notes
EC-246	nd	
EC-247	nd	
EC-248	nd	
EC-249	nd	
EC-250	nd	
EC-251	nd	
EC-252	nd	
EC-253	nd	
EC-254	nd	
EC-255	nd	
EC-256	nd	
EC-257	nd	
EC-258	nd	
EC-259	nd	
EC-260	nd	
EC-261	nd	
EC-262	nd	
EC-263	nd	
EC-264	nd	
EC-265	nd	
EC-266	nd	
EC-267	nd	
EC-268	nd	
EC-269	nd	
EC-270	nd	
EC-271	nd	
EC-272	nd	
EC-273	nd	
EC-274	nd	
EC-275	nd	
EC-276	nd	
EC-277	nd	
EC-278	nd	
EC-279	nd	
EC-280	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

April 30, 2024

Tag	FID Conc. (ppm)	Notes
EC-281	nd	
EC-282	nd	
EC-283	nd	
EC-284	nd	
EC-285	nd	
EC-286	nd	
EC-287	nd	
EC-288	nd	
EC-289	nd	
EC-290	nd	
EC-291	nd	
EC-292	nd	
EC-293	nd	
EC-294	nd	
EC-295	nd	
EC-296	1	
EC-297	1	
EC-298	nd	
EC-299	nd	
EC-300	nd	
EC-301	nd	
EC-302	nd	
EC-303	nd	
EC-304	nd	
EC-305	nd	
EC-306	nd	End of East Cell route
WCS-1	nd	Start of West Cell South route
WCS-2	nd	
WCS-3	nd	
WCS-4	nd	
WCS-5	nd	
WCS-6	nd	
WCS-7	nd	
WCS-8	nd	
WCS-9	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

April 30, 2024

Tag	FID Conc. (ppm)	Notes
WCS-10	nd	
WCS-11	nd	
WCS-12	nd	
WCS-13	2	
WCS-14	1	
WCS-15	nd	
WCS-16	nd	
WCS-17	nd	
WCS-18	2	
WCS-19	nd	
WCS-20	nd	
WCS-21	nd	
WCS-22	nd	
WCS-23	nd	
WCS-24	nd	
WCS-25	nd	
WCS-26	nd	
WCS-27	nd	
WCS-28	nd	
WCS-29	nd	
WCS-30	nd	
WCS-31	nd	
WCS-32	nd	
WCS-33	nd	
WCS-34	nd	
WCS-35	nd	
WCS-36	nd	
WCS-37	nd	
WCS-38	nd	
WCS-39	nd	
WCS-40	nd	
WCS-41	nd	
WCS-42	1	
WCS-43	1	
WCS-44	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

April 30, 2024

Tag	FID Conc. (ppm)	Notes
WCS-45	nd	
WCS-46	nd	
WCS-47	nd	
WCS-48	nd	
WCS-49	1	
WCS-50	3	
WCS-51	nd	
WCS-52	nd	
WCS-53	nd	
WCS-54	nd	
WCS-55	nd	
WCS-56	nd	
WCS-57	nd	
WCS-58	nd	
WCS-59	nd	
WCS-60	nd	
WCS-61	nd	
WCS-62	nd	
WCS-63	nd	
WCS-64	nd	
WCS-65	nd	
WCS-66	nd	
WCS-67	nd	
WCS-68	nd	
WCS-69	nd	
WCS-70	nd	
WCS-71	nd	
WCS-72	nd	
WCS-73	nd	
WCS-74	nd	
WCS-75	nd	
WCS-76	nd	
WCS-77	nd	
WCS-78	nd	
WCS-79	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

April 30, 2024

Tag	FID Conc. (ppm)	Notes
WCS-80	nd	
WCS-81	nd	
WCS-82	nd	
WCS-83	nd	
WCS-84	nd	End of West Cell South route
WCN-1	nd	West Cell North route
WCN-2	nd	
WCN-3	nd	
WCN-4	nd	
WCN-5	nd	
WCN-6	nd	
WCN-7	nd	
WCN-8	nd	
WCN-9	nd	
WCN-10	nd	
WCN-11	nd	
WCN-12	nd	
WCN-13	nd	
WCN-14	nd	
WCN-15	nd	
WCN-16	nd	
WCN-17	nd	
WCN-18	nd	
WCN-19	nd	
WCN-20	nd	
WCN-21	nd	
WCN-22	nd	
WCN-23	nd	
WCN-24	nd	
WCN-25	nd	
WCN-26	nd	
WCN-27	nd	
WCN-28	nd	
WCN-29	nd	
WCN-30	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

April 30, 2024

Tag	FID Conc. (ppm)	Notes
WCN-31	nd	
WCN-32	nd	
WCN-33	nd	
WCN-34	nd	
WCN-35	nd	
WCN-36	nd	
WCN-37	nd	
WCN-38	nd	
WCN-39	nd	
WCN-40	nd	
WCN-41	nd	
WCN-42	nd	
WCN-43	nd	
WCN-44	nd	
WCN-45	nd	
WCN-46	nd	
WCN-47	nd	
WCN-48	nd	
WCN-49	nd	
WCN-50	nd	
WCN-51	nd	
WCN-52	nd	
WCN-53	nd	
WCN-54	nd	
WCN-55	nd	
WCN-56	nd	
WCN-57	nd	
WCN-58	nd	
WCN-59	nd	
WCN-60	nd	
WCN-61a	nd	
WCN-61	nd	
WCN-62	nd	
WCN-63	nd	
WCN-64	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

April 30, 2024

Tag	FID Conc. (ppm)	Notes
WCN-65	nd	
WCN-66	nd	
WCN-67	nd	
WCN-68	nd	
WCN-69	nd	
WCN-70	nd	
WCN-71	nd	
WCN-72	nd	
WCN-73	nd	
WCN-74	nd	
WCN-75	3	
WCN-76	nd	
WCN-77	nd	
WCN-78	nd	
WCN-79	nd	
WCN-80	nd	
WCN-81	nd	
WCN-82	nd	
WCN-83	3	
WCN-84	nd	
WCN-85	nd	
WCN-86	nd	End of West Cell North route

ppm - parts per million
nd - not detected
<1 - less than 1

October 28, 2024
File No. 07215056.00

Mr. Wes Lindemuth
TRC
575 Arthur Kill Road
Staten Island, NY 10308

Subject: Brookfield Avenue Landfill

Surface Emissions Monitoring Report October 2024

Dear Wes:

On October 9, 2024, SCS Field Services (SCS-FS) conducted semi-annual surface emissions monitoring (SEM) at the Brookfield Avenue Landfill (Landfill). This monitoring was performed in order to satisfy the requirements of the NYC Department of Environmental Protection's Operation, Maintenance, and Monitoring Services Contract, section 2.4.2.B. – Surface Emission Monitoring. Although the monitoring was not performed for compliance with the Environmental Protection Agency's National Emissions Standards for Hazardous Air Pollutants (NESHAP) for landfills, SCS-FS performed the SEM according to the procedures stipulated by the NESHAP, as specified in 40 CFR 63.1960(c) and (d), and 40 CFR 60, Appendix A, Method 21.

SEM took place over a monitoring route on the landfill as shown on the attached Landfill Gas Collection Record Drawing, dated July 23, 2015, supplied by Layout, Inc. and attached to this report in ***Attachment 1***. A total of 477 points on the landfill were tested for emissions of volatile organic compounds (VOC), as methane, using a Foxboro TVA-2020 flame ionization detector. The TVA was calibrated using zero air and 500 parts per million (ppm) methane calibration gas. Upwind and downwind locations were monitored and recorded on the Calibration and Pertinent Data Form, provided in ***Attachment 2***. The monitoring data are presented in ***Table 1***, ***Attachment 3***.

Observations

None of the monitoring points over the area surveyed had an emission level exceeding 500 parts per million above background. No further monitoring is required for this SEM event.

SCS-FS appreciates the opportunity to provide our services. Please contact either of the undersigned should you require further information or assistance.

Sincerely,

Doug Cordisco
Senior Field Technician
SCS Field Services

Scott Schoffner
Regional Manager
SCS Field Services

Attachments

ATTACHMENT 1

SEM ROUTE

User Name : LayoutInc Date\Time : Tue, 28 Jul 2015 - 1:14pm Path\Name : C:\Layout\Brookfield\2857-Brookfield-Landfill\CIVIL 3D\Drawings\2857-SURFACE EMISSION MONITORING.dwg - Layout Tab : BROOKFIELD LANDFILL SURFACE EMISSION MONITORING-PNTS

CONTRACT NO. LF-BAL-1G

0 75 150 300 450
(IN FEET)
1 inch = 150 ft.

Paul Emilius Jr.
Professional Land Surveyor
N.Y. License No. 50203
Date

Layout Inc.
PROFESSIONAL LAND SURVEYORS
CONSTRUCTION SURVEYING SPECIALISTS
GPS CONSULTANTS
1 Entin Road, Unit 8
Clifton, N.J. 07014
Ph: 973-249-0900 Fax: 973-249-0988

SURFACE EMISSIONS MONITORING PLAN

BROOKFIELD AVENUE LANDFILL REMEDIATION

Prepared For:
CITY OF NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

BROOKFIELD CONSTRUCTION ASSOCIATES, LLC
136 CENTRAL AVENUE
CLARK, NJ 07066

Drawn By:	MP
Checked:	JPL
Scale:	1" = 150'
Date:	07-23-15
Proj. No.:	2857
Page:	1 of 1

ATTACHMENT 2

CALIBRATION AND PERTINENT DATA FORMS

SCS FIELD SERVICES

NESHAP Surface Emissions Monitoring
Calibration and Pertinent Data Form

Date: 10/09/24 Site: Brookfield Ave Landfill Job Number: 07220079.00

Technician(s): Migel Ascencio

Weather Observations

Wind Speed: 7 MPH Wind Direction: NW Barometric Pressure: 29.91 "Hg

Air Temperature: 61 °F General Weather Conditions: Cloudy

Calibration Information

Instrument Info Make/Model: TVA 2020 Serial No: 202016041241

Cal Gas Info	Manufacturer	Lot #	Expiration Date	Concentration
Span Gas:	SpecAir	4312403	5/1/2026	490 ppm
Zero Gas:	SpecAir	4232201	11/1/2025	0 ppm

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. ***The calibration precision must be less than or equal to 10% of the calibration gas value.***

Trial	Zero Air Reading (ppm)	Cal Gas Reading (ppm)	|Cal Gas Conc. – Cal Gas Reading|
1	0	500	10
2	0.1	499	9
3	0	499	9
		Average Difference:	9

Calibration Precision = Average Difference / Cal. Gas Conc. X 100%

= 9 / 490 X 100%

= 1.90 %

Pre-monitoring Response Time Check

Procedure: Introduce zero concentration methane/H2S into the instrument. Quickly change to the calibration gas and record stabilized reading. Record the amount of time it took the instrument to read 90% of the stabilized reading. ***This average response time must be less than or equal to 30 seconds.***

Trial	Stabilized Reading on Cal Gas	90% of Stabilized Reading	Time to Reach 90% of Stabilized Reading (Seconds)
1	500	450	4
2	499	449	4
3	499	449	4
		Average Response Time:	4

Background Concentration Checks

Upwind Location Description: NW of site on access road Reading: 0.80 ppm

Downwind Location Description: SE of site on access road Reading: 1.10 ppm

Average Background Reading: 0.95 ppm

Notes/Comments:

22 Albiston Way
Auburn, ME 04210
800-292-6218
207-777-6218
Fax 207-777-6215
www.specair.com

Date: 11/18/2022

Certificate of Analysis

Customer:
QED ENVIRONMENTAL SYSTEMS

Order #: 2270283
Purchase Order #: 145862

Cylinder Size: 105L **CGA Connection:** C10 **Fill Pressure:** 1000 PSI

Analysis: Air Batch Analysis **Lot #:** 4232201

Component(s):	Requested Concentration(s):	Actual Concentration(s):
Oxygen	19.5% - 23.5%	21.8%
Moisture	< 3 PPM	2.1 PPM
THC	< 0.1 PPM	< 0.1 PPM
CO/CO2	< 1 PPM	< 0.1 PPM

Expiration Date: 11/2025

Comments: MEETS OR EXCEEDS SPECIFICATIONS FOR ULTRA ZERO AIR

Approved By:

Ron Abbott

• Results are reported in mole percent, unless otherwise indicated. Mixes are prepared via partial pressure methods, or gravimetrically, using high load high sensitivity electronic scales. Prior to use, scales are verified for accuracy using applicable NIST traceable weights; analyses are calibrated against reference materials traceable to NIST weights and/or NIST gas reference materials.
• The information contained herein has been prepared at your request by qualified experts. While we believe that the information is accurate within the limits of the analytical methods employed, and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability arising out of the use of the information contained herein exceed the fee established for providing such information.
• This certifies that the instruments used for this analysis have been calibrated in compliance with the specifications in the order using SI/NIST traceable standards. When a statement of conformity is made, accept/reject decisions consider the measurement uncertainty and the specification tolerance. When the measurand and uncertainty are reported, measurement uncertainties are declared in the analytical results and the analytical results are not adjusted to consider measurement uncertainties.

22 Albiston Way
Auburn, ME 04210
800-292-6218
207-777-6218
Fax 207-777-6215
www.specair.com

Date: 05/04/2023

Certificate of Analysis

Customer:
QED ENVIRONMENTAL SYSTEMS

Order #: 2375024
Purchase Order #: 147368

Cylinder Size: 105L **CGA Connection:** C10 **Fill Pressure:** 1000 PSI

Analysis: Certified Batch Analysis **Lot #:** 4312403

Component(s):	Requested Concentration(s):	Actual Concentration(s):
Methane	500 PPM	490 PPM
Air	BALANCE	BALANCE

Expiration Date: 05/2026

Comments: MIX MADE USING DIGITAL BALANCES CALIBRATED TO NIST TRACEABLE WEIGHTS / ACCURACY: +/- 2%
METHOD OF PREPARATION: GRAVIMETRIC / PRESSURE TRANSFILLING
ANALYTICAL PRINCIPLE: GC (TCD)

Approved By:

Ron Abbott

• Results are reported in mole percent, unless otherwise indicated. Mixes are prepared via partial pressure methods, or gravimetrically, using high load high sensitivity electronic scales. Prior to use, scales are verified for accuracy using applicable NIST traceable weights; analyses are calibrated against reference materials traceable to NIST weights and/or NIST gas reference materials.
• The information contained herein has been prepared at your request by qualified experts. While we believe that the information is accurate within the limits of the analytical methods employed, and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability arising out of the use of the information contained herein exceed the fee established for providing such information.
• This certifies that the instruments used for this analysis have been calibrated in compliance with the specifications in the order using SI/NIST traceable standards. When a statement of conformity is made, accept/reject decisions consider the measurement uncertainty and the specification tolerance. When the measurand and uncertainty are reported, measurement uncertainties are declared in the analytical results and the analytical results are not adjusted to consider measurement uncertainties.

ATTACHMENT 3

SEM DATA

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 9, 2024

Tag	FID Conc. (ppm)	Notes
EC-1	11	Start of route; East Cell
EC-2	5	
EC-3	5	
EC-4	4	
EC-5	4	
EC-6	4	
EC-7	4	
EC-8	4	
EC-9	4	
EC-10	4	
EC-11	4	
EC-12	4	
EC-13	4	
EC-14	4	
EC-15	4	
EC-16	3	
EC-17	3	
EC-18	3	
EC-19	4	
EC-20	3	
EC-21	3	
EC-22	3	
EC-23	3	
EC-24	3	
EC-25	3	
EC-26	3	
EC-27	3	
EC-28	3	
EC-29	3	
EC-30	3	
EC-31	3	
EC-32	3	
EC-33	3	
EC-34	3	
EC-35	3	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 9, 2024

Tag	FID Conc. (ppm)	Notes
EC-36	3	
EC-37	3	
EC-38	3	
EC-39	3	
EC-40	3	
EC-41	3	
EC-42	2	
EC-43	3	
EC-44	2	
EC-45	2	
EC-46	2	
EC-47	2	
EC-48	2	
EC-49	2	
EC-50	2	
EC-51	2	
EC-52	2	
EC-53	2	
EC-54	2	
EC-55	2	
EC-56	2	
EC-57	2	
EC-58	3	
EC-59	2	
EC-60	2	
EC-61	2	
EC-62	2	
EC-63	4	
EC-64	2	
EC-65	2	
EC-66	2	
EC-67	2	
EC-68	2	
EC-69	1	
EC-70	2	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 9, 2024

Tag	FID Conc. (ppm)	Notes
EC-71	2	
EC-72	2	
EC-73	1	
EC-74	1	
EC-75	1	
EC-76	2	
EC-77	20	
EC-78	3	
EC-79	2	
EC-80	2	
EC-81	2	
EC-82	2	
EC-83	3	
EC-84	2	
EC-85	6	
EC-86	3	
EC-87	2	
EC-88	2	
EC-89	1	
EC-90	1	
EC-91	1	
EC-92	1	
EC-93	1	
EC-94	<1	
EC-95	1	
EC-96	1	
EC-97	2	
EC-98	1	
EC-99	1	
EC-100	4	
EC-101	4	
EC-102	2	
EC-103	3	
EC-104	2	
EC-105	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 9, 2024

Tag	FID Conc. (ppm)	Notes
EC-106	<1	
EC-107	<1	
EC-108	<1	
EC-109	<1	
EC-110	<1	
EC-111	nd	
EC-112	<1	
EC-113	nd	
EC-114	<1	
EC-115	nd	
EC-116	nd	
EC-117	nd	
EC-118	nd	
EC-119	nd	
EC-120	4	
EC-121	nd	
EC-122	nd	
EC-123	<1	
EC-124	<1	
EC-125	nd	
EC-126	<1	
EC-127	26	
EC-128	6	
EC-129	2	
EC-130	<1	
EC-131	nd	
EC-132	nd	
EC-133	nd	
EC-134	nd	
EC-135	nd	
EC-136	nd	
EC-137	nd	
EC-138	nd	
EC-139	nd	
EC-140	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 9, 2024

Tag	FID Conc. (ppm)	Notes
EC-141	nd	
EC-142	nd	
EC-143	nd	
EC-144	nd	
EC-145	nd	
EC-146	nd	
EC-147	14	
EC-148	2	
EC-149	nd	
EC-150	nd	
EC-151	nd	
EC-152	nd	
EC-153	nd	
EC-154	nd	
EC-155	<1	
EC-156	<1	
EC-157	<1	
EC-158	<1	
EC-159	nd	
EC-160	nd	
EC-161	nd	
EC-162	1	
EC-163	nd	
EC-164	nd	
EC-165	nd	
EC-166	nd	
EC-167	nd	
EC-168	nd	
EC-169	nd	
EC-170	nd	
EC-171	nd	
EC-172	<1	
EC-173	2	
EC-174	nd	
EC-175	5	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 9, 2024

Tag	FID Conc. (ppm)	Notes
EC-176	<1	
EC-177	4	
EC-178	5	
EC-179	2	
EC-180	1	
EC-181	2	
EC-182	nd	
EC-183	nd	
EC-184	nd	
EC-185	nd	
EC-186	8	
EC-187	<1	
EC-188	<1	
EC-189	nd	
EC-190	nd	
EC-191	nd	
EC-192	nd	
EC-193	nd	
EC-194	nd	
EC-195	nd	
EC-196	nd	
EC-197	nd	
EC-198	nd	
EC-199	4	
EC-200	nd	
EC-201	nd	
EC-202	nd	
EC-203	nd	
EC-204	nd	
EC-205	nd	
EC-206	nd	
EC-207	nd	
EC-208	nd	
EC-209	nd	
EC-210	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 9, 2024

Tag	FID Conc. (ppm)	Notes
EC-211	nd	
EC-212	nd	
EC-213	nd	
EC-214	nd	
EC-215	nd	
EC-216	4	
EC-217	nd	
EC-218	nd	
EC-219	nd	
EC-220	nd	
EC-221	nd	
EC-222	nd	
EC-223	nd	
EC-224	2	
EC-225	nd	
EC-226	nd	
EC-227	nd	
EC-228	nd	
EC-229	nd	
EC-230	nd	
EC-231	nd	
EC-232	<1	
EC-233	nd	
EC-234	nd	
EC-235	4	
EC-236	nd	
EC-237	nd	
EC-238	nd	
EC-239	nd	
EC-240	nd	
EC-241	nd	
EC-242	nd	
EC-243	1	
EC-244	nd	
EC-245	2	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 9, 2024

Tag	FID Conc. (ppm)	Notes
EC-246	nd	
EC-247	nd	
EC-248	nd	
EC-249	nd	
EC-250	nd	
EC-251	nd	
EC-252	nd	
EC-253	nd	
EC-254	nd	
EC-255	nd	
EC-256	nd	
EC-257	nd	
EC-258	nd	
EC-259	nd	
EC-260	nd	
EC-261	nd	
EC-262	nd	
EC-263	nd	
EC-264	nd	
EC-265	nd	
EC-266	nd	
EC-267	<1	
EC-268	nd	
EC-269	nd	
EC-270	nd	
EC-271	nd	
EC-272	<1	
EC-273	<1	
EC-274	nd	
EC-275	nd	
EC-276	nd	
EC-277	nd	
EC-278	9	
EC-279	nd	
EC-280	4	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 9, 2024

Tag	FID Conc. (ppm)	Notes
EC-281	nd	
EC-282	2	
EC-283	<1	
EC-284	nd	
EC-285	nd	
EC-286	nd	
EC-287	nd	
EC-288	nd	
EC-289	nd	
EC-290	nd	
EC-291	nd	
EC-292	nd	
EC-293	nd	
EC-294	1	
EC-295	nd	
EC-296	nd	
EC-297	nd	
EC-298	3	
EC-299	2	
EC-300	nd	
EC-301	nd	
EC-302	nd	
EC-303	nd	
EC-304	nd	
EC-305	nd	
EC-306	2	End of East Cell route
WCS-1	4	Start of West Cell South route
WCS-2	3	
WCS-3	3	
WCS-4	3	
WCS-5	3	
WCS-6	3	
WCS-7	3	
WCS-8	3	
WCS-9	3	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 9, 2024

Tag	FID Conc. (ppm)	Notes
WCS-10	3	
WCS-11	3	
WCS-12	3	
WCS-13	3	
WCS-14	3	
WCS-15	3	
WCS-16	3	
WCS-17	3	
WCS-18	2	
WCS-19	3	
WCS-20	3	
WCS-21	2	
WCS-22	2	
WCS-23	2	
WCS-24	2	
WCS-25	3	
WCS-26	7	
WCS-27	3	
WCS-28	2	
WCS-29	3	
WCS-30	4	
WCS-31	2	
WCS-32	3	
WCS-33	2	
WCS-34	2	
WCS-35	31	
WCS-36	7	
WCS-37	4	
WCS-38	2	
WCS-39	2	
WCS-40	2	
WCS-41	2	
WCS-42	2	
WCS-43	2	
WCS-44	2	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 9, 2024

Tag	FID Conc. (ppm)	Notes
WCS-45	2	
WCS-46	2	
WCS-47	2	
WCS-48	2	
WCS-49	2	
WCS-50	2	
WCS-51	2	
WCS-52	2	
WCS-53	2	
WCS-54	8	
WCS-55	2	
WCS-56	1	
WCS-57	1	
WCS-58	1	
WCS-59	1	
WCS-60	1	
WCS-61	1	
WCS-62	1	
WCS-63	1	
WCS-64	1	
WCS-65	<1	
WCS-66	<1	
WCS-67	1	
WCS-68	1	
WCS-69	1	
WCS-70	1	
WCS-71	1	
WCS-72	<1	
WCS-73	<1	
WCS-74	1	
WCS-75	<1	
WCS-76	<1	
WCS-77	<1	
WCS-78	<1	
WCS-79	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 9, 2024

Tag	FID Conc. (ppm)	Notes
WCS-80	<1	
WCS-81	<1	
WCS-82	1	
WCS-83	<1	
WCS-84	<1	End of West Cell South route
WCN-1	<1	West Cell North route
WCN-2	1	
WCN-3	<1	
WCN-4	<1	
WCN-5	<1	
WCN-6	<1	
WCN-7	<1	
WCN-8	<1	
WCN-9	<1	
WCN-10	<1	
WCN-11	<1	
WCN-12	<1	
WCN-13	<1	
WCN-14	<1	
WCN-15	nd	
WCN-16	nd	
WCN-17	nd	
WCN-18	<1	
WCN-19	nd	
WCN-20	nd	
WCN-21	nd	
WCN-22	nd	
WCN-23	nd	
WCN-24	nd	
WCN-25	<1	
WCN-26	<1	
WCN-27	<1	
WCN-28	<1	
WCN-29	nd	
WCN-30	<1	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 9, 2024

Tag	FID Conc. (ppm)	Notes
WCN-31	nd	
WCN-32	nd	
WCN-33	nd	
WCN-34	nd	
WCN-35	nd	
WCN-36	<1	
WCN-37	nd	
WCN-38	nd	
WCN-39	nd	
WCN-40	19	
WCN-41	<1	
WCN-42	<1	
WCN-43	<1	
WCN-44	5	
WCN-45	<1	
WCN-46	<1	
WCN-47	1	
WCN-48	<1	
WCN-49	nd	
WCN-50	<1	
WCN-51	<1	
WCN-52	<1	
WCN-53	1	
WCN-54	2	
WCN-55	4	
WCN-56	9	
WCN-57	21	
WCN-58	8	
WCN-59	4	
WCN-60	<1	
WCN-61a	<1	
WCN-61	nd	
WCN-62	nd	
WCN-63	<1	
WCN-64	nd	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
Brookfield Avenue Landfill, Staten Island, New York

October 9, 2024

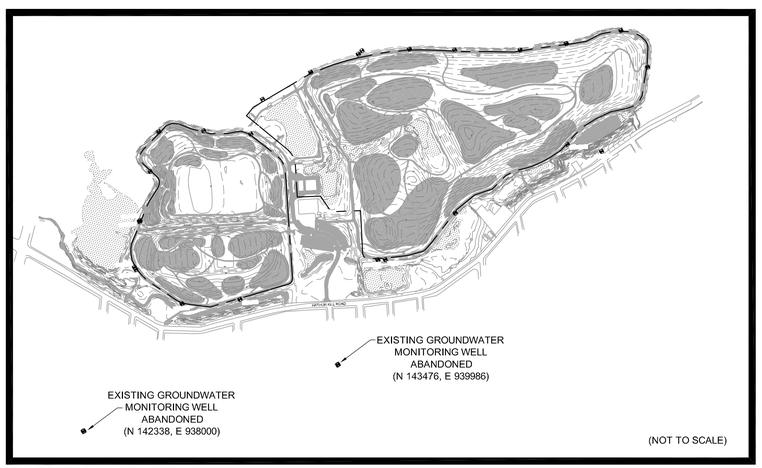
Tag	FID Conc. (ppm)	Notes
WCN-65	nd	
WCN-66	nd	
WCN-67	nd	
WCN-68	3	
WCN-69	4	
WCN-70	<1	
WCN-71	<1	
WCN-72	nd	
WCN-73	<1	
WCN-74	nd	
WCN-75	nd	
WCN-76	nd	
WCN-77	<1	
WCN-78	<1	
WCN-79	<1	
WCN-80	nd	
WCN-81	<1	
WCN-82	nd	
WCN-83	nd	
WCN-84	nd	
WCN-85	nd	
WCN-86	nd	End of West Cell North route

ppm - parts per million
nd - not detected
<1 - less than 1

APPENDIX I

WELL CONSTRUCTION LOGS FOR LONG-TERM MONITORING WELLS

LTMW-13
LTMW-18c
LTMW-18ug
LTMW-17
LTMW-16
LTMW-15
LTMW-14
LTMW-19
LTMW-20
LTMW-12
LTMW-3
LTMW-2
LTMW-1
LTMW-4
LTMW-11
LTMW-23
LTMW-5a
LTMW-5b
LTMW-10
LTMW-6
LTMW-21
LTMW-22
LTMW-9
LTMW-7
LTMW-8
ARTHUR KILL ROAD



REFERENCES:

"Contract No. LF–BAL–1G, Long–Term Groundwater Monitoring Plan, Monitoring Well Locations" dated April 2007, last revised 10/12/12 and prepared by Camp Dresser & McKee.

NOTES:

1. Horizontal and Vertical Datum is a project specific datum, referenced from "Topographical Survey of the Brookfield Avenue Landfill, situated on Staten Island in the Borough of Richmond, County of Richmond, City of New York, State of New York" dated June 4, 2003 prepared by Chas. H. Sells, Inc. To convert to NAD 83 and NGVD 1929 see RFI #7 and #31.
2. Coordinates and elevations are shown in U.S. Survey Feet.

LEGEND

LTMW-8 — LONG-TERM GROUNDWATER MONITORING WELL

CENTERLINE OF BARRIER WALL

AS-BUILT FINAL GRADE

0 75 150 300 450
(IN FEET)
1 inch = 150 ft.

LONG-TERM GROUNDWATER MONITORING WELLS

WELL ID	NORTHING (ft)	EASTING (ft)	ELEV. (ft)	TOS ELEV. (ft)
LTMW-1	145217	938728	18.3	-17.0
LTMW-2	145136	938324	16.7	-11.7
LTMW-3	145027	937951	16.7	-16.8
LTMW-4	144670	937969	17.8	-32.4
LTMW-5a	144236	937993	15.0	-19.7
LTMW-5b	144226	937992	15.1	-37.9
LTMW-6	143830	938055	15.4	-20.0
LTMW-7	143633	938538	15.2	-14.8
LTMW-8	143802	939014	15.8	-19.8
LTMW-9	144467	940145	18.2	-30.0
LTMW-10	145018	940628	16.4	-25.8
LTMW-11	145851	941413	16.7	-25.5
LTMW-12	146682	941912	13.6	-25.7
LTMW-13	146930	941604	16.5	-20.9
LTMW-14	146696	941175	18.2	-25.3
LTMW-15	146537	940802	17.3	-20.2
LTMW-16	146386	940251	16.5	-22.1
LTMW-17	146292	939869	14.2	-18.2
LTMW-18ug	146133	939450	11.6	-22.5
LTMW-18c	146169	939473	13.0	-113.0
LTMW-19	145873	939091	12.8	-9.3
LTMW-20	145535	938748	9.2	-15.0
LTMW-21	143814	938072	15.7	-76.0
LTMW-22	144447	940083	19.9	-100.0
LTMW-23	145869	941717	24.1	-107.0

CONTRACT NO. 1359-BRK

Layeux Inc.
PROFESSIONAL LAND SURVEYORS
CONSTRUCTION SURVEYING SPECIALISTS
GPS CONSULTANTS
1 Entin Road, Unit 8
Clifton, N.J. 07014
Ph: 973-249-0900 Fax: 973-249-0988

LONG-TERM GROUNDWATER MONITORING WELL LOCATION PLAN

BROOKFIELD AVENUE LANDFILL

Prepared For:
CITY OF NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

BROOKFIELD CONSTRUCTION ASSOCIATES, LLC
136 CENTRAL AVENUE
CLARK, NJ 07066

Drawn By:	MP
Checked:	JB
Scale:	1"=150'
Date:	07-23-15
Proj. No.:	2857

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-1

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
11/15/2012		10'		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 11/15/2012
DATE FINISH 11/16/2012
DRILLER M. Carire
INSPECTOR Scott Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	6" Casing	1	14	15"	Gravel
2			18 19 20		
3		2	19	10"	Same
4			21 19 22		
5		3	20	12"	Same
6			18 15 17		
7		4	17	8"	Same
8			25 25 23		
9		5	21	10"	Sand, gravel & some trash (plastic fiber / wood)
10			15 12 12		
11		6	10	12"	Sandy silt, some gravel
12			12 14 13		
13		7	10	12"	Same with some wood
14			10 10 12		
15		8	2	12"	Peat
16	Revert		3 3 3		
17		9	1	13"	Same
18			2 3 2		
19		10	3	18"	Clayey silt
20			4 3 4		
21		11	12	6"	Sandy silt & some gravel
22			12 25 30		
23		12	31	5"	Same
24			30 29 31		
25		13	25	14"	Sandy silt
26			20 19 15		
27		14	6 13	15"	Same

REMARKS

BOREHOLE GROUTED

YES__X__ NO_____

Samples received in field by Client's Rep.

YES_____ NO__X__

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal _____
Quick Gel _____
Hole Plug _____
Revert _____
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 38'.
5' Screen 35' Riser
6" Stand Pipe
2" Locking Cap

1 drum

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-1
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	16 19	15"	Sandy silt	
29 30		15	15 20 19 20	17"	Same	
31 32		16	18 14 11 10	11"	Sand, trace silt & trace gravel	
33 34		17	4 6 7 8	14"	Sand & trace silt	
35 36		18	5 7 7 9	12"	Same	
37 38		19	8 9 12 16	15"	Same	
39 40		20	14 15 16 17	15"	Same	
41 42 43 44 45 46 47 48 49 50 51 52 53					E.O.B. - 40 feet	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-2

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
11/14/2012		10'		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 11/14/2012
DATE FINISH 11/14/2012
DRILLER M. Carlre
INSPECTOR Scott Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1	6" Casing	1	3	3"	Gravel	BOREHOLE GROUTED
2			6 8 10			YES__X__ NO_____
3		2	9	2"	Same	
4			10 10 11			Samples received in field by Client's Rep.
5		3	7	5"	Same	YES_____ NO__X__
6			12 11 13			
7		4	10	4"	Same	If YES, sign & print name
8			12 12 14			
9		5	15	3"	Same	Signature
10			14 12 16			
11		6	15	1"	Trash (wood, plastic, rubber fiber)	Print name
12			10 8 8			
13		7	8	1"	Same	Materials used on Boring
14			4 3 2			
15		8	5	6"	Sand & trace silt	Benseal _____
16			6 8 10			Quick Gel _____
17		9	11	8"	Sandy silt & some gravel	Hole Plug _____
18			10 10 9			Revert _____
19		10	11	12"	Same	Well gravel _____
20	▼		13 12 12			Concrete _____
21	Revert	11	7	10"	Sandy silt	Asphalt _____
22			7 7 7			Spoons _____
23		12	7	11"	Silty sand	Traps _____
24			8 7 8			Bits
25		13	7	13"	Same	Well gravel _____
26			5 6 6			Concrete _____
27	▼	14	3 4	15"	Silty sand & trace of gravel	Asphalt _____
						Spoons _____
						Traps _____
						Bits
						Installed a 2" well @ 36'. 10' Screen 28' Riser 6" Stand Pipe 2" Locking Cap

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-2
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	7 7	15"	Silty sand & trace gravel	
29		15	7 5	14"	Same	
30			6 7			
31		16	12 15	20"	Sand & trace silt	
32			12 15			
33		17	13 14	18"	Same	
34			14 14			
35		18	12 10	17"	Silty sand	
36			9 10			
37		19	5 10	19"	Sand & trace silt	
38			9 8			
39					E.O.B. - 38 feet	
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-3

PROJECT: Brookfield Landfill — SHT. NO. 1 of 2
CLIENT: Brookfield Construction Associates, LLC — JOB NO. 12 - 092
LOCATION: Staten Island, New York — ELEVATION
Ground Water — PERMIT NO.

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
11/12/2012		12'		DIA.	HW	SS	NX	
				WT.	6"	2"		
				FALL	140	140		
					30"	30"		

DATE START 11/9/2012
DATE FINISH 11/12/2012
DRILLER M. Carlre
INSPECTOR Scott Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	6" Casing	1	5	7"	Gravel
2			9		
			10		
			10		
3		2	10	10"	Same
4			9		
			10		
			12		
5		3	12	12"	Same
6			14		
			51		
			30		
7		4	29	10"	Gravel, some sand
8			29		
			40		
			31		
9		5	31	10"	Sand & gravel
10			25		
			29		
			31		
11		6	9	5"	Garbage (plastic, wood, fiber)
12			11		
			3		
			3		
13		7	3	2"	Same
14			4		
			5		
			6		
15		8	3	3"	Peat
16			3		
			1		
			1		
17		9	1	2"	Garbage (glass, plastic, fiber)
18			2		
			2		
			1		
19		10	2	8"	Sand & gravel, trace of silt
20			3		
			5		
			10		
21	Revert	11	17	6"	Sand, trace of silt and gravel
22			23		
			23		
			25		
23		12	24	3"	Same
24			26		
			25		
			25		
25		13	24	3"	Sand, gravel & silt
26			26		
			27		
			30		
27		14	31	6"	Same
			27		

REMARKS

BOREHOLE GROUTED

YES__X__ NO_____

Samples received in field by Client's Rep.

YES__X__ NO_____

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal _____
Quick Gel _____
Hole Plug _____
Revert _____
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 36'.
5' Screen 33' Riser
6" Stand Pipe
2" Locking Cap

1 drum

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-3
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	29 30	6"	Silty sand, some gravel	
29 30		15	27 19 15 15	10"	Sandy silt, some gravel	
31 32		16	12 9 12 15	10"	Same	
33 34		17	12 14 14 16	12"	Same	
35 36		18	2 5 9 10	18"	Silty clay, trace sand	
37 38		19	8 9 9 12	24"	Same	
39					E.O.B. - 38 feet	
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-4

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING
11/6/2012		11'	

TYPE	CAS.	SAMP.	CORE	TUBE
DIA.	6"	2"		
WT.	140	140		
FALL	30"	30"		

SHT. NO. 1 of 3
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 10/26/2012
DATE FINISH 11/6/2012
DRILLER M. Carire
INSPECTOR Scott Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	6" Casing	1	6	10"	Gravel
2			10		
			11		
			12		
3		2	11	8"	Same w/ some sand
4			9		
			8		
			6		
5		3	8	7"	Gravel
6			11		
			7		
			8		
7		4	9	9"	Same
8			10		
			8		
			10		
9		5	8	13"	Gravel, some sand & trace silt
10			25		
			33		
			22		
11		6	21	4"	Silty sand
12			18		
			12		
			6		
13		7	2	5"	Same
14			4		
			3		
			5		
15		8	5	9"	Same
16			6		
			6		
			7		
17		9	2	3"	Silty sand
18			3		
			3		
			2		
19		10	1	4"	Same
20	▼		3		
			2		
			2		
21	Revert	11	6	10"	Sandy silt
22			7		
			9		
			11		
23		12	10	11"	Same
24			10		
			11		
			12		
25		13	9	14"	Same
26			11		
			10		
			11		
27	▼	14	11	14"	Silty sand, trace gravel
			13		

REMARKS

BOREHOLE GROUTED

YES__X__ NO_____

Samples received in field by Client's Rep.

YES__X__ NO____

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal _____
Quick Gel _____
Hole Plug _____
Revert _____
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 58'.
10' Screen 50' Riser
6" Stand Pipe
2" Locking Cap

1 drum

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-4
PROJECT: Brookfield Landfill		SHT. NO. 2 of 3
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	14 14	14"	Silty sand, trace gravel	
29 30		15	4 12 15 20	16"	Silty clay, trace gravel & trace sand	
31 32		16	21 18 14 12	20"	Same	
33 34		17	18 15 13 13	16"	Same	
35 36		18	7 8 11 10	12"	Same	
37 38		19	6 7 7 9	6"	Same	
39 40		20	10 9 10 8	10"	Same	
41 42		21	16 31 71 65	24"	Sandy silt & gravel	
43 44		22	63 55 50 30	18"	Sandy silt	
45 46		23	W.O.H. 16 5 7	24"	Same	
47 48		24	5 8 8 10	16"	Same	
49 50		25	10 15 14 25	19"	Same	
51 52		26	22 15 16 21	16"	Same	
53	▼	27	19 14	6"	Same	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-4
PROJECT: Brookfield Landfill		SHT. NO. 3 of 3
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
			18			
54	Revert	27	20	6"	Silty sand, trace gravel	
			13			
55		28	12	8"	Same	
			14			
56			18			
			17			
57		29	14	10"	Same	
			17			
58			20			
			15			
59		30	15	16"	Same	
			18			
60			19			
					E.O.B. - 60 feet	
61						
62						
63						
64						
65						
66						
67						
68						
69						
70						
71						
72						
73						
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75						
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79						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-5A

PROJECT: Brookfield Landfill — SHT. NO. 1 of 2
CLIENT: Brookfield Construction Associates, LLC — JOB NO. 12 - 092
LOCATION: Staten Island, New York — ELEVATION
Ground Water — PERMIT NO.

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
10/25/2012		7'		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

DATE START 10/23/2012
DATE FINISH 10/25/2012
DRILLER M. Carire
INSPECTOR Scott Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	6" Casing	1	10	12"	Gravel
2			11 10 12		
3		2	9 7	7"	Sand, some silt & gravel
4			12 8		
5		3	5 7	10"	Same
6			10 8		
7		4	8 9	12"	Silty sand & some gravel
8			8 8		
9		5	6 7	12"	Sandy silt, trace gravel & trace peat
10			6 5		
11		6	7 7	12"	Sandy silt & gravel
12			8 9		
13		7	9 7	14"	Same
14			9 10		
15		8	3 7	12"	Sandy silt
16	Water		7 7		
17		9	11 10	20"	Silty sand
18			11 14		
19		10	13 14	18"	Same
20			14 15		
21		11	15 14	21"	Silty clay & trace sand
22			14 15		
23		12	2 5	20"	Same
24			5 9		
25		13	6 8	18"	Same
26			8 10		
27		14	10 9	7"	Silty clay & some sand

REMARKS

BOREHOLE GROUTED

YES__X__ NO____

Samples received in field by Client's Rep.

YES__X__ NO____

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal _____
Quick Gel _____
Hole Plug _____
Revert _____
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 37'.
5' Screen 34' Riser
6" Stand Pipe
2" Locking Cap

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-5A
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Water	14	7 5	7"	Silty clay & some sand	
29		15	6 7	9"	Same	
30			10 13			
31		16	8 8	12"	Same with gravel	
32			5 5			
33		17	8 7	15"	Silty sand & trace sand	
34			5 4			
35		18	3 4	15"	Same	
36			6 7			
37		19	9 8	16"	Same	
38			7 7			
39					E.O.B. - 38 feet	
40						
41					Manuel D. Caire	
42						
43						
44						
45						
46						
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48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-5B

PROJECT: Brookfield Landfill									SHT. NO. 1 of 3	
CLIENT: Brookfield Construction Associates, LLC									JOB NO.	12 - 092
LOCATION: Staten Island, New York									ELEVATION	
Ground Water					CAS.	SAMP.	CORE	TUBE	PERMIT NO.	
DATE	TIME	DEPTH	CASING	TYPE	HW	SS	NX		DATE START	10/22/2012
10/23/2012		7'		DIA.	6"	2"			DATE FINISH	10/23/2012
				WT.	140	140			DRILLER	M. Carire,
				FALL	30"	30"			INSPECTOR	Scott Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	6" Casing	1	6	10"	Gravel
2			21		
			22		
			23		
3		2	20	13"	Same
			17		
4			17		
			14		
5		3	13	10"	Same
			15		
6			15		
			18		
7		4	15	8"	Sand, silt & some gravel
			16		
8			10		
			6		
9		5	13	15"	Same
			9		
10			8		
			5		
11		6	13	3"	Same
			12		
12			12		
			8		
13		7	5	2"	Same
			4		
14			5		
			5		
15	▼	8	15	10"	Sandy silt
			11		
16	Revert		6		
			7		
17		9	17	14"	Same
			16		
18			8		
			9		
19		10	12	20"	Same
			10		
20			18		
			19		
21		11	20	18"	Silty sand
			20		
22			15		
			18		
23		12	19	14"	Same
			16		
24			18		
			18		
25		13	5	23"	Same
			4		
26			5		
			4		
27	▼	14	4	22"	Same
			5		

REMARKS

BOREHOLE GROUTED

YES__X__ NO____

Samples received in field by Client's Rep.

YES__X__ NO____

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal _____
Quick Gel _____
Hole Plug _____
Revert _____
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 55'.
5' Screen 52' Riser
6" Stand Pipe
2" Locking Cap

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-5B
PROJECT: Brookfield Landfill		SHT. NO. 2 of 3
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	6 7	22"	Silty sand	
29 30		15	7 7 6 7	21"	Same	
31 32		16	6 8 7 8	18"	Same	
33 34		17	12 7 7 10	20"	Sandy silt & trace gravel	
35 36		18	5 6 6 6	20"	Silty sand	
37 38		19	7 6 6 6	22"	Same	
39 40		20	7 8 7 7	24"	Same	
41 42		21	3 5 5 5	24"	Same	
43 44		22	5 6 6 5	22"	Sandy silt & some gravel	
45 46		23	6 4 6 7	18"	Silty sand	
47 48		24	6 79 29 50	11"	Sandy silt & gravel	
49 50		25	43 27 21 25	10"	Sandy silt & some gravel	
51 52		26	9 12 16 20	10"	Same	
53		27	11 14	18"	Same	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-5B
PROJECT:		SHT. NO. 3 of 3
CLIENT:		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
54	Revert	27	17 24	18"	Silty sand & some gravel	
55	↓	28	12 17	20"	Same	
56	↓		21 31			
					E.O.B. - 56 feet	
57						
58						
59						
60						
61						
62						
63						
64						
65						
66						
67						
68						
69						
70						
71						
72						
73						
74						
75						
76						
77						
78						
79						

Manuel L. Laire

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-6

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
10/18/2012		7'		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 10/17/2012
DATE FINISH 10/18/2012
DRILLER M. Carlre
INSPECTOR Scott Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	6" Casing	1	4	12"	Gravel & some sand
2			20		
			17		
			18		
3		2	18	12"	Same
4			18		
			17		
			19		
5		3	3	16"	Sand, silt, and gravel
6			9		
			14		
			14		
7		4	14	14"	Same
8			10		
			10		
			13		
9		5	14	18"	Same
10	↓		11		
			12		
			13		
11	Revert	6	14	16"	Sandy silt
12			10		
			9		
			11		
13		7	10	20"	Same
14			10		
			12		
			13		
15		8	9	8"	Same
16			10		
			20		
			35		
17		9	34	9"	Same with some gravel
18			23		
			12		
			11		
19		10	3	24"	Sandy silt
20			5		
			6		
			11		
21		11	12	20"	Same
22			7		
			9		
			8		
23		12	12	11"	Same
24			13		
			8		
			14		
25		13	11	20"	Same
26			17		
			17		
			19		
27	↓	14	14	16"	Same
			14		

REMARKS

BOREHOLE GROUTED

YES__X__ NO____

Samples received in field by Client's Rep.

YES__X__ NO____

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal _____
Quick Gel _____
Hole Plug _____
Revert _____
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 38'.
5' Screen 35' Riser
6" Stand Pipe
2" Locking Cap

JERSEY BORING & DRILLING CO., INC.

TEST BORING LOGS

BORING NO. LTMW-6

PROJECT: Brookfield Landfill

SHT. NO. 2 of 2

CLIENT: Brookfield Construction Associates, LLC

JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
			13			
28	Revert	14	14	16"	Sandy silt	
			16			
29		15	16	19"	Sandy silt & some gravel	
			17			
30			19			
			20			
31		16	18	16"	Sand & some silt	
			16			
32			18			
			12			
33		17	7	14"	Clayey silt & trace sand	
			10			
34			13			
			8			
35		18	16	13"	Sand, silt & some gravel	
			17			
36			17			
			8			
37		19	6	15"	Clayey silt & trace sand	
			7			
38			7			
			12			
39		20	13	15"	Clayey silt & some sand	
			15			
40	▼		17			
					E.O.B. - 40 feet	
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						

Manuel L. Lariu

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-7

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
10/17/2012		8'		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 10/16/2012
DATE FINISH 10/17/2012
DRILLER M. Carire
INSPECTOR Scott Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	6" Casing	1	3	10"	Sand, gravel & trave silt
2			12		
			20		
			21		
3		2	14	13"	Same
4			15		
			24		
			23		
5		3	30	11"	Same
6			25		
			29		
			18		
7		4	17	10"	Same
8			14		
			12		
			16		
9		5	4	20"	Silty clay, peat & some gravel
10	▼		10		
			15		
			19		
11	Revert	6	5	15"	Silt, sand & some gravel
12			11		
			17		
			22		
13		7	9	14"	Same
14			12		
			17		
			20		
15		8	15	15"	Same
16			16		
			17		
			20		
17		9	17	18"	Same
18			19		
			19		
			21		
19		10	15	12"	Same
20			14		
			18		
			25		
21		11	6	15"	Sand, silt & trace of gravel
22			6		
			9		
			12		
23		12	11	12"	Sand, some silt & some gravel
24			10		
			14		
			14		
25		13	11	14"	Same
26			17		
			20		
			17		
27	▼	14	22	14"	Same
			25		

REMARKS

BOREHOLE GROUTED

YES__X__ NO_____

Samples received in field by Client's Rep.

YES__X__ NO____

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal _____
Quick Gel _____
Hole Plug _____
Revert _____
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 33'.
5' Screen 30' Riser
6" Stand Pipe
2" Locking Cap

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-7
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	19 19	14"	Sand, some silt & some gravel	
29		15	11 16	11"	Sand, gravel & trace silt	
30			16 20			
31		16	25 25	11"	Same	
32			31 22			
33		17	19 19	9"	Same	
34			25 23			
35					E.O.B. - 34 feet	
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
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51						
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JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-8

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS	SAMP	CORE	TUBE
10/15/2012		8'		DIA	6"	2"		
				WT	140	140		
				FALL	30"	30"		

SHT NO	1 of 2
JOB NO	12 - 092
ELEVATION	
PERMIT NO	
DATE START	10/11/2012
DATE FINISH	10/15/2012
DRILLER	M Carire
INSPECTOR	Scott Piccino

DEPTH FEET	CASING BLOWS	SAMPLE NO	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	6" Casing	1	2	6"	Brown sand & gravel
2			10		
			11		
			13		
3		2	13	12"	Gravel & some sand
			13		
4			13		
			11		
5		3	37	3"	Same w/ some silt
			36		
6			37		
			15		
7		4	18	3"	Same
			13		
8			10		
			15		
9		5	10	12"	Sand & some gravel
			8		
10	▼		9		
			12		
11	Revert	6	11	12"	Sand & trace gravel
			11		
			11		
12			12		
13		7	10	12"	Same w/ some silt
			15		
			24		
14			15		
15		8	13	18"	Silty sand & trace fine gravel
			13		
			15		
16			15		
17		9	11	3"	Silty sand
			9		
			12		
18			18		
19		10	12	24"	Same
			15		
			21		
20			13		
21		11	7	14"	Same w/ some fine gravel
			7		
			16		
22			17		
23		12	17	18"	Sand, gravel & trace silt
			19		
			14		
24			21		
25		13	6	12"	Sand, gravel and trace silt
			9		
			11		
26			12		
27	▼	14	12	14"	Same

REMARKS

BOREHOLE GROUTED

YES X NO

Samples received in field by Client's Rep

YES X NO

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal
Quick Gel
Hole Plug
Revert
Well gravel
Concrete
Asphalt
Spoons
Traps
Bits
Well gravel
Concrete
Asphalt
Spoons
Traps
Bits

Installed a 2" well @ 43'
10' Screen 35' Riser
6" Stand Pipe
2" Locking Cap

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-8
PROJECT: Brookfield Landfill		SHT NO 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28		14	14 14	14"	Sand, gravel & trace silt	
29		15	10 16	10"	Same	
30			19 21			
31		16	16 19	14"	Same	
32			22 23			
33		17	5 5	10"	Same	
34			10 5			
35		18	11 15	12"	Same	
36			32 29			
37		19	4 9	10"	Same	
38			16 17			
39		20	22 15	14"	Same	
40			19 25			
41		21	3 8	12"	Same	
42			15 21			
43		22	24 18	14"	Same	
44			33 34			
45					E O.B - 44 feet	
46						
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-9

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
11/29/2012		10'		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

SHT. NO. 1 of 3
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 11/28/2012
DATE FINISH 11/29/2012
DRILLER M. Carire
INSPECTOR Scott Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1	6" Casing	1	5	15"	Gravel & some sand	BOREHOLE GROUTED
2			7 8 12			YES__X__ NO_____
3		2	10	14"	Sand, trace silt & gravel	
4			13 13 14			Samples received in field by Client's Rep.
5		3	13	10"	Sandy silt & trace gravel	
6			11 10 11			YES_____ NO__X__
7		4	8	15"	Sand & trace silt	If YES, sign & print name
8			9 10 11			
9		5	11	12"	Same w/ trace gravel	Signature
10			12 12 13			
11		6	8	13"	Same	
12			12 14 17			Print name
13		7	14	12"	Same	
14			14 15 16			Materials used on Boring
15		8	13	14"	Sand & trace silt	Benseal _____
16			14 17 14			Quick Gel _____
17		9	12	15"	Sand, gravel & trace silt	Hole Plug _____
18			9 10 9			Revert _____
19		10	10	11"	Same	Well gravel _____
20	▼		10 11 12			Concrete _____
21	Revert	11	14	10"	Sand, gravel & trace silt	Asphalt _____
22			15 27 19			Spoons _____
23		12	19	12"	Same	Traps _____
24			20 25 21			Bits
25		13	20	10"	Sand, gravel & some silt	Well gravel _____
26			19 19 20			Concrete _____
27	▼	14	36 22	15"	Same	Asphalt _____
						Spoons _____
						Traps _____
						Bits
						Installed a 2" well @ 58'. 10' Screen 50' Riser 6" Stand Pipe 2" Locking Cap
						2 drums

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-9
PROJECT: Brookfield Landfill		SHT. NO. 2 of 3
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	29 37	15"	Sand, gravel & some silt	
29 30		15	25 21 20 18	15"	Sand, some silt & trace gravel	
31 32		16	15 18 16 18	11"	Same	
33 34		17	17 11 14 17	14"	Sand, gravel & some silt	
35 36		18	19 19 11 15	10"	Same	
37 38		19	24 34 25 16	12"	Sand, gravel & trace silt	
39 40		20	15 17 20 18	13"	Same	
41 42		21	12 16 14 15	14"	Same	
43 44		22	13 19 27 24	16"	Same	
45 46		23	18 15 18 20	14"	Same	
47 48		24	13 19 27 24	16"	Sand, trace silt & some gravel	
49 50		25	19 15 14 13	12"	Sand & trace silt	
51 52		26	9 15 20 19	24"	Sandy silt, some gravel & some clay	
53	▼	27	21 20	19"	Clayey silt & trace gravel	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-9
PROJECT: Brookfield Landfill		SHT. NO. 3 of 3
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
54	Revert	27	18 24	19"	Claey silt & trace silt	
55		28	21 19	14"	Same	
56			18 20			
57		29	16 19	19"	Sand, gravel & some silt	
58			25 13			
59		30	13 15	22"	Silty clay & some sand	
60			17 17			
61					E.O.B. - 60 feet	
62						
63						
64						
65						
66						
67						
68						
69						
70						
71						
72						
73						
74						
75						
76						
77						
78						
79						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-10

PROJECT: Brookfield Landfill									SHT. NO. 1 of 2	
CLIENT: Brookfield Construction Associates, LLC									JOB NO.	12 - 092
LOCATION: Staten Island, New York									ELEVATION	
Ground Water					CAS.	SAMP.	CORE	TUBE	PERMIT NO.	
DATE	TIME	DEPTH	CASING	TYPE	HW	SS	NX		DATE START	11/19/2012
		15'	5"	DIA.	140	2"			DATE FINISH	11/20/2012
				WT.					DRILLER	K. Elliott
				FALL					INSPECTOR	

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1	5" Casing	S -1	4	14"	Gravel & sand	BOREHOLE GROUTED
2			5 8 8			YES__X__ NO____
3		S - 2	6	16"	Same	
4			7 12 13			Samples received in field by Client's Rep.
5		S - 3	11	6"	Same w/ wood	YES____ NO__X__
6			14 17 20			
7		S - 4	9	11"	Yellowish brown sand, gravel & plastic	If YES, sign & print name
8			7 7 8			
9		S - 5	10	15"	Same	Signature
10			10 9 10			
11		S - 6	4	12"	Gray clay & silt with organics, plastic	
12			5 5 6			Print name
13		S - 7	7	16"	Gray and brown sand & gravel	
14			10 12 12			Materials used on Boring
15		S - 8	12	11"	Same	Benseal ____1___
16			14 17 17			Quick Gel _____
17		S - 9	3	10"	Brown silt, sand & gravel	Hole Plug ____1___
18			4 7 11			Revert _____
19		S - 10	8	4"	Same w/ clay	Well gravel __3 1/2__
20			9 9 9			Concrete __1 1/2__
21		S - 11	6	20"	Brown silty clay	Asphalt _____
22			6 6 6			Spoons _____
23		S - 12	3	24"	Same	Traps _____
24			7 7 8			Bits
25		S - 13	5	14"	Brown silt, clay & gravel	Well gravel _____
26			5 5 6			Concrete _____
27		S - 14	6 6	20"	Same	Asphalt _____
						Spoons _____
						Traps _____
						Bits
						Installed a 2" well @ 44'. 5' Screen 39' Riser 6" Stand Pipe 2" Locking Cap
						3 drums

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-10
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
			7			
28		S - 14	7	20"	Brown silt, clay & gravel	
			10			
29		S - 15	11	7"	Brown sand, silt & gravel	
			11			
30			14			
			9			
31		S - 16	9	6"	Same	
			13			
32			17			
			9			
33		S - 17	11	4"	Same	
			14			
34			15			
			8			
35		S - 18	13	7"	Same w/ more gravel	
			13			
36			16			
			12			
37		S - 19	12	9"	Same	
			14			
38			14			
			13			
39		S - 20	12	11"	Same	
			12			
40			15			
			6			
41		S - 21	15	13"	Sand, silt & gravel	
			20			
42			24			
			17			
43		S - 22	21	8"	Same	
			21			
44			21			
		S - 23	17	5"	Same	
45			20			
					E.O.B. - 45 feet	
46						
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-11

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
		20'	5"	DIA.	HW	SS	NX	
				WT.	140	2"		
				FALL				

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 11/18/2012
DATE FINISH 11/19/2012
DRILLER K. Elliott
INSPECTOR

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	5" Casing	S -1	3	6"	Sand & gravel / felt membrane
2			4 8 9		
3		S - 2	7	5"	Sand, gravel & stone
4			8 12 19		
5		S - 3	16	14"	Same
6			21 22 22		
7		S - 4	11	2"	Sand & gravel
8			14 14 17		
9		S - 5	9	0"	No recovery
10			11 13 14		
11		S - 6	4	10"	Top - Gray silty clay w/ organics
12			5 9 13		Bottom - Gray sand & silt
13		S - 7	5	14"	Gray sand, silt & traces of clay
14			5 3 4		
15		S - 8	3	6"	Brown and gray sand w/ silt & gravel
16			4 5 5		
17		S - 9	7	7"	Brown sand & gravel
18			8 11 13		
19		S - 10	10	8"	Same
20			10 13 14		
21		S -11	3	10"	Same
22			4 5 5		
23		S -12	5	7"	Same
24			6 5 7		
25		S - 13	4	15"	Brown sand & silt
26			5 7 6		
27		S - 14	8 9	13"	Same

REMARKS

BOREHOLE GROUTED

YES__X__ NO_____

Samples received in field by Client's Rep.

YES_____ NO__X__

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal ____1___
Quick Gel _____
Hole Plug ____1___
Revert _____
Well gravel __3 1/2__
Concrete __1 1/2__
Asphalt _____
Spoons _____
Traps _____
Bits
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 44'.
5' Screen 41' Riser
6" Stand Pipe
2" Locking Cap

1 drum

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-11
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28		S -14	12 12	13"	Brown sand & silt	
29		S - 15	10 10	21"	Same	
30			12 12			
31		S - 16	4 5	14"	Same	
32			5 5			
33		S - 17	5 6	10"	Same	
34			6 8			
35		S - 18	4 5	9"	Same	
36			7 7			
37		S - 19	5 5	14"	Same	
38			8 11			
39		S - 20	10 12	7"	Same	
40			8 9			
41		S - 21	5 8	11"	Same	
42			11 13			
43		S - 22	9 9	6"	Same	
44			12 14			
45		S -23	8 10	4"	Same	
46					E.O.B. - 45 feet	
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-12

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York

SHT. NO.	1 of 2
JOB NO.	12 - 092
ELEVATION	
PERMIT NO.	
DATE START	11/15/2012
DATE FINISH	11/16/2012
DRILLER	K. Elliott
INSPECTOR	

Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
			5"	DIA.	140	2"		
				WT.				
				FALL				

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	5" Casing	S -1	18	1"	Gravel
2			24		
			27		
			38		
3		S - 2	17	6"	Stone & sand
			21		
4			21		
			30		
5		S - 3	18	1"	Same
			24		
6			25		
			19		
7		S - 4	8	4"	Brown sand, gravel & trace of silt
			6		
8			5		
			5		
9		S - 5	7	6"	Same
			11		
10			11		
			11		
11		S - 6	5	11"	Same
			7		
12			16		
			21		
13		S - 7	16	6"	Same
			21		
14			24		
			28		
15		S - 8	7	11"	Gray sand & some silt
			8		
16			3		
			7		
17		S - 9	7	9"	Gray sand, silt & trace of gravel
			4		
18			2		
			11		
19		S - 10	9	4"	Same
			9		
20			9		
			11		
21		S -11	5	8"	Brown sand & silt
			5		
22			6		
			9		
23		S -12	8	12"	Brown sand, silt & seams of clay
			9		
24			9		
			9		
25		S - 13	4	13"	Brown clayey silt
			8		
26			12		
			10		
27		S - 14	9	13"	Same
			8		

REMARKS

BOREHOLE GROUTED

YES__X__ NO_____

Samples received in field by Client's Rep.

YES_____ NO__X__

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal	1
Quick Gel	
Hole Plug	1
Revert	
Well gravel	4
Concrete	2
Asphalt	
Spoons	
Traps	
Bits	
Well gravel	
Concrete	
Asphalt	
Spoons	
Traps	
Bits	

Installed a 2" well @ 42'.
5' Screen 40' Riser
6" Stand Pipe
2" Locking Cap

3 drums

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-12
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28		S - 14	8 10	13"	Brown clayey silt	
29 30		S - 15	9 4 5 5	20"	Brown silt & sand seams w/ silty clay	
31 32		S - 16	3 3 4 5	22"	Brown silty clay	
33 34		S - 17	2 1 2 3	24"	Same w/ sand seams & gravel	
35 36		S - 18	2 3 4 7	11"	Top - Sand w/ silt seams Bottom - Sand w/ clayey seams & gravel	
37 38		S - 19	4 3 4 6	20"	Sand w/ clayey seams & gravel	
39 40		S - 20	2 5 5 4	17"	Same	
41 42		S - 21	3 3 7 17	20"	Top - Silty sand w/ clay seams Bottom 2" - Sand & gravel	
43		S - 22	11 12	5"	Sand & gravel	
44 45 46 47 48 49 50 51 52 53					E.O.B. - 43 feet	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-13

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 11/20/2012
DATE FINISH 11/27/2012
DRILLER K. Elliott
INSPECTOR

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
		15'	5"	DIA.	HW	SS	NX	
				WT.	140	2"		
				FALL				

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	5" Casing	S - 1	8	4"	Gravel, sand & stone
2			14		
3		S - 2	14	6"	Same
4			15		
5		S - 3	12	5"	Same
6			13		
7		S - 4	13	7"	Plastic, gravel & brown sand
8			13		
9		S - 5	11	4"	Same
10			12		
11		S - 6	17	4"	Same w/ trace of clay
12			17		
13		S - 7	7	8"	Plastic & peat
14			8		
15		S - 8	11	6"	Gray silty clay
16			11		
17		S - 9	8	7"	Same
18			10		
19		S - 10	13	12"	Gray sand, silt & trace of gravel
20			14		
21		S - 11	3	14"	Top - Gray sand & silt Bottom - Sand, gravel & trace of silt
22			4		
23		S - 12	4	7"	Same
24			4		
25		S - 13	4	11"	Same
26			11		
27		S - 14	7	9"	Brown sand, silt & trace of gravel
			8		
			9		
			11		

REMARKS

BOREHOLE GROUTED

YES__X__ NO_____

Samples received in field by Client's Rep.

YES_____ NO__X__

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal ____1___
Quick Gel _____
Hole Plug ____1___
Revert _____
Well gravel ____4___
Concrete __1 1/2__
Asphalt _____
Spoons _____
Traps _____
Bits
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 45'.
10' Screen 37' Riser
6" Stand Pipe
2" Locking Cap

3 drums

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-13
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28		S - 14	12 15	9"	Brown sand, silt & trace of gravel	
29		S - 15	13 14	14"	Same	
30			14 17			
31		S - 16	6 7	9"	Same	
32			8 7			
33		S - 17	9 9	14"	Same	
34			8 9			
35		S - 18	10 9	13"	Same	
36			9 9			
37		S - 19	9 11	18"	Brown sand & gravel	
38			17 12			
39		S - 20	13 15	6"	Same	
40			15 11			
41		S - 21	6 7	9"	Same	
42			6 9			
43		S - 22	10 17	4"	Gravel & sand	
44			16 16			
45		S - 23	12 13	6"	Same	
46			16 15			
47					E.O.B. - 46 feet	
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-15

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
11/28/2012		13'		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 11/27/2012
DATE FINISH 11/28/2012
DRILLER M. Carire
INSPECTOR S. Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1	6" Casing	1	9	15"	Gravel & trace sand	BOREHOLE GROUTED YES__X__ NO_____
2			15 22 22			
3		2	22 21	14"	Same	
4			24 26			Samples received in field by Client's Rep. YES_____ NO__X__
5		3	25 21	10"	Same	
6			15 11			If YES, sign & print name
7		4	9 10	12"	Gravel, some sand & trace silt	
8			8 7			
9		5	8 10	14"	Sandy silt, some gravel & some trash (plastic, wood)	Signature
10			10 10			
11		6	9 8	3"	Trash (wood, plastic, glass, brick, paper) & trace sand	Print name
12			5 5			
13		7	4 3	2"	Same	Materials used on Boring
14			4 7			
15		8	6 5	3"	Trash, some clay, some sand & some gravel	Benseal _____ Quick Gel ____1____ Hole Plug _____ Revert _____ Well gravel _____ Concrete _____ Asphalt _____ Spoons _____ Traps _____ Bits
16			4 3			
17		9	W.O.H.	24"	Clay, silt & trace peat	
18						
19		10	W.O.H.	3"	Peat & some clay	
20			1 2			Well gravel _____ Concrete _____ Asphalt _____ Spoons _____ Traps _____ Bits
21	Revert	11	W.O.H. 2	15"	Sand, some gravel & trace clayey silt	
22			1 2			
23		12	2 3	10"	Same	Installed a 2" well @ 40'. 5' Screen 37' Riser 6" Stand Pipe 2" Locking Cap
24			3 3			
25		13	3 5	12"	Silty sand & trace gravel	
26			6 7			1 drum
27		14	5 8	22"	Same	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-15
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	15 17	22"	Silty sand & trace gravel	
29 30		15	14 17 17 19	21"	Silty clay, trace fine sand & trace gravel	
31 32		16	10 11 11 12	15"	Sandy silt & trace gravel	
33 34		17	14 15 13 13	12"	Silty sand & trace gravel	
35 36		18	11 11 11 12	15"	Silt & trace sand	
37 38		19	11 13 15 16	18"	Silty sand	
39 40		20	15 15 16 18	16"	Same	
41 42		21	15 16 17 18	18"	Same	
43					E.O.B. - 42 feet	
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-16

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
11/27/2012		11'		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 11/21/2012
DATE FINISH 11/27/2012
DRILLER M. Carire
INSPECTOR S. Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1	6" Casing	1	13	15"	Gravel, some sand & trace silt	BOREHOLE GROUTED
2			25 18 12			YES__X__ NO_____
3		2	11	10"	Same	
4			14 15 14			Samples received in field by Client's Rep.
5		3	15	8"	Same	YES_____ NO__X__
6			14 15 14			
7		4	14	6"	Sandy silt & gravel	If YES, sign & print name
8			14 13 13			
9		5	12	5"	Same	Signature
10			11 14 16			
11		6	11	4"	Trash (plastic, paper, rubber, wood, glass) some gravel & trace sand	Print name
12			25 17 9			
13		7	8	3"	Same	Materials used on Boring
14			10 14 10			
15		8	10	3"	Trash, wood & trace peat	Benseal _____
16			10 17 10			Quick Gel _____ Hole Plug _____
17		9	W.O.H.	10"	Peat	Revert ____1___ Well gravel _____
18						Concrete _____ Asphalt _____
19		10	W.O.H.	9"	Same	Spoons _____ Traps _____ Bits
20						Well gravel _____
21	Revert	11	W.O.H.	15"	Clayey silt, trace sand & trace organics	Concrete _____ Asphalt _____ Spoons _____ Traps _____ Bits
22			1			
23		12	1 2	20"	Clayey silt & trace sand	Installed a 2" well @ 41'. 5' Screen 38' Riser 6" Stand Pipe 2" Locking Cap
24			2 2			
25		13	6	18"	Clay & silt	
26			9 11 13			1 drum
27		14	11 12	20"	Same	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-16
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	12 15	20"	Clay & silt	
29		15	10 11	18"	Silty clay & trace fine sand	
30			10 11			
31		16	11 12	15"	Same	
32			12 12			
33		17	11 11	18"	Same w/ gravel	
34			14 14			
35		18	12 9	19"	Clayey silt	
36			10 9			
37		19	5 7	22"	Silty clay	
38			7 9			
39		20	7 8	24"	Same w/ some sand	
40			8 8			
41		21	6 5	15"	Sand & trace silt	
42	▼		6 7			
43					E.O.B. - 42 feet	
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-17

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
11/21/2012		7'		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 11/20/2012
DATE FINISH 11/21/2012
DRILLER M. Carire
INSPECTOR Joe Giordano

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1	6" Casing	1	19	16"	Gravel	BOREHOLE GROUTED
2			19			YES__X__ NO____
			19			
			25			
3		2	18	14"	Same	
4			19			Samples received in field by Client's Rep.
			21			
			23			YES____ NO__X__
5		3	20	11"	Same	
6			21			If YES, sign & print name
			22			
			20			
7		4	10	12"	Gravel, trace sand, trace wood & trace silt	
8			19			
			15			
			14			
9		5	12	6"	Sand, gravel, trace silt & trace wood	Signature
10			11			
			9			
			8			
11		6	3	2"	Trash (Plastic, wood, glass & fibers)	Print name
12			2			
			1			
			2			
13		7	1	1"	Same	Materials used on Boring
14			2			
			1			
			1			
15		8	W.O.H.	1"	Some trash, wood & some peat	Benseal _____
16			1			Quick Gel _____
			1			Hole Plug _____
			1			Revert _____
17		9	W.O.H.	7"	Sandy silt, trace gravel & trace trash	Well gravel _____
18			2			Concrete _____
			2			Asphalt _____
						Spoons _____
19		10	4	9"	Same	Traps _____
20			5			Bits
			4			Well gravel _____
			6			Concrete _____
21		11	11	6"	Sand, gravel & trace silt	Asphalt _____
22			15			Spoons _____
			19			Traps _____
			25			Bits
23		12	20	5"	Same	
24			22			Installed a 2" well @ 35'.
			21			5' Screen 32' Riser
			26			6" Stand Pipe
25		13	100 / 0"	0"	No recovery - 12" boulder	2" Locking Cap
26	Revert					1 drum
27		14	34	3"	Gravel & some sand	
			29			

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-17
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
			45			
28	Revert	14	56	3"	Gravel & some sand	
			42			
29		15	50	6"	Same	
			43			
30			51			
			66			
31		16	66	9"	Sandy silt & gravel	
			33			
32			27			
			31			
33		17	35	6"	Same	
			28			
34			29			
			22			
35		18	31	8"	Silty sand & gravel	
			29			
36	↓		25			
37					E.O.B. - 36 feet	
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-18AUG

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York

SHT. NO. 1 of 2	
JOB NO.	12 - 092
ELEVATION	
PERMIT NO	
DATE START	12/3/2012
DATE FINISH	12/4/2012
DRILLER	K. Elliott
INSPECTOR	

Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
			5"	DIA	HW	SS	NX	
				DIA	140	2"		
				WT				
				FALL				

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1		1	4	0"	No recovery - 2 attempts	BOREHOLE GROUTED
2			3			YES__X__ NO_____
			5			
			6			
3		2	9	0"	No recovery	Samples received in field by Client's Rep.
			8			
4			7			YES_____ NO__X__
			7			
5		3	6	14"	Silty clay with gravel	If YES, sign & print name
			8			
6			7			
			11			
7		4	8	12"	Same	Signature
			9			
8			9			
			9			
9		5	6	10"	Same	
			9			
10			8			
			9			
11		6	4	6"	Same	Print name
			10			
12			9			
			11			
13		7	8	6"	Same	Materials used on Boring
			11			
14			10			
			9			
15		8	5	20"	Brown sand, silt & trace of gravel	Benseal _____
			5			Quick Gel _____
16			7			Hole Plug _____
			13			Revert _____
17		9	10	7"	Sand, gravel & trace of silt	Well gravel _____
			13			Concrete _____
18			14			Asphalt _____
			18			Spoons _____
19		10	13	11"	Same	Traps _____
			14			Bits
20			14			Well gravel _____
			14			Concrete _____
21		11	9	10"	Same	Asphalt _____
			12			Spoons _____
22			13			Traps _____
			16			Bits
23		12	14	6"	Same	
			18			
24			11			
			14			
25		13	100 / 4"	2"	Boulder	Installed a 2" well @ 40'
26						
27		14	100 / 0"	0"	Boulder	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-18AUG
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28		14	100 / 0"	0"	Boulder	
29		15	100 / 0"	0"	Boulder	
30						
31		16	17	6"	Sand, gravel & trace of silt	
			28			
32			100 / 3"			
33		17	100 / 0"	0"	Boulder	
34						
35		18	9	10"	Sand & gravel	
			17			
36			17			
			20			
37		19	18	6"	Same	
			41			
38			28			
			30			
39		20	27	11"	Same	
			28			
40			28			
			30			
41		21	21	4"	Same	
			24			
42					E.O.B. - 41 feet	
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-19

PROJECT: Brookfield Landfill — SHT. NO. 1 of 1
CLIENT: Brookfield Construction Associates, LLC — JOB NO. 12 - 092
LOCATION: Staten Island, New York — ELEVATION
Ground Water — PERMIT NO.

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
11/20/2012		6'		DIA.	6"	2"	NX	
				WT.	140	140		
				FALL	30"	30"		

DATE START 11/19/2012
DATE FINISH 11/20/2012
DRILLER M. Carire
INSPECTOR S. Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	6" Casing	1	5	12"	Gravel
2			6 7 9		
3		2	9 9	10"	Same
4			12 16		
5		3	14 13	16"	Sandy silt, some gravel
6			15 16		
7		4	15 11	10"	Sand, trace silt, gravel & wood
8			9 9		
9		5	9 8	7"	Same
10			9 10		
11		6	5 3	2"	Peat
12			2 1		
13		7	2 1	1"	Same
14			1 2		
15	▼	8	2 2	6"	Sand, trace silt, trace gravel & trace organics
16	Revert		3 3		
17		9	7 9	15"	Sandy silt
18			9 10		
19		10	10 11	18"	Silty clay, trace sand
20			10 12		
21		11	6 11	20"	Silty clay
22			13 13		
23		12	11 12	19"	Same
24			14 13		
25		13	14 16	18"	Same
26	▼		17 18		
27					E.O.B. - 26 feet

REMARKS

BOREHOLE GROUTED

YES__X__ NO_____

Samples received in field by Client's Rep.

YES_____ NO__X__

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal _____
Quick Gel _____
Hole Plug _____
Revert _____
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 25'.
5' Screen 22' Riser
6" Stand Pipe
2" Locking Cap

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-20

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 11/16/2012
DATE FINISH 11/19/2012
DRILLER M. Carire
INSPECTOR S. Picerno

Ground Water					CAS.	SAMP.	CORE	TUBE
DATE	TIME	DEPTH	CASING	TYPE	HW	SS	NX	
11/19/2012		1		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1	6" Casing	1	W.O.H.	15"	Silty clay	BOREHOLE GROUTED
2			1 3 2			YES__X__ NO_____
3		2	4 6	12"	Silty clay w/ gravel	
4			8 8			Samples received in field by Client's Rep.
5		3	11 5	16"	Clay, trace peat & trace organics	YES_____ NO__X__
6			3 2			
7		4	2 1	6"	Same	If YES, sign & print name
8			1 2			
9		5	2 1	5"	Same	Signature
10			2 1			
11		6	W.O.H. 1	2"	Clay & trace organics	Print name
12			2 1			
13		7	2 3	6"	Sand	Materials used on Boring
14			4 3			
15	▼	8	4 6	10"	Sand & trace silt	Benseal _____
16	Revert		6 5			Quick Gel _____
17		9	5 4	11"	Same	Hole Plug _____
18			3 3			Revert _____
19		10	4 5	12"	Sandy silt & trace gravel	Well gravel _____
20			7 8			Concrete _____
21		11	3 7	12"	Silty sand	Asphalt _____
22			12 12			Spoons _____
23		12	12 13	16"	Same	Traps _____
24			12 12			Bits
25		13	10 9	15"	Same	Well gravel _____
26			10 8			Concrete _____
27	▼	14	5 9	15"	Silty clay, trace gravel & trace sand	Asphalt _____

Spoons _____
Traps _____
Bits

Installed a 2" well @ 32'.
10' Screen 24' Riser
6" Stand Pipe
2" Locking Cap

1 drum

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-20
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	9 8	15"	Silty clay, trace gravel & trace sand	
29		15	9 10	14"	Silty clay	
30			9 8			
31		16	5 5	18"	Silty clay, trace sand & trace gravel	
32			9 10			
33		17	6 7	15"	Same	
34	▼		9 10			
35					E.O.B. - 34 feet	
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-21
PROJECT: Brookfield Landfill		SHT. NO. 1 of 4
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092
LOCATION: Staten Island, New York		ELEVATION
Ground Water		PERMIT NO.

					CAS.	SAMP.	CORE	TUBE	
DATE	TIME	DEPTH	CASING	TYPE	HW	SS	NX		DATE START 11/28/2012
			5"	DIA.	140	2"			DATE FINISH 11/30/2012
				WT.					DRILLER K. Elliott
				FALL					INSPECTOR

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1	5" Casing	S - 1	4	14"	Gravel, stone & gray sand	BOREHOLE GROUTED
2			4 7 7			YES__X__ NO_____
3		S - 2	8	11"	Same	
4			9 9 8			Samples received in field by Client's Rep.
5		S - 3	11	8"	Same	YES_____ NO__X__
6			14 13 14			
7		S - 4	12	1"	Wood	If YES, sign & print name
8			9 9 6			
9		S - 5	5	7"	Brown sand, gravel, plastic & trace clay	Signature
10			8 9 9			
11		S - 6	2	20"	Silty clay w/ gravel	Print name
12			5 6 7			
13		S - 7	5	21"	Silty clay w/ sand & gravel	Materials used on Boring
14			8 8 7			
15		S - 8	2	24"	Silty clay w/ gravel	Benseal ___1____
16			4 4 4			Quick Gel _____
17		S - 9	4	24"	Same	Hole Plug ___1____
18			6 6 5			Revert _____
19		S - 10	5	24"	Same	Well gravel __5 1/2__
20			6 7 5			Concrete __2 1/2__
21		S - 11	5	23"	Same	Asphalt _____
22			6 5 7			Spoons _____
23		S - 12	5	16"	Sand, silt & gravel	Traps _____
24			9 9 8			Bits
25		S - 13	4	18"	Same	Well gravel _____
26			7 7 11			Concrete _____
27		S - 14	9 10	14"	Same	Asphalt _____
						Spoons _____
						Traps _____
						Bits
						Installed a 2" well @ 99'. 10' Screen 92' Riser 6" Stand Pipe 2" Locking Cap
						4 drums

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-21
PROJECT: Brookfield Landfill		SHT. NO. 2 of 4
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28		S - 14	12 15	14"	Sand, silt & gravel	
29 30		S - 15	12 14 15 14	16"	Same	
31 32		S - 16	4 4 4 5	7"	Silty sand & gravel	
33 34		S - 17	6 8 8 11	4"	Same	
35 36		S - 18	5 6 6 7	18"	Same	
37 38		S - 19	7 6 6 6	21"	Gray silty clay	
39 40		S - 20	5 6 7 7	24"	Same	
41 42		S - 21	11 13 16 17	13"	Brown sand, silt & gravel	
43 44		S - 22	9 14 13 12	11"	Same	
45 46		S - 23	15 17 17 17	4"	Gravel, sand & trace silt	
47 48		S - 24	13 15 13 13	8"	Same	
49 50		S - 25	17 21 23 31	1"	Gravel	
51 52		S - 26	7 7 6 11	10"	Brown sand, gray silt seams & gravel	
53		S - 27	10 10	14"	Brown sand, silt seams & gravel	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-21
PROJECT: Brookfield Landfill		SHT. NO. 3 of 4
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
54		S - 27	13 12	14"	Brown sand, silt seams & gravel	
55 56		S - 28	9 12 12 14	11"	Same	
57 58		S - 29	9 8 4 3	23"	Gray silty sand	
59 60		S - 30	7 12 11 13	14"	Top 11" - Gray sand, gravel & silt Bottom 3" - Hard gray clay	
61 62		S - 31	7 27 21 23	10"	Top 6" - Hard gray clay Bottom 4" - Gray sand, silt & gravel	
63 64		S - 32	100 / 4"	1"	Gravel or piece of boulder	
65 66		S - 33	14 28 31 27	5"	Gray sand, silt & trace of gravel	
67 68		S - 34	17 21 21 19	11"	Hard gray silty clay	
69 70		S - 35	14 24 27 29	8"	Same w/ trace gravel	
71 72		S - 36	6 7 5 7	24"	Gray clay	
73 74		S - 37	5 6 6 6	24"	Same	
75 76		S - 38	4 3 5 5	24"	Same	
77 78		S - 39	2 4 4 5	24"	Same	
79		S - 40	6 7	24"	Gray clay w/ sand seams	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-21
PROJECT: Brookfield Landfill		SHT. NO. 4 of 4
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
80		S - 40	8 7	24"	Gray clay w/ sand seams	
81		S - 41	5 7	24"	Gray clay w/ silt seams	
82			7 7			
83		S - 42	6 7	24"	Same	
84			10 7			
85		S - 43	5 8	21"	Same	
86			9 11			
87		S - 44	8 7	20"	Sand w/ seams of clay	
88			13 13			
89		S - 45	6 12	18"	Same w/ traces of gravel	
90			14 13			
91		S - 46	8 14	21"	Fine gray sand w/ silt	
92			17 20			
93		S - 47	12 16	16"	Same	
94			17 24			
95		S - 48	13 13	17"	Same	
96			17 21			
97		S - 49	14 17	20"	Same	
98			28 23			
99		S - 50	13 18	24"	Same	
100			18 17			
101					E.O.B. - 100 feet	
102						
103						
104						
105						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-22

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York

Ground Water						SAMP.	CORE	TUBE
DATE	TIME	DEPTH	CASING	TYPE	Augers	SS	NX	
12/3/2012		13'		DIA.	10"	2"		
				WT.		140		
				FALL		30"		

SHT. NO. 1 of 5	
JOB NO.	12 - 092
ELEVATION	
PERMIT NO.	
DATE START	11/30/2012
DATE FINISH	12/13/2012
DRILLER	M. Carire
INSPECTOR	J. Giordano

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	10" Augers	1	7, 9, 10, 10	12"	Gravel, some sand
3		2	10, 9, 10, 14	10"	Same
5		3	5, 11, 10, 6	18"	Sandy silt, some gravel
7		4	7, 8, 11, 11	15"	Same
9		5	10, 9, 5, 6	18"	Silty sand, some gravel
11		6	6, 8, 8, 7	24"	Same
13		7	7, 10, 11, 10	23"	Same
15		8	11, 15, 19, 15	12"	Same
17	Mud	9	13, 13, 17, 17	11"	Same
19		10	15, 15, 10, 15	10"	Sand, some gravel & trace silt
21		11	15, 16, 20, 12	15"	Same
23		12	13, 15, 17, 16	16"	Same
25		13	15, 15, 19, 17	14"	Same
27		14	11, 15	15"	Same

REMARKS

BOREHOLE GROUTED

YES__X__ NO_____

Samples received in field by Client's Rep.

YES_____ NO_____

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal	1
Quick Gel	
Hole Plug	2
Revert	
Well gravel	6
Concrete	3
Asphalt	
Spoons	
Traps	
Bits	
Well gravel	
Concrete	
Asphalt	
Spoons	
Traps	
Bits	

12 Drums used

Installed 125' 4" PVC
128' of 4" PVC
5' of 4" Screen
1 - 6" Standpipe

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-22
PROJECT: Brookfield Landfill		SHT. NO. 2 of 5
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Mud	14	18 19	15"	Sand, some gravel & trace silt	
29 30		15	15 17 17 18	17"	Same	
31 32		16	10 14 16 21	15"	Sand, gravel & trace silt	
33 34		17	17 18 24 22	14"	Same	
35 36		18	19 15 19 20	18"	Gravel, some sand & trace silt	
37 38		19	16 21 22 25	16"	Sand, gravel & trace silt	
39 40		20	18 21 21 23	14"	Same	
41 42		21	18 19 25 23	20"	Sand, some gravel & trace silt	
43 44		22	18 17 22 23	18"	Sandy silt, some gravel	
45 46		23	19 20 28 33	15"	Same	
47 48		24	42 42 50 52	14"	Sand, gravel & some silt	
49 50		25	51 52 60 57	16"	Same	
51 52		26	51 55 26 16	10"	Sand, trace gravel & trace silt	
53	▼	27	14 12	8"	Same	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-22
PROJECT: Brookfield Landfill		SHT NO. 3 of 5
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
54	Mud	28	14 15	8"	Sand, trace gravel & trace silt	Installed 8" Steel Casing to 55.5'.
55	↓	29	13 16 23 50	16"	Silty sand, trace gravel & some clay	
56						
57		30	11 17 21 23	11"	Sand, silt & gravel	
58						
59		31	15 23 23 25	9"	Same	
60						
61		32	5 7 11 13	14"	Gray silty clay	
62						
63		33	8 10 11 11	20"	Same	
64						
65		34	7 9 11 14	24"	Same	
66						
67		35	5 9 13 14	18"	Same	
68						
69		36	8 8 13 13	21"	Same	
70						
71		37	9 10 10 14	16"	Same	
72						
73		38	7 12 10 11	17"	Same	
74						
75		39	14 17 32 30	20"	Same	
76						
77		40	13 18 24 37	18"	Same	
78						
79		41	15 23	21"	Same	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-22
PROJECT: Brookfield Landfill		SHT. NO. 4 of 5
CLIENT: Brookfield Construction Associates, LLC		JOB NO 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
			37			
80		41	35	21"	Gray silty clay	
			23			
81		42	27	18"	Same	
			34			
82			35			
			19			
83		43	25	15"	Same	
			36			
84			36			
			11			
85		44	17	17"	Same with sand seams	
			27			
86			25			
			13			
87		45	18	16"	Same	
			21			
88			23			
			14			
89		46	16	21"	Same	
			17			
90			17			
			9			
91		47	13	20"	Same	
			12			
92			16			
			17			
93		48	26	11"	Same with more sand	
			30			
94			32			
			14			
95		49	12	21"	Silty clay with sand	
			15			
96			15			
			11			
97		50	12	18"	Same	
			12			
98			12			
			10			
99		51	14	12"	Same	
			17			
100			17			
			13			
101		52	17	11"	Same with trace of gravel	
			14			
102			20			
			12			
103		53	12	9"	Same	
			16			
104			18			
			9			
105		54	7	8"	Sand, silt & trace of gravel	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-22
PROJECT: Brookfield Landfill		SHT. NO. 5 of 5
CLIENT: Brookfield Construction Associates, LLC		JOB NO 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
106		54	14 18	8"	Sand, silt & trace of gravel	
107		55	14 20	14"	Silty sand, traces of clay	
108			17 18			
109		56	13 16	20"	Same	
110			16 16			
111		57	18 21	14"	Gray sand & silt	
112			20 23			
113		58	20 23	11"	Same	
114			23 21			
115		59	26 31	6"	Gray silt, traces of sand	
116			30 30			
117		60	24 34	7"	Same	
118			31 32			
119		61	25 28	9"	Same	
120			28 33			
121		62	36 34	9"	Same with traces of gravel	
122			28 31			
123		63	31 30	4"	Same	
124			31 31			
125		64	28 32	6"	Same	
126			30 36			
127					E.O.B. - 126 feet	
128						
129						
130						
131						

Table 3-1

Monitoring Well Construction Data Summary

Brookfield Avenue Landfill Remediation Investigation, Staten Island, New York

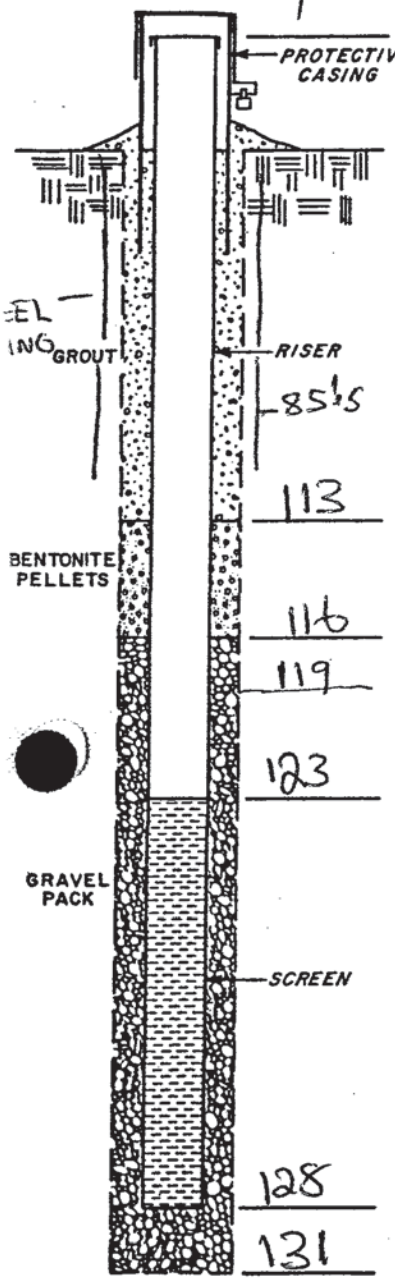
Well ID No.	Material	Diam. (in)	Top of Casing Elevation (ft MSL)	Surface Elevation (ft MSL)	Screened Interval (ft MSL)	Screened Interval (ft BLG)	Date Installed	Study	Hydrogeologic Unit	Current Status
GW-7S	PVC	4.00	10.19	8.19	6.2 to 1.2	2 to 7	01/31/94	F	Glacial Till with Sand (1h)	Active
GW-8S	PVC	4.00	7.32	5.32	3.8 to -1.2	1.5 to 6.5	02/03/94	F	Recent Sand (1d)	Active
GW-9S	PVC	4.00	7.59	5.59	1.6 to -3.4	4 to 9	02/01/94	F	Recent Sand (1d)	Active
GW-10S	PVC	4.00	10.06	8.06	6.1 to 1.1	2 to 7	01/31/94	F	Fill Material (1a)	Active
GW-10M	PVC	4.00	10.24	8.24	-16.8 to -21.8	25 to 30	02/04/94	F	Glacial Till with Sand (1h)	Active
GW-11M	PVC	4.00	11.47	9.47	-22.5 to -27.5	32 to 37	01/18/94	F	Glacial Till / Glaciolacustrine Clay Silt (1f)	Active
GW-12S	PVC	4.00	7.08	5.08	3.6 to -1.4	1.5 to 6.5	01/27/94	F	Meadow Mat (1b)	Active
GW-12M	PVC	4.00	9.45	7.45	-7.6 to -12.6	15 to 20	02/08/94	F	Recent Silt and Clay (1c)	Active
GW-13S	PVC	4.00	9.69	7.69	4.7 to -0.3	3 to 8	02/10/94	F	Glacial Till / Glaciolacustrine Clay Silt (1f)	Active
GW-13D	PVC	4.00	12.52	10.52	-22.5 to -27.5	33 to 38	05/02/94	F	Glacial Till w/Sand/Glaciolacustrine Clay Silt (1f/1h)	Active
LTMW-18c GW-13CS	PVC	4.00	11.97	9.97	-113 to -118	123 to 128	06/13/94	F	Fine to Med. Sand, Light Gray (5)	Active
GW-14S	PVC	4.00	10.04	8.04	6.5 to 1.5	1.5 to 6.5	01/25/94	F	Shallow Glacial Sand (1e)	Active
GW-15S	PVC	4.00	7.97	5.97	4.5 to -0.5	1.5 to 6.5	01/26/94	F	Meadow Mat (1b)	Active
GW-16S	PVC	4.00	8.95	6.95	5.5 to 0.5	1.5 to 6.5	01/27/94	F	Recent Silt and Clay (1c)	Active
GW-17S	PVC	4.00	10.38	8.38	6.9 to 1.9	1.5 to 6.5	12/30/93	F	Fill Material / Meadow Mat (1a/1b)	Active
GW-18S	PVC	4.00	9.87	7.87	5.4 to 0.4	2.5 to 7.5	12/10/93	F	Fill Material (1a)	Active
GW-19S	PVC	4.00	10.35	8.35	5.9 to 0.9	2.5 to 7.5	12/09/93	F	Fill Material (1a)	Active
GW-20S	PVC	4.00	17.52	15.52	6.5 to 1.5	9 to 14	02/16/94	F	Glacial Till / Glaciolacustrine Clay Silt (1f)	Active
GW-20M	PVC	4.00	17.48	15.48	-9.5 to -14.5	25 to 30	02/16/94	F	Glacial Till with Sand (1h)	Active
GW-21S	PVC	4.00	10.19	8.19	4.2 to -0.8	4 to 9	02/04/94	F	Glacial Till with Sand (1h)	Active
GW-22S	PVC	4.00	11.66	9.66	5.7 to 0.7	4 to 9	02/07/94	F	Glacial Till with Sand (1h)	Active
GW-23S	PVC	4.00	14.10	12.10	10.6 to 5.6	1.5 to 6.5	02/07/94	F	Fill / Recent Silt and Clay (1a/1c)	Active
GW-24S	PVC	4.00	15.17	13.17	8.7 to 3.7	4.5 to 9.5	12/05/93	F	Fill Material (1a)	Active
GW-25S	PVC	4.00	16.08	14.08	9.1 to 4.1	5 to 10	01/14/94	F	Fill Material / Meadow and Mat (1a/1b)	Active
GW-26S	PVC	4.00	11.49	9.49	6.0 to 1.0	3.5 to 8.5	12/08/93	F	Fill Material (1a)	Active
GW-27M	PVC	4.00	15.38	13.38	-2.6 to -7.6	16 to 21	02/14/94	F	Shallow Glacial Sand (1e)	Active
GW-27D	PVC	4.00	14.78	12.78	-24.2 to -29.2	37 to 42	02/11/94	F	Reworked:Glacial-Cret. Mix, Sand w/Fines (1i)	Active
GW-28S	PVC	4.00	12.40	12.40	-2.6 to -7.6	15 to 20	02/25/94	F	Glacial Till / Glaciolacustrine Clay Silt (1f)	Active
GW-28D	PVC	4.00	13.32	13.32	-26.7 to -31.7	40 to 45	02/24/94	F	Deep Glacial Sand/Reworked Sediment (1h)	Active
LW-1S	PVC	4.00	26.66	19.60	-1.4 to -6.4	21 to 26	02/01/94	F	Waste / Recent Sand (1a/1d)	Active
LW-2S	PVC	4.00	33.30	31.30	6.3 to 1.3	25 to 30	01/25/94	F	Waste (1a)	Active
LW-3S	PVC	4.00	30.23	28.23	-0.8 to -5.8	29 to 34	01/06/94	F	Waste / Recent Sand and Clay / Till (1a/1c)	Active
LW-4S	PVC	4.00	41.69	39.69	-1.3 to -6.3	41 to 46	12/21/93	F	Waste (1a)	Active
LW-5S	PVC	4.00	30.80	28.80	0.8 to -4.2	28 to 33	12/14/93	F	Waste (1a)	Active
PZ-1BR	PVC	2.00	12.40	10.40	-139.6 to -144.6	150 to 155	05/19/94	F	Weathered Bedrock - Manhattan Schist (8)	Active
PZ-2BR	PVC	2.00	18.40	16.40	-151.6 to -156.6	168 to 173	04/05/94	F	Weathered Bedrock - Manhattan Schist (8)	Active
SAC-1	PVC	4.00	27.33	24.83	-36.2 to -41.2	61 to 66	04/09/97	G	Reworked:Glacial-Cret. Mix, Sand w/Fines (1i)	Active

CDM

environmental engineers, scientists, planners & management consultants

WELL CONSTRUCTION SUMMARY

Project: Brookfield Ave LF Client: NYSDEP Well No: GW-13 CS



DRILLING SUMMARY

Drilling Co: Delta Well & Pump. Drillers: Rudy, R. (CABLE TOOL); Keith C & Conrad S.

Drill Rig Make/Model: PORTA DRILL, CABLE TOOL.

Borehole Diameters: 12" & 8" Drilling Fluid: Mud/water

Bits/Depths: 12" Tricone Roller Bit, 7 7/8

Total Depth: 128' Depth to Water:

Supervisory Geologist: Otis Ekpordin

WELL DESIGN

CASING MATERIAL STEEL

Casing Material:	PVC	Diameter:	8" 4"	Length:	85' 125'
Screen Material:	PVC	Diameter:	4"	Length:	5'
Slot Size:	010"	Setting:	128' - 123'		
Filter Material:	Morie #1 Sand (Morie SAND)	Setting:	131 - 119', Morie 119-116		
Seals Material:	Bentonite Slurry	Setting:	116 - 113		
Grout:	Bentonite/Cement Mix	Setting:	113 - 0		
Surface Casing Material:	STEEL	Setting:	0 - 2'		

STAND Pipe

TIME LOG

	Started	Completed
Drilling:	May 25, 1994	June 13, 1994
Installation:	June 13, 1994 16:00hrs	June 13, 1994, 21:00hrs
Development:		

WELL DEVELOPMENT

Method:

Static Depth to Water:

Pumping Depth to Water:

Pumping Rate: Specific Capacity:

Volume Pumped:

NY-5

APPENDIX J

OPERATION AND MAINTENANCE (O&M) MANUAL [SITE MANAGEMENT PLAN (SMP) DATED APRIL 2013 AND THE ADDENDUM TO THE SMP ISSUED IN OCTOBER 2021]

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Section 1
Introduction

1.1 Objective

The objective of this Post-Closure Monitoring and Maintenance Operations Manual (Manual) is to provide detailed guidance regarding required monitoring and maintenance activities for the Brookfield Avenue Landfill (BAL) to ensure the integrity of the final remedial system, while detecting and preventing any adverse impacts on public health, safety, and the environment during the 30-year post closure-monitoring period.

1.2 Background

The BAL, New York State Department of Environmental Conservation (NYSDEC) Site #2-43-006, is located to the north of Arthur Kill Road and to the east of Richmond Avenue in Richmond County, Staten Island, New York City. As shown in **Figure 1** of **Appendix A**, the site is adjacent to a primarily urban residential area and is adjoined immediately to the north by Richmond Creek. From 1966 through 1980, the City of New York placed 5.1 million cubic yards of municipal solid waste on 132 acres of this 272-acre site. Industrial and hazardous waste dumping, including waste oil, sludges, metal plating wastes, lacquers and solvents, is also thought to have occurred at this site during this period.

Beginning in 1982, numerous site investigations were undertaken at the site in response to allegations that illegal dumping had occurred. In 1983, the NYSDEC listed the site as a Class 2a Inactive Hazardous Waste Disposal Site. Per an Order of Consent from the NYSDEC in 1992, the City of New York was required to develop and implement a remedial program. A Remedial Investigation/Feasibility Study (RI/FS) was conducted to investigate the nature and extent of contamination, and to assess the hazards to human health and the environment. The RI/FS was designed to augment previous studies and move forward with the selection of the ultimate remedial action alternative.

A Record of Decision (ROD), included as **Appendix B**, presented several alternatives for the BAL remediation. NYSDEC selected Alternative 2B (capping with active gas collection, leachate collection and a barrier wall). The components of the remedy are summarized as follows:

- Construction of a Part 360 landfill cap, featuring a gas venting layer, synthetic membrane barrier layer, barrier soil protection layer, and vegetated topsoil layer.
- Construction and operation of an active gas collection system;
- Installation of a barrier wall around the landfill to prevent the discharge of leachate and landfill gas from the landfill.
- Construction of a surface water collection system.
- Construction of a leachate collection trench along Richmond Creek.

- Minimization of encroachment into freshwater and tidal wetlands.
- Institutional controls to ensure that groundwater beneath the site is not extracted for potable use.
- Initiation of a long-term monitoring program to ensure that the contained hazardous waste does not leave the site. This long-term monitoring program shall be a component of the Operations and Maintenance Plan for the site, developed in accordance with 6NYCRR Part 360 regulations.

As stated in the last element of the ROD, a long-term monitoring program shall be developed as a component of the Operations and Maintenance Plan for the site in accordance with the Rules and Regulations of the State of New York (6 NYCRR) Part 360 regulations. In accordance with 6NYCRR, Chapter IV, Subchapter B, Part 360, Subpart 2.15, Section (k), Subsection 7, a comprehensive Post-Closure Monitoring and Maintenance Operations Manual shall be developed to provide all information needed to effectively monitor and maintain the facility for the entire post-closure period. The minimum components of this manual include:

- A description of the type, location, sampling and sample preservation methodology, and recordkeeping and reporting requirements for all environmental monitoring activities.
- A description of all environmental control systems including:
  - Process control monitoring types, locations, recordkeeping and reporting requirements. Leachate management activities shall include recording of the total volume of leachate stored and removed from the facility, sampling and analysis, and proper maintenance.
  - Environmental controls maintenance requirements including description, type, frequency, and recordkeeping.
- Description of types, location and frequency of all other facility maintenance activities including:
  - Maintaining the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, maintaining the appropriate vegetative cover, and preventing run-on and run-off from eroding or otherwise damaging the final cover;
  - Maintaining the leachate collection system.
  - Maintaining and operating the gas control and monitoring systems.
  - Recordkeeping and reporting requirements.
- Description of resource requirements including:
  - Minimum personnel qualifications and numbers
  - Minimum equipment needs.

- A contingency plan which shall include:
  - Responses to problems that have a reasonable likelihood of occurrence including, but not limited to, major erosion problems, significant differential settlement, and fire.
  - Action levels above which identified environmental monitoring, environmental control, or maintenance problems require prompt action by the owner and notification to the department.
  - A summary of any corrective measures that must be done to be in accordance with section 360-2.20.
- Name, address and telephone number of the person or office to contact on post-closure monitoring and maintenance, and corrective measure concerns during the post-closure period.
- A summary of the financial assurance criteria concerns that must be addressed to remain in compliance with the provisions of Section 360-2.19(c) and (d). This includes:
  - Submittal to the department of annual adjustments to cost estimates of post- closure care and corrective measures.
  - Notification to the department of increases in post-closure care costs and corrective measure costs.
- A description of the planned uses of the property during the post-closure period.

This Post-Closure Monitoring and Maintenance Operations Manual (Manual) was prepared in accordance with the with the 6NYCRR Part 360 regulations, specifically 360-2.15 (k)(7). Environmental monitoring activities have been developed based on NYSDEC's DER-10 Technical Guidance for Site Investigation and Remediation. The information contained within in this Manual is in compliance with Section 10 of the 2005 BAL Final Design Report for Operable Unit 1 (OU1). During the post-closure period, the New York City Department of Environmental Protection (NYCDEP), and/or its consultants, will inspect and maintain the integrity of the final remediation system, collect and treat leachate, collect and treat landfill gas, collect and control stormwater runoff, and perform the required environmental monitoring of the site. NYCDEP will utilize Contractor(s) to perform the OM&M work, and Consultant(s) to review/manage the OM&M Contractor's work.

This Manual is divided into sections as shown below. In conformance with 6NYCRR 360-2.15 (k)(7), this Manual will be implemented upon NYSDEC approval of the Final Engineering Report for closure construction (anticipated in March 2013). The 30-year post closure monitoring and maintenance period will commence following NYCDEP approval.

Manual Section	Regulations
2.0 Environmental Control Systems	360-2.15(k)(ii)
3.0 Environmental Monitoring Activities	(i)
4.0 Inspection and Maintenance Activities	(iii)
5.0 Resource Requirements	(iv)
6.0 Contingency Plan	(v)
7.0 Contact Information	(vi)
8.0 Financial Assurance	(vii)
9.0 End Use Plans	(viii)

Section 2
Environmental Control Systems

In accordance with 6NYCRR 360-2.15 (k)(7)(ii), this section describes the various BAL environmental control systems installed as part of closure construction. As discussed in the 2005 BAL Final Design Report for OU1, closure construction includes a barrier wall, landfill cap, stormwater management system, leachate collection and treatment system, groundwater monitoring system, surface water monitoring system, and an active landfill gas management system, as described below.

2.1 Barrier Wall

The barrier wall design was based on field explorations and field and laboratory testing. It consists of a 4-percent by weight Bentonite mix with a permeability of less than 10^{-7} cm/sec, a minimum thickness of 3 feet, and a maximum depth of 40 feet below ground surface.

The landfill is divided into two distinctive areas, the East Cell that lies east of the existing triple box culvert and the West Cell that lies west of the triple box culvert. As shown in **Figure 2** of **Appendix A**, both the East Cell and West Cell are surrounded by the barrier wall. The triple box culvert that lies in between the two cells of the landfill provides an access way to the pump station, landfill gas flare compound, and the perimeter road.

2.2 Landfill Cap

All landfill areas, approximately 132 acres, received a final cap in accordance with 6NYCRR Section 360-2.15(d). The cap system consists of the following layers (listed from bottom to top):

- A gas venting layer consisting of a geocomposite material placed over a 12-inch intermediate cover layer;
- A barrier layer consisting of a 40-mil linear low density polyethylene (LLDPE) geomembrane liner material. In the wetland areas, a 60-mil LLDPE geomembrane liner was used since the closure grades were below 2-percent in these areas. For additional protection, a Geosynthetic Clay Liner (GCL) was installed below the geomembrane liner in the wetland areas;
- A drainage layer consisting of a geocomposite material;
- A 12-inch Barrier Protective Layer with a hydraulic conductivity ranging between $1x10^{-4}$ and $1x10^{-6}$ cm/sec; and
- A minimum 6-inch vegetated topsoil layer. In areas where trees and shrubs are to be planted as part of the End Use Plan, up to 36" of topsoil was placed.

The landfill area was graded to create a minimum 2% slope over the entire West Cell. Wetland replication areas in the Center and the East Cell were graded to a minimum 1% slope. Additionally, the final cap system intercepts the barrier wall to fully contain the waste and leachate.

This final cover system achieves the following closure goals:

- Prevents exposure of/to the MSW, hazardous waste, and C&D waste;
- Minimizes leachate generation by reducing infiltration of stormwater; and
- Controls landfill gas emissions.

The final cover system design and materials were incorporated into the final end use plan, which consists of tree plantings, recreation areas, walking trails, and observation areas, which is further discussed in Section 9.

2.3 Stormwater Management System

The stormwater management system includes measures to protect the landfill cover system from erosion, reduce overall stormwater runoff rates, and improve the quality of stormwater discharging to Richmond Creek. Stormwater will sheet flow over the landfill cover in areas where vegetation and slope gradient provide protection against erosion. In other areas, stormwater is captured by a series of swales which direct flow to wetland planting areas or away from the landfill. **Figures 3** and **4** of **Appendix A** illustrate stormwater flow patterns.

In the northeast portion of the East Cell, where runoff cannot be directed to wetland planting areas, a rain gutter (a strip of pervious stone material that allows vertical infiltration of runoff into the under drain system) is used to collect stormwater. Stormwater that infiltrates into the rain gutter system discharges into downchutes, which discharge into the adjacent wetlands through energy dissipating riprap aprons. In all remaining areas, a series of swales were constructed to direct stormwater to the perimeter of the cell, which discharge to the surrounding wetlands through energy dissipating riprap aprons.

2.4 Leachate Collection and Treatment System

The leachate collection system controls leachate produced via the percolation of water through the waste materials and via the infiltration of groundwater through waste material. Leachate controls consist of passive collection pipes located within the landfill cells that direct the flow to on-site treatment tanks before discharge via pumps to the sanitary sewer system.

As shown in **Figure 5** of **Appendix A**, the East Cell and West Cell maintain separate collection and pumping systems. Leachate is collected by 6-inch perforated, corrugated polyethylene piping in a stone-filled trench installed under the landfill cover system. There is approximately 4,000 linear feet of leachate collection pipe in the East Cell and 1,800 linear feet of collection pipe in the West Cell. Cleanout manholes are installed at each end of the collection system.

There are six sumps located at approximately 700 linear foot intervals in the East Cell; in the West Cell, there are three sumps. Leachate gravity flows to the collection sumps. Each sump includes two (2) 25-gpm pumps (one operating and one standby). The collection sumps pump leachate to two 150-gpm oil/water separator units that reduce the free oil content of the collected leachate to below the required sanitary sewer discharge limits. A small amount of condensate from the landfill gas collection system also flows to the oil/water separator. Following oil/water separation, the leachate flows by gravity through a Parshall Flume metering manhole to the wet well at the Eltingville Pumping Station where it is pumped to the Oakwood Beach Water Pollution Control Plant for treatment. Under NYCDEP Industrial Wastewater Discharge Permit No. 10-P3149-2, the maximum leachate discharge from the BAL is 288,000 gallons per day (gpd); long-term flows are expected to drop to half this amount.

2.5 Groundwater Monitoring System

Section 360-2.11(c) requires a groundwater monitoring well network that, when sampled, can readily detect a site generated contaminant release. Because the BAL is an unlined landfill, and contaminant migration from the landfill is well documented, data from future post-closure sampling events will be compared to historical groundwater quality data. As shown in **Figure 6** of **Appendix A**, the groundwater monitoring network includes a total of 25 shallow (upper glacial aquifer) and deep (Cretaceous aquifer) wells constructed of 2-inch diameter polyvinylchloride (PVC) pipe with a locking, protective steel casing. Of the 25 wells, four are pre-existing wells that were installed during the original Remedial Investigation (RI).

2.6 Surface Water Monitoring System

Operational Unit 2 (OU2) includes Richmond Creek from the Richmond Avenue overpass to the eastern limit of the landfill, and several small tributaries which empty into Richmond Creek and its marsh/wetlands. The *Brookfield Avenue Landfill Operable Unit 2 Remedial Action Plan*, dated October 2011, is included in **Appendix C**. As part of the remedy for OU2, post-closure monitoring calls for monitoring of the chemical characteristics of surface water and sediment to augment monitoring conducted as part of OU1. Surface water samples will be collected at seven (7) locations from Richmond Creek, including an upstream background sampling location; sediment samples will be collected at twelve (12) locations within Richmond Creek, its tributaries, and the adjacent marsh/wetlands. Surface water monitoring will be performed in the 5th year, 10th year, and 20th year after the OU1 remedy is complete. Based on the current schedule, the constructed elements of the OU1 remedy are expected to be completed by 2013. Therefore, OU2 monitoring is anticipated to occur in 2018, 2023 and 2033. The monitoring and maintenance requirements of OU2 are not included as part of this Manual.

2.7 Landfill Gas Management System

As shown on **Figure 7** of **Appendix A**, the entire landfilled area is serviced by an active landfill gas collection system. As part of the closure construction, eighty-four (84) vertical gas collection wells and sixteen (16) horizontal gas collection wells were installed. Each vertical and horizontal well is equipped with a 1½-inch PVC wellhead. In general, the spacing of the vertical gas collection wells provides for a frequency of approximately one per acre. Horizontal collection wells are spaced approximately 100 feet on center.

The East Cell and West Cell each has its own collection header leading to the Landfill Gas Management Compound (Gas Compound). The Gas Compound is a fenced area located to the north of the Eltingville Pump Station. Each well operates under a vacuum developed by a blower located at the Gas Compound. As shown on **Figure 8** of **Appendix A**, the Gas Compound is fitted with two (2) variable frequency drive (VFD) blowers, two (2) knockout pots, valves and controls, and a 5-foot diameter fully enclosed landfill gas flare. Each blower can operate across a range of 50 to 500 standard cubic feet per minute (SCFM). Under normal operations, one (1) blower operates and provides sufficient capacity to provide vacuum to the landfill.

The blowers discharge to a common header feeding the landfill gas flare. The flare provides for the thermal destruction of methane and other landfill gas trace compounds. The flare contains a flame detector and a thermocouple(s) mounted in close proximity to the combustion zone to provide confirmation of combustion. In the event the flare flames out due to high wind, low combustible concentrations or other events, the flare will automatically attempt to relight. If a relight is not accomplished, the system will automatically shut down.

2.8 Landfill Gas Monitoring System

In addition to active landfill gas collection and flaring, a perimeter gas monitoring system was installed to allow for the sampling and analysis of subsurface gases along the property boundary. The purpose of these wells is to detect landfill gas migration toward the property line. The concentration of subsurface landfill gas cannot exceed the lower explosive limit (LEL) of methane (5 percent by volume) at the property boundary. As shown on Figure 7 of Appendix A, the landfill gas monitoring system consists of 32 perimeter landfill gas monitoring wells installed along the western, southern and eastern property boundaries. The landfill gas monitoring wells were installed as close to the property boundary as practicable as the property boundary is the compliance point.

Section 3
Environmental Monitoring Activities

This section describes the various environmental monitoring activities as required by 6NYCRR 360-2.15 (k)(7)(i). Monitoring activities include groundwater, surface water, sediment, leachate, and landfill gas. The following subsections provide a detailed description of the environmental monitoring program including procedures for equipment operations, sample collection and analysis, documentation, maintenance and inspection. The monitoring program has been designed to assess both the performance and effectiveness of the remedy, and is consistent with the guidance offered in Section 6.2.2 Monitoring Plan of DER-10. The specific methods and procedures described herein are in accordance with standard environmental practices and are consistent with current EPA and NYSDEC guidelines and requirements. The sampling and analysis are also consistent with guidance contained in relevant regulatory documents including the Examination of Water and Wastewater (20th Edition, 1998), CERCLA Quality Assurance Manual (EPA, October 1989), the Field Methods Compendium (EPA, June 1993), and the EPA Low Stress Purging and Sampling Procedure (March 1998).

3.1 Groundwater Monitoring

The purpose of post-closure groundwater monitoring is to assess the performance and effectiveness of the remedy. The monitoring program must gather sufficient data to establish defendable trends with respect to the long-term overall groundwater quality. These trends can confirm that groundwater quality is improving, declining, or stabilizing after the completion of the remedial action. The monitoring well locations were selected based on the environmental monitoring requirements outlined in 6NYCRR 360-2.11(c).

3.1.1 Sample Locations and Rationale

Figure 6 of **Appendix A** displays the groundwater monitoring well locations. **Table 3-1** presents monitoring well locations and screen intervals. All monitoring wells are constructed of 2-inch diameter PVC pipe with a locking, protective steel casing.

Table 3-1 BAL Long-Term Groundwater Monitoring Well Network

Well ID	Easting (ft)	Northing (ft)	TOS (ft)	BOS (ft)	Alternate ID	Aquifer
LTMW-1	938730	145232	-17	-22	GW-10M	Upper Glacial
LTMW-2	938326	145156	-12	-22		Upper Glacial
LTMW-3	937927	145044	-17	-22		Upper Glacial
LTMW-4	937955	144643	-32	-42		Upper Glacial
LTMW-5a	937961	144235	-20	-25		Upper Glacial
LTMW-5b	937951	144225	-38	-43		Upper Glacial
LTMW-6	938032	143808	-20	-25		Upper Glacial
LTMW-7	938517	143603	-15	-20		Upper Glacial
LTMW-8	939025	143786	-20	-30		Upper Glacial
LTMW-9	940157	144451	-30	-40		Upper Glacial
LTMW-10	940627	144958	-25	-30		Upper Glacial
LTMW-11	941427	145831	-25	-30		Upper Glacial
LTMW-12	941927	146666	-25	-30		Upper Glacial
LTMW-13	941604	146942	-20	-30		Upper Glacial
LTMW-14	941164	146706	-25	-30		Upper Glacial
LTMW-15	940788	146551	-20	-25		Upper Glacial
LTMW-16	940226	146407	-22	-27		Upper Glacial
LTMW-17	939848	146309	-18	-23		Upper Glacial
LTMW-18ug	939451	146135	-22.5	-27.5	GW-13D	Upper Glacial
LTMW-18c	939466	146165	-113	-118	GW-13CS	Cretaceous
LTMW-19	939077	145889	-10	-15		Upper Glacial
LTMW-20	938747	145536	-15	-25		Upper Glacial
LTMW-21	938056	143791	-81	-86		Cretaceous
LTMW-22	940101	144427	-100	-105		Cretaceous
LTMW-23	941717	145869	-107	-112	SAC-24B	Cretaceous

Notes:

1. LTMW = Long-Term Monitoring Well.
2. Coordinates are in NAD 83, US State Plane, New York Long Island.
3. TOS = Top of Screen; BOS = Bottom of Screen; Datum = Mean Sea Level

The following describes the location and purpose of each well:

- LTMW-1 through LTMW-6 are upper glacial wells located down gradient of the landfill. As per Section 360-2.11(c), the horizontal spacing of these wells shall not exceed 500 feet and the wells shall not be further than 50 feet from the barrier wall.
- LTMW-7 through LTMW-11 are upper glacial wells located immediately south of the southern extent of waste of the East and West Cells. The locations are generally up-gradient of the landfill, although as identified during the RI, areas of localized shallow flow to the south (towards the perimeter drainage ditches) were identified. As per Section 360-2.11, the horizontal spacing of these wells shall not exceed 1,500 feet.
- LTMW-12 through LTMW-20 are upper glacial wells located down gradient of the landfill. As per Section 360-2.11(c), the horizontal spacing of these wells shall not exceed 500 feet and the wells shall not be further than 50 feet from the barrier wall.
- Monitoring wells LTMW-21 through LTMW-23 are Cretaceous wells located down gradient of the landfill. Groundwater flow in the Cretaceous aquifer is south, opposite of the shallow (upper glacial) flow direction. These monitoring wells will be located onsite, within 50 feet of the barrier wall.

3.1.2 Sampling Parameters and Monitoring Frequency

Groundwater samples shall be collected and submitted for analysis. Approved methodologies, standard operating procedures and health and safety protocols for obtaining, preserving, transporting and analyzing the samples are summarized in the following subsections. Water samples shall be submitted to a NYSDEC-approved laboratory for chemical analysis. **Tables 3-2** and **3-3** list the baseline and routine analytical parameters. Sampling and analysis will be performed quarterly for routine parameters shown in Table 3-2. Every fifth quarter, additional samples will be collected and analyzed for the baseline parameter groups listed in Table 3-3. Together with the routine parameters, the baseline parameter list covers the entire range of contaminants of concern that are relative to the performance of the remedy. The first sampling event following completion of the constructed portion of the remedy should include analysis for both the routine and baseline parameters/parameter groups.

After a minimum of eight (8) quarters of sampling, the monitoring program will be reviewed and modifications may be proposed based on the analytical results and observed trends in parameter concentrations. Modifications may include reducing the frequency of routine monitoring at select wells from quarterly to every fifth quarter, reducing the list of parameters to be analyzed in the Cretaceous wells, or other variations.

Table 3-2 Routine Parameters

Analytical Parameter	Analytical Method
Field Parameters:	
Static water level (in wells and sumps)	
Specific Conductance	9050/120.1
Temperature	170.1
pH	9040/150.1
Dissolved Oxygen	SM4500/360.1/360.2
Field Observations (colors, odors, surface sheens, etc)	
Turbidity	180.1
Leachate Indicators:	
Ammonia	350.1/350.2
Nitrate	300/352.1
Total Organic Carbon	9060/415.1
Total Dissolved Solids	160.1
Sulfate	300/375.1/9035
Alkalinity	SM2320/310.1
Chloride	300/325.1/9250
Bromide	300/320.1
Total hardness as CaCO3	SM2340B/130.1/130.2
Metals:	
Arsenic	6020/200.8
Cadmium	6020/200.8
Chromium	6020/200.8
Copper	6020/200.8
Cyanide	9010/9012/335.2/335.3
Iron	6010/6020/200.7/200.8
Lead	6010/6020/200.7/200.8
Manganese	6010/6020/200.7/200.8
Selenium	6020/200.8
Sodium	6010/6020/200.7/200.8
Zinc	6010/6020/200.7/200.8

Table 3-3 Baseline Parameters

Analytical Parameter	Analytical Method
TAL Metals	6010/6020/200.7/200.8
TCL Volatile Organic Compounds	8260/624
TCL Base-Neutral Acids (Semi-Volatile Organics)	8270/625
TCL Pesticides	8080/8081/608
TCL PCBs	8080/8082/608

3.1.3 Groundwater Level Measurement

Groundwater levels shall be measured at each monitoring well on the same day and recorded on a groundwater level measurement log. Groundwater levels shall be measured to the nearest 0.01 foot from the reference point on the top of the riser pipe or marked on the inner casing. Water level measurements will be collected using electric sounders, interface probes, pressure transducers, and/or water level recorders. Potentiometric contour map(s) of the Upper Glacial and Cretaceous flow system shall be developed based on the water level measurements.

Additionally, static water levels shall be measured each time a well is sampled and before equipment is introduced into the well. The measuring device shall be decontaminated prior to use and between each monitoring well in accordance with the methods described under Section 3.1.5. An example of a Groundwater Level Measurement Log is shown in **Appendix D**.

3.1.4 Monitoring Well Purging and Sample Collection

Monitoring wells will be purged via the low flow (low stress) method in accordance with EPA standard operating procedures (SOPs). The purpose of low flow purging is to provide a method which minimizes the amount of impact the purging process has on the groundwater chemistry during sample collection. The low flow method also minimizes the volume of water that is being purged and disposed of. This method of purging requires the sampler to place the pump intake within the screened interval and keep the drawdown at a minimum level (0.33 feet) until the water quality parameters have stabilized. The pump intake should not be placed near the bottom of the screened interval to avoid disturbing sediment that may have settled at the bottom of the well. As groundwater monitoring well purging and sampling standards are updated, the methodology for sampling on this site will be updated.

Water quality parameters and water levels must be measured during purging and prior to sample collection. The water quality indicator parameters that will be monitored for stabilization include; specific electrical conductance, dissolved oxygen, turbidity, oxidation-reduction potential, pH, and temperature. With the exception of turbidity, stabilization of the above parameters within 10 percent is required for sampling. As for turbidity, every effort should be made to reduce the turbidity to 10 Nephelometric Turbidity Units (NTUs) or less when samples are being collected for inorganic compounds, semi-volatile organic compounds and pesticides.

Stabilization of the water-quality indicator parameters is the criterion for sample collection, however, if stabilization is not occurring and the procedure is strictly followed, then samples may be collected only after a minimum of three or maximum of six casing volumes are purged. Should this situation arise, specific details recounting the day's field activities with particular attention to the well in question must be recorded in the field notebook or groundwater sampling log as shown in **Appendix D**.

3.1.4.1 Equipment

A list of suitable equipment for low flow purging is presented below:

- Water level indicator (with marked intervals of 0.01 foot)
- Photoionization detector (PID)

- Steel tape and weight for measuring total depth of well. Lead weight should not be used.
- Submersible or bladder pumps with adjustable rate control. Pumps should be constructed of inert materials such as stainless steel and Teflon®. Acceptable pump types include gear and helical driven, centrifugal and air-activated piston. Adjustable rate, peristaltic pumps can be used when the depth to water is 20 feet or less.
- Teflon® or Teflon® lined polyethylene tubing is preferred when sampling for organic compounds.
- Power source (i.e., generator). If a combustion type generator is used it must be placed downwind of the sampling area.
- Stop watch
- Multi-parameter meter with a flow through cell.
- Graduated cylinder
- Decontamination supplies
- Sample bottles, sample preservation supplies, sample tags or labels and chain of custody forms
- Well Construction data, field and water quality data from previous sampling events
- Well keys and well location map
- Field log book and field logging forms.
- Polyethylene sheeting for placement on the ground around the well head.
- Personal protective equipment (PPE) including nitrile gloves and safety glasses
- Tool box with hand tools including screwdriver, utility knife, tubing cutter.
- 55-gallon drums or other suitable container for purge water.
- Cooler for sample placement
- Ice for sample preservation

3.1.4.2 Purging and Sampling

The following describes the standard purging and sampling procedures for the low flow (low stress), minimal drawdown method for groundwater sample collection. As a general rule groundwater sampling must begin at the monitoring well with the least contamination. Sampling should systematically proceed with the most contaminated monitoring wells being sampled last.

Pre-Sampling Activities

1. Inspect and record the condition of each monitoring well for damage or evidence of tampering.

2. Lay out polyethylene sheeting around the base of the well to minimize the likelihood of contamination of sampling/purging equipment from the soil. Place all monitoring, purging and sampling equipment on the polyethylene sheeting.
3. Unlock the well head and record the location, time, date and appropriate field information in the field log book or groundwater sample log.
4. Remove inner casing cap.
5. Monitor the headspace of the monitoring well at the rim of the casing for volatile organic compounds (VOCs) with a PID. Record the headspace reading in the field log book or groundwater sample log.
6. Measure the depth to water using a water level meter or interface probe relative to the reference measuring point. Record the depth to water reading in the field log book or groundwater sample log. Measure the depth to water a second time to confirm the initial measurement the measurement should agree within 0.01 feet or re-measure.
7. Check the available well information or field information for the total depth of the monitoring well. Use the depth to water and the total depth of the monitoring well to calculate the volume of water in monitoring well or the volume of one casing. Record this information in the field log book or groundwater sample log.

Purging and Sampling Activities

1. Place the pump and support equipment at the wellhead and slowly lower the pump and tubing (attached) down into the monitoring well until the location of the pump intake is set at a pre-determined location within the screened interval. Refer to the available monitoring well construction details to determine the depth and length of the screen interval. Measure the depth of the pump intake while lowering the pump into place. Record the pump depth in the field log book or groundwater sampling log.
2. Measure the water level with the pump in place and record the information in the field log book or groundwater sampling log. Leave the water level indicator probe in the well for future measurements.
3. Connect the discharge line from the pump to a flow-through cell. A “T” connection is needed prior to the flow through cell to allow for the collection of water for the turbidity measurement. The discharge line from the flow through cell must be directed to a container collecting purge water.
4. Begin pumping the well at a low flow rate (0.2 to 0.5 liters per minute) and slowly increase speed. Check the water level. Maintain a steady flow rate while maintaining a drawdown of less than 0.33 feet. If drawdown is greater than 0.33 feet lower the flow rate.
5. Measure the discharge rate of the pump with a graduated cylinder and a stop watch. Measure the water level and record both measurements in the field logbook or groundwater sampling form.
6. Continue purging while monitoring the pump rate and water level. Record the water level and pump rate every three to five minutes during purging.

7. During purging, a minimum of one tubing volume (including the volume of water in the pump and flow through cell) must be purged prior to recording the water quality indicator parameters. Once one tubing volume is purged record the water quality parameter measurements in the field logbook or groundwater sampling form. Monitor and record the water quality indicator parameters every three to five minutes until all parameters stabilize. The stabilization criterion is based on three successive readings of the water quality field parameters; the following are the criteria that must be used:

Parameter	Stabilization Criteria
pH	± 0.1 pH units
Specific electrical conductance (SEC)	± 3% S/m
Oxidation-reduction potential (ORP)	± 10 millivolts
Turbidity*	± 10% NTUs (when turbidity is greater than 10 NTUs)
Dissolved Oxygen (DO)	± 0.3 milligrams per liter

*Every effort should be made to reduce the turbidity to 10 NTUs or less when samples are being collected for inorganic compounds, semi-volatile organic compounds and pesticides.

Once the criteria are met and field indicator parameters are stable, then sample collection can begin.

8. If a stabilized drawdown of 0.33 feet cannot be maintained and the water level is approaching the top of the screened interval, the flow rate is reduced or the pump is turned off (for 15 minutes) to allow for recovery. Under no circumstances should the well be pumped dry. After waiting the 15 minute recovery period commence with pumping at a lower flow rate. If the water draws down to the screened interval again turn the pump off and again allow for recovery. If two tubing volumes (including the volume of water in the pump and flow cell) are removed during purging then sampling can proceed next time the pump is turned on. Specific details recounting these field activities must be recorded in the field notebook or groundwater sampling log. This information is noted with a recommendation for a different purging and sampling procedure.

9. Maintain the same pumping rate or reduce slightly for sampling (0.2 to 0.5 liter per minute) to minimize disturbance to the water column. Disconnect the pump's tubing from the flow-through cell so that the samples are collected from the pump's discharge tubing.

   All sample containers are filled with minimal turbulence by allowing the groundwater to flow from the tubing gently down the inside of the sample container. When filling the VOC samples, a meniscus must be formed over the mouth of the vial to eliminate the formation of air bubbles and head space prior to capping.

   In the event that the groundwater is turbid (greater than 10 NTUs) a filtered metal (dissolved) sample is collected. If a filtered metal sample is required, then an in-line filter is fitted at the end of the discharge tubing and the sample is collected after the filter. The in-line filter must be pre-rinsed following manufacturer's recommendations. If there are no recommendations for rinsing a minimum of 0.5 to 1 liter of ground water from the monitoring well must pass through the filter prior to sampling.

10. Once sampling is complete carefully remove the pump from the monitoring well. Decontaminate the pump and dispose of the tubing.

11. Before locking the monitoring well, measure and record the depth to water (to 0.1 feet). Measure the total depth a second time to confirm the initial measurement; measurement must agree within 0.1 feet or re-measure.
12. Close and lock the well.

3.1.4.3 Quality Assurance Quality Control Samples

Quality Assurance Quality Control (QAQC) samples must be collected to verify that sample collection and handling procedures were performed adequately and furthermore that the sample collection was performed in such a way that the quality of the groundwater samples are not compromised.

All field quality control samples must be prepared in the same manner as the regular groundwater samples with regard to sample volume, sample container, and sample preservation. The chain of custody procedures for the QAQC samples are identical to the field groundwater samples. The following are QAQC samples which must be collected during the sampling event:

Sample Type	Frequency
Field Duplicate	1 per 20 samples
Matrix Spike/ Matrix Spike Duplicate	1 per 20 samples
Field Blank	1 per 20 samples
Trip Blank (VOC)	1 per sample cooler
Temperature Blank	1 per sample cooler

Blind Duplicate Samples

A duplicate sample is a second sample collected independently at the same location as the regular groundwater sample. Blind duplicate samples are used to evaluate sampling procedures as well as analytical precision including the variability associated with the laboratory analysis and sample collection. Blind duplicate samples are collected simultaneously or in immediate succession of the regular groundwater sample. The blind sample is collected using identical recovery techniques and treated in an identical manner during storage, transportation and analysis. Blind duplicate samples are collected at a frequency of one per every regular 20 groundwater samples. The blind duplicate sample is analyzed for the same parameters as regular groundwater sample collected from the same location.

The blind duplicate sample is given a unique ID and is submitted to the laboratory without their knowledge of the sample location. The field logbook will identify the duplicate sample locations. The sample location is not to be indicated on the sample label, chain of custody or any other documents that may accompany the samples to the laboratory. The anonymity of the sample location ensures that the laboratory cannot ascertain the associated of the duplicate sample.

Field Blanks

Field blanks are QAQC samples collected to check for cross contamination that might occur during sample collection. The field blank sample is collected by pouring deionized water into or pumped through the dedicated or field decontaminated sampling devise and transferred to the appropriate sample containers. The field blank is transported to the laboratory under the same conditions as the regular groundwater samples to the laboratory for analysis. Aside from the pumps, groundwater

sampling equipment checked for cross contamination may include bailers and tubing. The field blank samples are analyzed for the same parameters as the regular groundwater samples being collected. Field blanks are collected at a frequency of one per every regular 20 groundwater samples.

Trip Blanks

Trip blanks are QAQC samples prepared by the laboratory performing the sample analysis and are provided with each shipping container. A trip blank is a volatile sample vial filled in the laboratory with organic-free, distilled water, transported to the site, handled like a sample, and returned to the laboratory for analysis. Trip blanks are used only for the laboratory analysis of VOCs only. Trip blanks are used to show whether a sample bottle was contaminated during shipment from the manufacture, while in bottle storage, in shipment to the laboratory, or during analysis at the lab.

Trip Blanks are not be held on-site longer than two calendar days. Trip blanks are not to be opened in the field. For every cooler containing water samples collected for VOC analysis, one trip blank is added to the cooler and analyzed for the presence of VOCs.

Matrix Spike/Matrix Spike Duplicate Samples

Matrix Spike/Matrix Spike Duplicate (MS/MSD) QAQC samples are duplicate samples (collected in the same manner as the blink field duplicate) that are analyzed to determine whether the sample matrix (water, soil, air, etc.) is adversely affecting the sample analysis. A spike is a known amount of analyte added to a sample. Matrix spikes are performed at a frequency of one per every regular 20 groundwater samples.

The MS/MSD sample is subjected spiked with a known amount of an analyte that is then subjected to the entire analytical procedure in order to indicate both accuracy and precision if the method for the matrix by measuring the percent recovery and the relative percent difference (RPD) of the two spiked samples. These samples are used to assess matrix interference effects on the method and to evaluate instrument performance.

Temperature Blank

A temperature blank is a vial of water that accompanies the samples that is opened and tested upon arrival at the laboratory to ensure that the temperature of the sample container is within the required preservative temperature of 4°C ± 2°.

3.1.4.4 Sample Management

Sample Container, Preservatives, and Holding Time Requirements

Sample containers are provided by the New York State Department of Health ELAP certified laboratory contracted to perform the analytical services. The selection of sample containers is based on both the media being sampled and the analytes of interest. The samples preservatives and laboratory holding times are based on media and analytes of interest

Sample Designation and Labeling

The following procedures are used to identify and track environmental samples collected during the groundwater monitoring events. An un-removable and waterproof label is affixed to each sample container with the following information written on the label with permanent (preferably waterproof) marker or pen:

- Site name

- Sample identification
- Project number (if requested)
- Date/time
- Sampler's initials
- Sample preservation
- Analysis required

Sample IDs will be recorded as follows:

Sample Type	Sample ID
Groundwater Sample	Well ID (i.e., LTMW-1)
Field Duplicate	DUP
Matrix Spike/ Matrix Spike Duplicate	MS/MSD
Field Blank	FB-MMDDYYYY
Trip Blank	TB-# (1 per sample cooler)
Temperature Blank	Not analyzed and therefore not labeled. Not included on chain of custody.

Sample Custody

At the time of the sampling, the sampler records the sample information in the field logbook or groundwater sampling form and on the chain of custody form. The label, logbook, and chain-of-custody form entries are made in waterproof ink. The sample information recorded in the logbooks are at least as detailed as that recorded on labels, and indicate the type of sample (e.g., groundwater, soil, waste, etc.), preservation technique, and sampling location, with sufficient detail as to allow re-sampling at the same location, if necessary.

Immediately after any given sample is collected and transferred to the appropriate laboratory-supplied sample container, the sampler places the sample in a cooler containing ice for preservation. The sampler maintains the completed chain of custody until the sample coolers are prepared for shipping or hand delivery to the laboratory. The sample coolers are submitted with the chain of custody form to document the contents of the cooler and sampling event. The chain of custody form is completed, signed and dated by the sampler, and sealed inside the cooler submitted to the laboratory.

The following information will be included on the chain of custody form:

- Date and Time Sample was Collected
- Client Name
- Project Name
- Sample ID
- Sample Container Numbers and Volumes

- Sample Matrix
- Sample Preservatives
- Sample Analysis Required
- Signatures of Persons Involved in Chain-of-Custody
- Date, Time Relinquishing Sample Custody
- Sample turnaround time
- Report format

The entries on the chain-of-custody form correspond to notes in the field logbook and sample labels. Custody seals are used to detect tampering with the samples before laboratory acceptance. Custody seals are affixed to the cooler in a manner that requires seal breakage in order to open the cooler. Unauthorized seal breakage indicates sample tampering and renders the analytical results of the samples suspect. An example of the Chain-of-Custody Form is included in **Appendix D**.

3.1.5 Equipment Decontamination

To minimize the chance for cross contamination, non-disposable equipment used during field investigations is decontaminated after each use. Decontamination water is collected and containerized. Whenever feasible, all field sampling equipment is laboratory cleaned, wrapped, and dedicated to a particular sampling point. The field-cleaning of sampling equipment reused during a single sampling event to collect samples for analysis is avoided to the largest extent possible.

If field cleaning of aqueous sampling equipment is required, then the following 8 step decontamination procedure is followed:

1. Alconox or low-sudsing detergent scrub and potable water wash
2. Generous tap water rinse in wash tub
3. Distilled and deionized (ASTM Type II) water rinse
4. Ten percent nitric acid rinse (only if sample is to be analyzed for metals)
5. Distilled deionized (ASTM Type II) water rinse (only if sample is to be analyzed for metals)
6. Acetone (pesticide grade) rinse (only if sample is to be analyzed for organics)
7. Total air dry
8. Distilled and deionized (ASTM Type II) water rinse (only if sample is to be analyzed for organics)

It is important that contaminants are not carried from well to well via sampling equipment. To decontaminate submersible pumps the coiled lines and pump is drained of all water. The pump lines are placed in a large bucket and scrubbed with dilute non-phosphate detergent. The pump is then to be placed in a plastic over pack drum or plastic garbage can and a minimum of 20 gallons of water is flushed through it. After the flush, the outside of the pump is rinsed with distilled and deionized water.

Pump tubing cleaned in this manner is used solely for purging, and not for sample collection. New, unused, dedicated tubing is required at each groundwater sample location. If surface pumps (centrifugal, inertial life, etc.) are used, decontamination is not required because dedicated tubing is used together with a dedicated foot valve, to prevent backflow of water from the pump into the well.

3.1.6 Investigation Derived Waste

For monitoring well purge water, if there is no obvious contamination observed during drilling and well installation, if the development water does not have an observable sheen or odor, and if the PID readings of the water remain at background levels, the development/purge water may be discharged to the ground surface and allowed to percolate back to the groundwater system. In general, the water will be discharged to the ground at the center of the landfill and not in areas where it may run off the site.

If development and purge water show signs of gross contamination, water shall be collected in U.S. Department of Transportation (DOT) approved (or equivalent) 55 gallon drums and stored at the site. These suspected fluids are analyzed to determine their toxicity characteristics and appropriate means for disposal. After the analytical results are received, the containerized fluids are disposed of in accordance with applicable local, state and federal regulations. NYSDEC will be notified before the investigation derived waste (IDW) is removed offsite for disposal.

Other IDW such as personnel protective equipment (e.g., gloves, Tyveks) are contained in plastic bags or 55 gallon drums for disposal as non-hazardous waste. Drums will be staged on pallets in a designated staging area, and the contents labeled with weather-resistant labels, markers, or crayons on the drum exterior. The sampler shall maintain a log of the drums generated, their contents, and associated analytical data. The operator shall coordinate disposal of the IDW with a qualified disposal contractor. IDW shall be handled, transported, and disposed of in accordance with applicable state, federal, and/or local hazardous waste regulations.

3.1.7 Reporting

Groundwater quality monitoring reports will be submitted to the NYSDEC quarterly within 90 days of the conclusion of the sample collection. Quarterly reports shall be prepared for, sent to and available for review at the NYCDEP and NYSDEC offices. Quarterly reports shall meet the requirements of DER-10 Section 2.2 and contain the following information:

1. A table showing the sample collection date, the analytical results, designation of upgradient wells, and location number for each environmental monitoring point sampled;

2. Tables or graphical representations comparing current water quality with historical water quality;

3. A summary of the contraventions of State water quality standards, significant increases in concentrations above existing water quality, any exceedances of groundwater protection standards, and discussion of results, and any proposed modifications to the sampling and analysis schedule; and

4. QA/QC documentation, consistent with the requirements of DER-10 Section 2.3 and 2.4.

Additionally, as stated in Section 3.1.3, potentiometric contour map(s) of the Upper Glacial and Cretaceous flow system shall be developed based on the water level measurements.

3.2 Surface Water Monitoring

As discussed in Section 2, post-closure monitoring of OU2 includes monitoring of the chemical characteristics of surface water and sediment to augment monitoring conducted as part of OU1. This information is included in the *Brookfield Avenue Landfill Operable Unit 2 Remedial Action Plan*, dated October 2011, included in Appendix C. The monitoring and maintenance requirements of OU2 are not included as part of this Manual.

3.3 Leachate Monitoring

Leachate sampling and analysis shall follow the requirements and protocols set forth by the current NYCDEP Industrial Wastewater Discharge Permit No. 10-P3149-2. The operator shall implement a self-monitoring program consisting of Monthly Self-Monitoring and Quarterly Reporting.

3.3.1 Monthly Sampling

All sampling shall take place on days representative of normal operations. Sampling shall be conducted in accordance with 40 C.F.R.§ 403.12 (g)(3), which states, in pertinent part, that grab samples must be used for pH, cyanide, total phenols, oil and grease, sulfide, and volatile organic compounds. For all other pollutants, 24-hour composite samples must be obtained through flow-proportional composite sampling techniques, unless time-proportional composite sampling or grab sampling is authorized by the Department.

Analysis and sampling type are shown in **Table 3-4** below. Sampling and analysis shall follow the M1 protocols and the aforementioned NYCDEP Industrial Wastewater Discharge Permit and/or by protocols set forth by the NYCDEP Industrial Pretreatment Program (IPP) Inspection and Permit Section. This sampling shall be performed concurrently with the quarterly post-closure groundwater monitoring events so that the QA/QC sampling and data validation performed in conjunction with the groundwater monitoring can be applied to this monitoring as well. For specific details, see the current Industrial Wastewater Discharge Permit No. 10-P3149-2.

Table 3-4 Leachate Sampling Requirements

Pollutant	Sample Location	Frequency	Sample Type
VOLATILE ORGANICS (VOC)			
Benzene	M1	Once a month	4 grab samples, taken at least 1 hour apart for 1 day. Each grab sample must be individually preserved and sent to a certified laboratory. The laboratory may then composite the grab samples.
Ethylbenzene	M1	" "	" "
Methyl-Tert-Butyl-Ether (MTBE)	M1	" "	" "
Tetrachloroethylene (Perc)	M1	" "	" "
Toluene	M1	" "	" "
Xylenes	M1	" "	" "
Carbon tetrachloride	M1	" "	" "
Chloroform	M1	" "	" "
I, I, I-trichloroethane	M1	" "	" "
SEMI-VOLATILE ORGANICS			
Naphthalene	M1	Once a month	A one-day composite sample.
1,4-dichlorobenzene	M1	" "	" "
Phenol	M1	" "	" "
1,2,4-trichlorobenzene	M1	" "	" "
PCB-1016 (Arochlor 1016)	M1	" "	" "
PCB-1242 (Arochlor 1242)	M1	" "	" "
PCB-1254 (Arochlor 1254)	M1	" "	" "
PCB-1221 (Arochlor 1221)	M1	" "	" "
PCB-1232 (Arochlor 1232)	M1	" "	" "
PCB-1248 (Arochlor 1248)	M1	" "	" "
PCB-1260 (Arochlor 1260)	M1	" "	" "

OTHER TOXIC ORGANICS OF CONCERN			
VOLATILE ORGANICS (VOC)	M1	Once a month	4 grab samples, taken at least I hour apart for I day. Each grab sample must be individually preserved and sent to a certified laboratory. The laboratory may then composite the grab samples.
SEMI-VOLATILE ORGANICS	M1		A one-day composite sample.
OTHER POLLUTANTS, PH, AND FLOW			
Cadmium	M1	Once a month	A one-day composite sample.
Chromium (Total)	M1	" "	" "
Chromium (Hexavalent)	M1	" "	" "
Copper	M1	" "	" "
Lead	M1	" "	" "
Mercury	M1	" "	" "
Molybdenum	M1	" "	" "
Nickel	M1	" "	" "
Silver	M1	" "	" "
Zinc	M1	" "	" "
Carbonaceous Biochemical Oxygen Demand (CBOD)	M1	" "	" "
Total Nitrogen	M1	" "	" "
Chloride	M1	" "	" "
Cyanide (Total)	M1	" "	4 grab samples, taken at least I hour apart for I day. Each grab sample must be individually preserved and sent to a certified laboratory. The laboratory may then composite the grab samples.
Cyanide (Amenable)	M1	" "	" "
Total Suspended Solids (TSS)	M1	" "	4 grab samples, taken at least I hour apart for I day. Each grab sample must be individually preserved and sent to a certified laboratory.
Non-Polar Material	M1	" "	" "
pH	M1	" "	Either by 4 in situ measurements or by 4 grab samples, each taken at least 1 hour apart.

3.3.2 Reporting

The operator shall submit reports to the NYCDEP using the NYSDEC's **Self-Monitoring Report Form**. Reports are due on a quarterly basis as follows:

Monitoring Period	Report Due Date
March 1 to May 31	June 30
June 1 to August 31	September 30
September 1 to November 30	December 31
December 1 to February 28	March 31

The operator must maintain a logbook on daily volume of discharge (in gallons per day). A copy of the logbook entries for the monitoring period must be submitted in each self-monitoring report.

Analytical results submitted to the NYCDEP, for any reason, shall be reported by the certified laboratory performing the analysis in a format consistent with the NYCDEP's **Analytical Report Form**. The sampling points referenced on the Analytical Report Form must be identified exactly as they are in the Permit.

3.4 Landfill Gas Monitoring

Landfill gas monitoring will be performed on a quarterly basis in conjunction with the groundwater monitoring program. Annual summary reports will be submitted to the NYSDEC describing the results of the maintenance, monitoring and/or sampling for the environmental and facility monitoring points.

3.4.1 Perimeter Gas Monitoring Wells

As part of the closure construction, a total of thirty-four (34) permanent perimeter landfill gas monitoring wells were installed near the property boundaries along Arthur Kill Road, Richmond Avenue, and the eastern landfill property boundary.

The objective of the gas monitoring program is to determine the presence and extent of any subsurface landfill gas (i.e. methane) migration. In accordance with 6NYCRR 360-2.17(f), combustible gas levels cannot exceed the lower explosive limit (LEL) at or beyond the property line, and cannot exceed 25 percent of the LEL in any structure on or off the site, excluding the gas control/recovery system components. If monitoring detects explosive gas levels in excess of the LEL at the property boundary or in excess of 25 percent of the LEL within any structures, immediate and appropriate actions must be taken to ensure the safety and protection of human health. The NYSDEC must also be immediately notified. Within seven days of detection of methane in excess of regulatory levels, the NYCDEP shall submit to the NYSDEC a description of the steps taken to protect human health. Within 45 days of detection, the NYCDEP shall submit a remediation plan to the NYSDEC. This plan must describe the nature and extent of the problem and the proposed remedy. The plan must be implemented within 60 days of the date of the detection.

Based on the age of the landfill waste, the installation of a slurry wall, the shallow depth of groundwater around the perimeter of the landfill, and results of historic soil gas investigations performed during the field investigations, the potential for landfill gas migration is minimal. It is anticipated that the NYCDEP will request a data review by NYSDEC with the intent of reducing the gas

monitoring frequency following completion of five (5) years of quarterly monitoring events, as allowed by 6NYCRR 360-2.15(k)(4).

3.4.1.1 Combustible Gas Indicator

A combustible gas indicator (CGI), LANDTEC GEM or similar, is required for the implementation of the landfill gas monitoring program. CGIs are used to test atmospheres for sufficient oxygen content for life support and/or the presence of any gas or vapor which, when combined with oxygen in free air, presents potential hazards due to flammable to explosive conditions. The CGI samples and analyzes the methane (CH4), carbon dioxide (CO2), and oxygen (O2) content of landfill gases.

The CGI should be calibrated before each use and checked daily during operation to assure that it is operating properly and providing accurate measurements. CGIs will be calibrated with methane in air at concentrations equivalent to 50 percent of the lower explosive limit.

3.4.2 Gas Collection System Monitoring

The operator shall measure gas concentrations of methane, carbon dioxide, and oxygen at each of the 84 vertical gas extraction wells and 16 horizontal gas collection wells shown in Figure 7 of Appendix A on a monthly basis. These measurements shall be used as an indicator of excessive extraction and richness of methane. In addition to the above constituents, the operator shall record flow, vacuum pressure, and temperature readings. If a LFG fire is suspected, carbon monoxide shall also be measured at the well heads. The landfill gas composition entering the flare shall be determined at the flare station on a monthly basis using the Inspection Checklist forms included in **Appendix D**. The parameters to be determined are methane, carbon dioxide, carbon monoxide, and oxygen. The operator shall also record gas flow rate, pressure, temperature, and other parameters using the control panel and indicators permanently located at the flare station. This information shall be recorded on the daily and weekly Inspection Checklist forms included in **Appendix D**.

The following instruments and equipment are required for monthly monitoring:

1. LANDTEC GEM (or equivalent) Gas Extraction Monitor
2. Colormetric Tubes (Draeger or similar)
3. Portable Combustible Gas Indicator
4. Portable Sampling Pump with Rechargeable Battery
5. One Liter Gas Sampling Bags
6. Assorted Sizes of Plastic Tubing and Rubber Stoppers

Instrumentation required for total vacuum pressure measurements and methane concentration measurements are outlined below:

- LANDTEC GEM Gas Extraction Monitor shall be used to measure LFG for percentage oxygen, methane, carbon dioxide, nitrogen (balance gas), as well as pressure, temperature, and flow. Two cylinders of calibration gas (50 percent methane by volume and 2.5 percent methane in air) shall be used to calibrate the meter. One canister shall contain 50% methane, 45% carbon dioxide, 3% nitrogen and 2% oxygen. The second canister shall be 2.5% methane with the balance gas nitrogen.
- Colormetric tubes (Draeger or similar) shall be used for measuring carbon monoxide.

- Portable combustible gas indicator with two scales, percentage methane by volume, and percentage lower explosive limit (MSA Model 62S), or equivalent. The unit shall have a water separator to protect the filaments.
- Portable sampling pump with rechargeable battery, MSA Model S, with battery charger Cat No. 56059, or equivalent. These items are useful for taking gas samples and for filling sample bags in order to send the samples to an outside laboratory.
- One liter gas sampling bags.
- Assorted sizes of plastic tubing and rubber stoppers.

3.4.2.1 Total Vacuum Pressure Measurement

Total vacuum pressure readings shall be measured at the extraction well head. The instrument utilized in measuring total vacuum pressures shall be the GEM.

The following procedure shall be employed for measuring the total vacuum pressures at the well head:

1. Prior to use ensure the GEM meter is zeroed for static and differential pressures follow GEM unit instructions.
2. Connect the hose adapters located on the GEM with plastic tubing.
3. Open the lab cock to be sampled.
4. Record the measurement (the average reading of the unit's readout variable).
5. Close the lab cock and disconnect the tubing.

3.4.2.2 Methane Concentration Measurement

Methane concentration of the landfill gas shall be measured at the connection to the gas transmission piping with a portable combustible gas indicator on the GEM, or equivalent. The following methods shall be followed for measuring the percentage of methane by volume at each gas extraction point. The total vacuum pressure at the well heads may exceed the capacity of the portable pump. If this occurs, an auxiliary pump shall be used. The following method shall be used:

1. Calibrate the GEM according to the manufacturer's recommendations.
2. Turn on the GEM, setting the range selector to Gas.
3. Briefly open and close the lab cock valve to remove moisture and/or debris build-up on the labcock.
4. Connect the GEM tubing to the orifice plate lab cock, and open the lab cock.
5. Record the average readings for methane, CO_2, O_2 and balance gas.
6. After all readings are taken, close the lab cock and disconnect the tubing.
7. Purge the GEM between well heads by letting the pump run until methane is zeroed and O_2 is around 20%.
8. Adjust value setting.

3.4.3 Surface Emission Monitoring

The applicability of 6NYCRR Part 208 applies to MSW landfills meeting the conditions listed below, as discussed in 6NYCRR 208.1.

1. The landfill has commenced construction, reconstruction or modification or accepted waste at any time since November 8, 1987, or has additional design capacity available for future waste deposition. Activities required by or conducted pursuant to a CERCLA, RCRA, or State remedial action are not considered construction, reconstruction, or modification.

2. The landfill has a design capacity greater than or equal to 2.5 million megagrams and 2.5 million cubic meters. The landfill design capacity may be calculated in either megagrams or cubic meters for comparison with the exemption values. Any density conversions shall be documented and submitted with the report required under section 208.3(b) of this Part.

3. The landfill has a non-methane organic compound emission rate of 50 megagrams per year or more.

Since the BAL does not meet these criteria, the requirements of 6NYCRR Part 208 are not applicable. However, as discussed in Section 9, the BAL is incorporating end use plans that include both active and passive recreational uses following site capping and closure. Therefore, it is encouraged that the gas collection system be operated in accordance with the operational standards for landfill gas collection and control systems, as discussed in 6NYCRR 208.4, which require that the gas collection system be operated so that the methane concentration is less than 500 parts per million above background at the surface of the landfill.

To determine if this level is exceeded, the operator shall monitor surface concentrations of methane along the entire perimeter of the collection area and along a pattern that traverses the landfill at 30 meter-intervals (or a site-specific established spacing) and where visual observations indicate elevated concentrations of landfill gas, such as distressed vegetation and cracks or seeps in the cover. Surface emission monitoring shall be performed on a semi-annual basis using an organic vapor analyzer (OVA), flame ionization detector (FID), or similar monitoring device which meets the instrument criteria specified in USEPA Reference Method 21, Section 3.

3.5 Annual Summary Reports

Annual summary reports shall be submitted to the NYSDEP by the NYCDEP describing the results of the maintenance, monitoring and/or sampling for the environmental and facility monitoring points as stated in 6NYCRR 360-2.15 (k)(4). The Annual Summary Report shall include a narrative summarizing the operation, maintenance, monitoring and/or sampling work performed during the Annual period covered by the Report. The results of the post-closure monitoring and sampling data shall be summarized in tables, evaluated in narrative format, compared to data from prior periods (including the Remedial Investigations) with trends identified. The Annual Summary Reports shall provide conclusions and recommendations for improvements or modifications to the operation, maintenance, monitoring, sampling and testing programs.

Section 4
Inspection and Maintenance Activities

4.1 Introduction

In accordance with 6NYCRR 360-2.15(k)(7)(iii), this section describes the types, location and frequency of facility maintenance activities at the BAL. Inspection and maintenance of the environmental control systems described in Section 2 is necessary to ensure the design objective and integrity of the system. This section describes the post closure inspection areas and frequency required for the inspection and maintenance activities at the BAL. **Table 4-1** shows a list of anticipated post closure inspections and areas of potential concern. The following sections provide additional details.

Table 4-1 List of Anticipated Post Closure Inspection Areas and Frequency of Inspection

Inspection item	Frequency of Inspection	Areas of Concern/Inspection	Potential Rectification Measures
Final Cover and Capping System	Quarterly and after major rainfall events (5-year storm event or greater)	Excessive erosion caused by runoff; exposure/damage of the synthetic liner; slope failures; presence of ground boring animals; presence of leachate leaking from side slopes; areas of settlement; standing ponds of water	Diversion of site runoff and/or installation of erosion control blankets to minimize erosion in problem areas; installation of additional drainage systems, if necessary; cover replacement in eroded or failed areas; repair of synthetic liner; replacement of vegetation.
Vegetative Cover	Quarterly	Dead or eroded vegetation that could lead to soil erosion; Presence of unplanned large plants or trees with deep root systems that could damage the integrity of the landfill cap	Re-vegetation in barren areas; removal of unplanned large root bearing plants; investigate causes of vegetative loss if not due to erosion.
Surface Drainage	Monthly and after major rainfall events (5-year storm event or greater)	Debris and/or sediment build-up in drains and ditches; broken or clogged drainage pipes; effectiveness of sediment control systems, connections between structures and pipes	Remove debris and/or sediment; replace sediment control devices; clean drainage pipes; replace broken pipes; repair connections.
Gas System Monitoring	In conjunction with sampling program. The gas collection system components will be inspected for damage on a monthly basis.	Excessive odors; high gas readings in monitoring probes; dead vegetation on or near the site; settlement around landfill gas wells; damage to well casings, valves, instruments, and piping.	Review environmental monitoring records; Have qualified engineer inspect the site and conduct additional field investigations if necessary to determine the potential cause of any monitoring or equipment problems.
Groundwater Monitoring	In conjunction with sampling program and quarterly inspections of the final cover.	Missing locks; Damaged well casing; inoperable sampling equipment.	Repair or replace.
Leachate Management	Monthly	Inoperable leachate pumps and oil/water separator; blockage in leachate collection pipes; damage to sump structure and flow meters.	Maintain/replace pumps, valves, and oil/water separator; snake and/or water jet drains and pipes. Repair any structural damage to sumps or flow meters.
Ancillary Systems	Monthly	Condition of access roadways; mowing; perimeter fencing; signage; litter.	Maintain as required

4.2 Final Cover and Landfill Cap

The landfill cap is one of the most critical environmental control systems in place at the BAL. To ensure the design intent and integrity of the landfill cap is sufficient, the cap shall be inspected quarterly and after all major rainfall events (5-year storm or greater). The inspections will be performed to evaluate conditions, performance and maintenance to ensure the long-term reliability of the cap components. Areas of concern and inspection include the following components, as described below:

- Grass Cover/Topsoil Layer
- Cover Soil and Cap Components
- Surface cracks
- Vector penetration
- Settlement
- Erosion
- Slope stability
- Seepage

Results shall be recorded on the Inspection Checklists included in **Appendix D**.

4.2.1 Vegetative Cover

The vegetative cover component of the landfill cap system shall be inspected quarterly (concurrent with quarterly sampling) and immediately after each major rainfall event (5 year storm or greater) to ensure that there is stable vegetative cover to protect underlying soils from erosion and to identify areas where unplanned large plants or trees with deep root systems are growing that could damage the integrity of the cap. Bare or dead areas of vegetation shall be further examined for the possibility of landfill gas migration, leachate, erosion, or burrowing animals. The apparent cause of any damage shall be recorded in the inspection report. Barren areas should be investigated to determine the cause of vegetative loss and re-vegetated with the approved seed mix in the technical specification. Any unplanned, large root bearing plants shall be removed. Sparsely vegetated areas shall be revegetated as appropriate (e.g., if sparse vegetation is noted during the winter monitoring period, revegetation shall be initiated in the spring planting season). Insect infestation shall be addressed as needed with qualified licensed exterminators. Insecticides shall not be applied until the insecticide contents have been approved by NYSDEC. General maintenance of the vegetative cover shall include:

- The visual inspection shall be performed quarterly and shall include, but not be limited to, erosion, sinkholes, bare spots, insect infestation and dead species.
- Grass cutting may be required on the landfill; the frequency will vary based on the type of vegetation. Vegetation will be maintained initially by the Remediation Contractor until the vegetation has a chance to establish itself. Thereafter, mowing will be performed based on the

requirements of the type of vegetation. Mowing may not be required in areas designated as a nature preserve.

- Regular maintenance of paved or gravel parking lots and and/or pathways, as required.

4.2.2 Cover Soil and Cap Components

In addition to the vegetative cover, the BAL will be inspected quarterly and immediately after each major rainfall event (5 year storm or greater). If damage to the geosynthetic and underlying soil component is suspected, the affected area shall be exposed to allow for inspection and assessment of damage. Based on the inspection reports, and the discretion of the NYSDEC, repairs to, or replacement of, the cover soil or cap components may be necessary. The operator shall exercise care in performing repair work to or over the geosynthetic materials installed in the cover system. Criteria for the materials and placement procedures including equipment restrictions over the geosynthetics shall be as described in the closure record drawings and specifications.

4.2.3 Surface Cracks

When surface cracks are observed, investigate cracks for depth and length. Note orientation with respect to the slope. Cracks not related to general slope movement shall be repaired by filling with like material, compacting and reseeding area in accordance with the closure specification. Cracks that are greater than about 20 feet long, 9 inches deep and 2 inches wide that are parallel to the side slope should be noted and immediately reported to the NYSDEC. The operator shall not fill cracks that are associated with general slope movement.

4.2.4 Vector Penetration

Burrowing animals such groundhogs, woodchucks and other rodents have potential to disturb or penetrate the geosynthetic materials needed to maintain the integrity of the landfill cap. If burrowing animals or burrow holes are observed during inspections, a qualified animal control specialist should be retained to capture and relocate the animals.

4.2.5 Settlement

When settlement which begins to pond water is observed, the operator shall determine the extent of the affected area and record areas of settlement on the record drawings. Depressions shall be categorized as small or large depressions and repair accordingly, as described below.

4.2.5.1 Small Depressions

In general, repair of small depressions (less than 1000 sq. ft., and capable of ponding 3 to 6 inches of water after a rainfall event) shall be as follows:

1. Clear vegetation.
2. Fill to grade with clean topsoil.
3. Compact with hand tools or a backhoe.
4. Reseed.
5. Install hay bales above the remediated area.

6. Remove hay bales after grass has grown 6 inches.

4.2.5.2 Large Depressions

In general, repair of large depressions created by settlement or general surface sloughing, (greater than 1000 sq. ft. and/or capable of ponding more than 6 inches of water), not erosion, shall be as follows:

1. Remove final cover layers with a backhoe and hand tools.
2. Stockpile layers separately.
3. Carefully cut any geocomposite drainage layer with "hook" blades so as not to damage any HDPE liner beneath.
4. Roll back geocomposite drainage layer.
5. Examine the HDPE liner. If HDPE liner is damaged, call HDPE liner contractor and proceed as follows. If HDPE liner is undamaged, proceed to Step 9.
6. Remove damaged HDPE liner and re-grade the subsoil layer beneath it to match the grades in the adjacent undamaged areas. Ensure that the prepared surface grades drain. Place and compact subsoil materials in accordance with specifications.
7. Repair HDPE liner in accordance with record drawings and specifications.
8. Roll back any geocomposite drainage layer or install new geocomposite drainage layer.
9. Tie geocomposite with cable ties spaced at 5-foot intervals. Overlay geotextiles as required in the specifications.
10. Replace excavated barrier protection soil.
11. Replace excavated topsoil and match surrounding grade.
12. Reseed.
13. Install hay bales above the remediated area when on a side slope.
14. Remove hay bales after grass has grown 6 inches.

4.2.6 Erosion

Erosion may indicate that some portion of the stormwater management system is not functioning correctly. Examples of this could be sediment impeding water flow through culverts, debris clogging water inflow through the openings of grates or trashracks, or differential settlement along drainage swales contributing to stormwater overtopping the drainage systems. When erosion is identified, investigate these or other possible causes. Areas of erosion shall be recorded on the record drawings. When erosion rills or gullies are observed that are at least 3 inches in depth and at least 20 feet in length, repair as described below.

1. Remove any accumulated soils down slope of the area.
2. Add the appropriate soil(s) to the eroded areas in the proper sequence and thickness and compact.
3. Reseed.
4. Install hay bales above the remediated area.

5. Remove hay bales after grass has grown 6 inches.

4.2.7 Slope Stability

Any observable slope movement is serious in nature. If signs of slope instability are observed, report immediately to the NYSDEC and refer to the Contingency Plan in Section 6. Slope movement may be identified by large displacements or cracks in the soil mass. Early signs of slope movement can also appear as bulging of the soil materials near the base of the potential failure.

For cracks oriented parallel to the slope with a minimum length of 20 feet, depth of 9 inches and width of 2 inches, install 1 foot long steel bars into soil on either side of cracks for future reference measurements. Check and record distance between steel bars with a tape measure initially and on a frequent basis for the next 2 weeks (i.e., twice per week or daily depending on the extent of the cracking) or as instructed by NYSDEC.

4.2.8 Seepage

When seepage is observed, notify the NYSDEC and refer to the Contingency Plan in Section 6 for repair of this condition. Hand excavate materials to the level of the geosynthetics following the seepage path and check integrity of the membrane liner at the point of seepage origin. Take care not to damage geosynthetics during uncovering operations.

4.2.9 Vandalism

Report any vandalism or illegal dumping to the local police authorities immediately. Concurrently, inform on-site security personnel of each occurrence. If vandalism is observed, the vandalized features shall be restored to as-built conditions. If illegal dumping is observed, the waste materials shall be collected and transported to an approved off-site disposal facility.

4.3 Leachate Collection System

As described in Section 2, the leachate collection system (LCS) at the BAL consists of the following:

- Leachate collection piping, sumps, and pumping systems (East and West Cells).
- Leachate pretreatment system consisting of oil/water separation.
- Eltingville Pump Station.
- Forcemain discharge to Oakwood Beach Water Pollution Control Plant
- Leachate collection trench along Richmond Creek.
- Hanging slurry barrier wall along Arthur Kill Road.

There are six (6) sumps located in the east cell and three (3) sumps in the west cell. Each sump includes two 25-gpm pumps. The collection sumps pump leachate to two 150-gpm oil/water separator units that reduce the free oil content of the collected leachate to below the required sanitary sewer discharge limits. Following oil/water separation, leachate flows by gravity to the wet well at the

Eltingville Pumping Station where it is pumped to the Oakwood Beach Water Pollution Control Plant for treatment.

The LCS shall be inspected monthly to ensure the operational integrity of the collection system. Areas of concern and inspection include:

- Inoperable leachate pumps
- Blockages in leachate collection piping
- Damage to sump structures and flow meters
- Full and/or inoperable oil/water separators

Broken pipes, inoperable pumps, valves or meters should be replaced to their original condition, as described in the closure record drawings and specifications. Blocked piping shall be snaked and cleared of all obstructions.

There are two (2) oil/water separators at the BAL. The purpose of oil/water separation unit is to reduce the free oil content of the collected leachate to below the required sanitary sewer discharge limit. Each oil/water separator is installed below grade in a cast in place concrete vault, covered with removable precast concrete panels to permit removal of the separator unit. The oil removed from the leachate flow is collected within the separator unit and will require regular evacuation by a vacuum truck. The operator shall maintain timely inspections of these vaults. It is estimated that the oil/water separators will need to be pumped out every two to four weeks using a vacuum truck. The oil/water separators include a high oil level alarm that is displayed at the landfill control panel. Level sensors are also located within the concrete vault containment area in case of spills.

4.4 Landfill Gas Collection System

The gas collection system components shall be inspected for damage on a monthly basis. The inspection shall be performed concurrently with other inspections and monitoring events. Each inspection shall include an evaluation of the landfill gas well casing, valves, instruments and piping. Areas of concern/ inspection include, but are not limited to, the presence of excessive odors; high gas readings in monitoring probes; dead vegetation on or near the site; settlement around landfill gas wells; damage to well casings, valves, instruments, and piping. The inspector shall document the condition of the landfill gas monitoring wells and other site features and any required maintenance items.

Upon the identification of deficiencies, a qualified engineer should inspect the site and conduct additional field investigations to determine the potential cause of any monitoring or equipment problems. Damaged components to the system should be replaced in kind.

4.4.1 Landfill Gas Flare & Blower Compound

The landfill gas management compound is a fenced area (i.e., concrete barriers) located north of the Eltingville Pumping Station. The enclosed flare system should be routinely inspected and maintained to ensure the system is operating properly. In general, routine inspections should include an

evaluation of the blowers and motors, mechanical systems (belts, joints and valves), safety systems (i.e., pneumatically operated butterfly valve), electrical systems, instrumentation and gas conditioning vessels. The condensate collection system shall also be evaluated during routine inspections.

Regularly scheduled maintenance and inspections shall be performed by a licensed operator. Damaged, malfunctioning or inoperable components of the system should be replaced in accordance with manufacturer specifications.

4.4.2 Landfill Odors

If unpleasant odors are observed during the landfill inspection, the inspector shall evaluate probable source of the odors. All probable sources should be documented in the field logbook. If it is determined that the source of the foul odor is one or both of the gas systems associated with the East or West Cell, the inspector shall monitor each of the passive gas wells associated with that system using portable monitoring equipment. Measurements of hydrogen sulfide and total VOCs should be measured and recorded in the field log book. Samples exhibiting the highest measurements of hydrogen sulfide and total VOCs shall be collected and submitted for analysis to a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certified laboratory for quantification and speciation. Upon receipt of the results, recommendations for appropriate mitigation measures will be prepared and submitted to the NYCDEP.

4.5 Landfill Gas Monitoring Wells

The proper condition and function of the landfill gas monitoring wells are necessary for the implementation of the landfill gas monitoring program. These wells should be inspected for vandalism of the lock or casing, damage or destruction of the wells by mowers or vehicles, surficial settling of the concrete base, deterioration or damage of the concrete base, excessive growth adjacent to the wells, fading and/or removal of the well labels. Additionally, nesting insects may also result in the clogging of landfill gas monitoring wells.

The landfill gas monitoring wells shall be inspected on a monthly basis concurrent with landfill gas monitoring. During the inspection the integrity of the well casing and concrete base will be evaluated. The wells will also be inspected to ensure each is clearly labeled and secured with a properly functioning lock. Settling, excessive vegetation and the presence of nesting insects will also be noted on the inspection forms.

If during inspection it is determined that the landfill gas monitoring wells will required repair or replacement, the inspector shall notify the NYCDEP verbally and in writing within one week. The notification shall include a recommendation for repair and/or replacement as required to restore the function of the well. The NYSDEC shall be notified of the intent to replace a well a minimum of two weeks prior to installation of the replacement well. The need for the repair/replacement shall be photo-documented and recorded on the inspection forms. If a well is damaged to the extent that it must be replaced the new well shall be identical in depth and construction and shall be placed as close to the original well location as possible. The horizontal distance from the original location is not to exceed 5-feet horizontally from the original location. Well construction details are provided in the closure record drawings.

4.6 Stormwater Management Systems

The landfill's stormwater management system is critical in preventing erosion of the landfill cap. Stormwater must be conveyed freely from the landfill vegetated cover and paved surfaces to drainage swales, detention basins and other stormwater management systems. In addition to the surface water controls, the landfill closure system consists of subsurface drainage geocomposite and lateral underdrain piping to collect precipitation that infiltrates into the protective cover. These subsurface components are an integral part of the overall stormwater management system.

The stormwater management system operates or functions on its own. Automatic or manual controls are not required for its operation since, by definition, it is a passive system. The stormwater management system components which require monitoring, inspection, and periodic maintenance include, but are not limited to, the following:

- Stormwater drainage channels;
- Outlets, culverts, rip-rap inlet and outlet protection;
- Rock Buttress area;
- Corrugated Plastic Pipe (CPP) downdrain pipes, in-line drop inlets and drop boxes pipe trenches and energy dissipation structures; and
- Geocomposite drainage flaps

These components shall be maintained free of obstructions to ensure conveyance through the stormwater system as designed. Maintenance of the stormwater management system will include the removal of accumulated sediment or obstructions within the system, as needed. The stormwater management system shall be inspected monthly during regular site visits and following major rainfall events (5-year storm or greater). Results shall be recorded on the Inspection Checklists included in **Appendix D**.

4.6.1 Soil and Erosion Control Systems

The final end-use plan provides permanent stabilization in the form of vegetation. Once the site is stable with a vegetated cover; there should be no significant erosion of the cap cover materials. However, it is possible that erosion could occur at isolated locations following storm events. Stormwater runoff from the landfill is generally directed towards road drainage channels located along the landfill toe of slope.

A perimeter road drainage system is installed around the perimeter of the East and West Cells to convey stormwater runoff from the landfill surface. The perimeter road drainage system consists of concrete and rip rap drainage ditches, drop inlet structures, and corrugated plastic pipe which will direct flow into an energy dissipation outlet armored with riprap prior to discharge to the surrounding wetlands.

The road drainage system for the West Cell valley area is different from the East and West Cell perimeter road drainage system. The West Cell valley drainage system consists of a channel lined with NYSDOT stone filling, in-line drop inlet, concrete drop inlets, and CPP. The surface and subsurface drainage pipes along the West Cell valley are connected into one CPP pipe that discharges the combined flows into an outlet pipe with a rip rap apron for energy dissipation.

Along the northern edge of the East Cell, where runoff cannot be directed to the center area or one of the two wetland planting areas, a rain gutter (a strip of pervious stone material that allows vertical infiltration of runoff into the under drain system) collects stormwater prior to reaching the northern slope. Infiltration from the rain gutter system discharges into tee connection, splitting the flow into two pipes that run under the road and discharge into rip-rap outlet protection within the perimeter ditch prior to discharging into the adjacent wetlands.

In all remaining areas, a series of cap swales have been constructed to capture general overland flow and concentrated runoff resulting from raised planting areas. The cap swales direct stormwater to the constructed wetlands areas or the perimeter road drainage systems for each cell either directly or by way of chutes.

The road drainage systems, landfill surface rain gutters, underdrain piping, downdrain pipes and aprons should be inspected and maintained to ensure function at design capacity. Ground conditions near buried stormwater piping should be inspected quarterly and after major rainfall events (5-year storm event or greater) to check for signs of pipe failure such as heavily saturated ground, settlement, or soil loss. The underdrain and outlet pipes shall be inspected for positive flow and signs thereof as well as damage and blockages and repaired in accordance with record drawings and specifications. The riprap should be inspected for undermining, erosion, physical disturbance and excessive vegetative growth.

If these structures appear disturbed or overgrown, the maintenance necessary to restore these storm water management and erosion control instruments to function adequately shall be employed.

Additional stabilization may be required in the form of turf reinforcement matting.

4.6.2 Geocomposite Drains and Stormwater Drainage Channels

A portion of the subsurface drainage within the capped landfill area flows within the geocomposite drainage net to the perimeter of the landfill where flow discharges directly into the perimeter drainage channel. The geocomposite drainage net extends to the inside edge of the channel and is covered with NYSDOT stone filling to facilitate drainage.

The perimeter of the landfill shall be inspected to determine if the geocomposite drainage flap and stone are functioning properly. Inspection of the toe of slope area shall identify any settlement/sinkholes, erosion/washouts, standing water or any other occurrence that may suggest impaired drainage function of the geocomposite drainage flap system. Repair any damage to the landfill cap system resulting from any associated maintenance activities.

The landfill stormwater system consists of a variety of channel types and linings. The drainage channels located on the landfill surface are lined with grass and rip rap. The perimeter road channel is concrete and the West Cell Valley road channel is rip rap. These channels shall be inspected for settlement, sediment accumulation, weed growth, blockages, or any other occurrence that may inhibit the efficient flow of stormwater to the drop inlets, corrugated plastic pipe (CPP) outlets, and CPP downdrains. The maintenance shall consist of, but not be limited to, the following:

- Remove excessive vegetation;
- Remove sediments, silt, and debris;
- Repair erosion rills;
- Repair depressions;
- Install erosion control matting in accordance with the manufacturer's instructions, in areas of severe erosion or where damaged; and
- Regrade the swales to compensate for any settlement/erosion.

4.6.3 Outlet and Culvert Protection and Rock Buttress Area

CPP outlets and culverts shall be inspected for damage, erosion, settlement, sediment/debris accumulation, blockages, or any other occurrence that may inhibit the efficient flow of stormwater. The maintenance shall consist of, but not be limited to, the following:

- Repair damaged structures;
- Repair any structure settlement including re-establishing the proper slope;
- Repair any erosion around structure; and
- Clear structures of standing water, debris and accumulated sediments.
- Repair any damage to the barrier wall or landfill cap system resulting from any associated maintenance activities.

In order to protect against excessive soil erosion, various types of stone protection are provided on steep slope and embankment surfaces, and the discharge side of outlet and culvert structures. These stone protection areas shall be inspected for plant growth, sediment accumulation, loss/displacement of rip-rap, settlement, or any other occurrence that may inhibit the protection of underlying soils, dissipation of flow energy, or efficient flow of stormwater runoff to the destination waterway. Additionally, the East Cell rock buttress area constructed of rip-rap and geotextile shall be inspected for material displacement, settlement/sinkholes, sediment/debris accumulation, vegetative growth, standing water, washouts and damaged or exposed geotextile or any other occurrence that may inhibit efficient slope protection and flow of stormwater. The maintenance shall consist of, but not be limited to, the following:

- Remove plant growth;
- Remove sediments and debris;

- Replace washed out/displaced soils, rip-rap, and geotextiles; and
- If there is settlement of materials, add/repair the appropriate material and grade to restore slope stability.

4.6.4 CPP Downdrains, Drop Inlets, Pipe Trenches and Energy Dissipators

The CPP downdrains, drop inlet structures and pipe trenches shall be inspected and repaired for damage, erosion, settlement, sediment/debris accumulation, standing water, blockages, damage or seepage at pipe connections or any other occurrence that may inhibit the efficient flow of stormwater. The maintenance shall consist of, but not be limited to, the following:

- Repair damaged downchutes and pipe trenches;
- Repair damaged manholes, trashracks and access ladders;
- Remove sediment, debris or other blockages from downchutes, pipe trenches and manholes removing trashracks, grating and other appurtenances as necessary;
- Regrade swales and reset downchutes, manholes and pipe trenches to compensate for any settlement, remove standing water and restore positive drainage;
- Repair erosion around downchutes, pipe trenches and manholes; and
- Repair damaged or seeping pipe connections between downchutes, pipe trenches and manholes.
- Repair any damage to the landfill cap system resulting from any associated maintenance activities.

Energy dissipation structures and rip-rap shall be inspected for damage, displacement, vegetative growth, erosion, settlement, sediment/debris accumulation, blockages, or any other occurrence that may inhibit efficient energy dissipation and flow of stormwater. The maintenance shall consist of, but not be limited to, the following:

- Replace eroded/washed out/displaced soils, stone, rip-rap, and geotextiles;
- Remove plant growth;
- Remove sediments and debris;
- If there is settlement of materials, add/repair the appropriate material and grade to remove standing water and restore the positive flow line.

4.7 Groundwater Monitoring Wells

The proper condition and function of the groundwater monitoring well is necessary for the implementation of the groundwater monitoring program. The long term monitoring wells may be subject to inadvertent or intentional damage during the post closure monitoring period. These damages may include vandalism of the lock or casing, damage or destruction of the wells by mowers

or vehicles, surficial settling of the concrete base, deterioration or damage of the concrete base, excessive growth adjacent to the wells, fading and/or removal of the well labels. Over time, the groundwater monitoring wells may also become clogged with silts and clays and may require replacement.

For the reasons above, quarterly inspection concurrent with the groundwater sampling is necessary during the post closure monitoring and maintenance period. If during inspection it is determined that the groundwater monitoring wells will required repair or replacement, the inspector shall notify the NYSDEC verbally and in writing within one week. The notification shall include a recommendation for repair and/or replacement as required to restore the function of the well. The NYSDEC shall be notified of the intent to replace a well a minimum of two weeks prior to installation of the replacement well. The need for the repair/replacement will be photo-documented and recorded on the inspection forms. If a well is damaged to the extent that it must be replaced the new well shall be identical in depth and construction and shall be placed as close to the original well location as possible. The horizontal distance from the original location is not to exceed 5-feet horizontally from the original location. Well construction details are provided in post closure record drawings.

4.8 Mechanical and Electrical Equipment

Table 4-2 provides a list of the powered equipment at the BAL site. Operation and Maintenance requirements for this equipment is included as **Appendix E** to the Manual.

Table 4-2 List of Powered Equipment

Leachate Pump Stations
22 Leachate Pumps
Leachate Pump Level Controls
Oil Water Separator
2 Oil Water Separator Level Controls
Metering Manhole
Magnetic Flow Meter
Landfill Gas Flare System
2 Gas Blowers
Flare System
Flare Louvers
Flare Purge Blower
Flare System Control Panel
Gas Detectors and Alarm System
Fire Detectors and Alarm System
SCADA
Leachate System
Oil Water Separator
Parshall Flume
Flare System
Electrical
Power Center Station and Distribution

4.9 Ancillary Systems

The Ancillary Systems consists of access roads, fences, signage, gates and locks. The operator shall visually inspect the access roads for the following:

- Overall condition of the road surface, including grading;
- Potholes or burrow holes;
- Erosion gullies;
- Loss of crushed stone cover;
- Evidence of debris and/or obstructions;
- Evidence of uneven settlement; and
- Ponding of water.

The visual inspection of roads shall be performed monthly and after 5-year storms. The operator shall routinely repair any damage to the road surface. Maintenance of the access roads shall include, but not be limited to, the following:

- Repair ruts deeper than 6 inches with like material in accordance with the technical specifications; and
- Repair shoulders, slopes and drainage areas.

The operator shall also visually inspect all fences (including the perimeter fence), signs, gates, and locks on a weekly basis for the following:

- Condition of gates and locks;
- Condition of the fence and signs for forced entry or damage; and
- Excessive vegetative growth which could damage the fence.

The operator shall view or walk all portions of the fence line. The operator shall repair damage to or replace all fences, gates, and locks with like material and remove excessive vegetative growth as directed by the NYSDEC.

Results shall be recorded on the Inspection Checklists included in **Appendix D**.

Section 5
Resource Requirements

In accordance with 6NYCRR 360-2.15 (k)(7)(iv), this section describes the resource requirements for Post Closure Monitoring at the BAL.

5.1 Responsibilities

The organizations involved with the implementation of this Post Closure Maintenance and Monitoring Manual and a general description of their associated responsibilities is provided below:

NYSDEC - The NYSDEC will be the principal regulatory agency reviewing and approving compliance activities. All communications to NYSDEC will be from the NYCDEP or designated representative of the NYCDEP authorized to communicate with NYSDEC directly regarding implementation of this Manual.

NYCDEP – The NYCDEP will oversee the maintenance and management of the fully remediated site and will have the responsibility for initiating activities and approving expenditures associated with the implementation of this Manual. The NYCDEP will be responsible for keeping records of all environmental monitoring events, site inspections, and all operational and maintenance activities performed during the post-closure monitoring period. The NYCDEP is also responsible for reporting results of the environmental monitoring events, site inspections, and all other relevant site information to the NYSDEC.

The NYCDEP will utilize Contractor(s) for regular operations, monitoring, and maintenance as required for the implementation of this Manual. The Contractor(s) will be responsible for contracting laboratories to perform sampling and analysis. The Contractor(s) will also be responsible for submitting reports regarding the monitoring activities. The NYCDEP will utilize a qualified Consultant(s) (preferably a civil or geotechnical engineer, technician or geologist) to review Contractors work and reports written by the OM&M Contractor, and provide comments on the reports prior to the submittal to NYCDEP. The Consultant is also responsible for preparing the five year reports required under 6NYCRR Part 360.

5.2 Responsible Personnel

The NYCDEP will be responsible for all matters pertaining to the landfill and the implementation of this Manual. The Site Manager may authorize appropriate individuals/organizations to act on behalf of the NYCDEP regarding matters associated with the execution of the activities outlined in this Manual.

Various aspects of this Manual may be performed by a procured general contractor. The selected contractor should be, at a minimum, experienced in performing similar work (scope and magnitude). The person assigned to perform sampling shall be a geologist, hydrogeologist, civil engineering technician or scientist with at least two years of college training and a minimum of two years relevant field sampling experience. The qualified professional identified to perform the environmental monitoring, conduct the landfill inspections and prepare the associated documents shall at a minimum have a two-year Associate degree in civil/environmental engineering, geotechnical

engineering, geology, or other relative science. Furthermore, the qualified environmental professional shall have at least four years' experience in landfill inspection, civil engineering, earthwork, erosion control and/or landscaping.

All documentation shall be reviewed for completeness and accuracy prior to being submitted to the NYSDEC for record. The reviewing engineer shall have at least four years of professional experience in landfill engineering and shall, at a minimum, have a bachelor degree in civil, geotechnical, or environmental engineering and hold a Professional Engineering license in the State of New York. The reviewing engineer shall also be capable of providing the needed certifications required by City and State regulations.

Technicians must have a New York City Fire Department (FDNY) Certificate of Fitness for the Recovery of Methane Gas from Landfill (G19) and a minimum of three (3) years of proven experience on landfill sites maintaining capping and drainage systems, environmental sampling, landfill gas collection and flare systems, and leachate collection and treatment systems.

All laborers, workers and mechanics at the work site must be certified as having completed a 10-hour OSHA course in construction safety and health. Site technicians and all workers (other than visitors) are required to have (1) the 40 Hour OSHA Hazwoper training and the annual 8 hour Refresher training; and (2) current Permit Required Confined Space Entry training (OSHA 29 CFR 19410.146).

Every person who visits the site in the performance of these responsibilities shall adhere to the Health & Safety plan referenced in this document and developed by the Contractor.

5.3 Equipment Requirements

The equipment required to perform scheduled maintenance or repairs to environmental control systems will vary by system and the repair or maintenance activity. Each activity should be assessed on a case by case basis, and the tools and equipment most suitable for the task at hand should be used to complete the work safely and efficiently.

Table 5-1 presents the minimum equipment needs anticipated to complete the various post-closure monitoring and inspection activities over the 30 year monitoring period. Specifications for the materials identified below and methods for installation are provided in the Technical Specifications used for the Landfill closure construction. The equipment and materials identified below and any other specialty equipment required will be provided by the NYCDEP or procured general contractor as necessary. The field log book, inspection forms, permanent marker or pen, and a field camera should be onsite during all post-closure activities for documentation purposes.

Table 5-1 Equipment for Various Post-Closure Monitoring and Inspection Activities

Activity	Equipment
Landfill (Cap) Inspection/Repair /Maintenance	Earthwork/landscaping equipment (i.e., mower, bobcat, backhoe, dump truck), fusion welder, extrusion welder.
Groundwater Monitoring Well Sampling and Inspection	PID, pump, water level meter/interface probe, flow through meter, water quality meters, decontamination equipment, hand tools, drums, generator
Landfill Gas Monitoring and Well Inspection	OVA or FID, CGI
Leachate Collection System Cleaning	High pressure pumps, generator, water tanks
Stormwater Control and Soil and Erosion Control Systems Management	Bobcat, water tanks, hay bales, silt fence, hand tools

Section 6
Emergencies and Contingency Plan

6.1 Emergencies

In accordance with the requirements of OSHA Regulations including 29 CFR 1910.120 (Hazardous Waste Operations and Emergency Response) and local regulations, based on an evaluation by the Operator of the nature of the project, the work activities to be performed, and the hazards at the Site, a site-specific Health and Safety Plan (HASP) shall be prepared. All HASPs necessary for work activities at the site shall be provided to the NYSDEC and its authorized representative for review a minimum of four weeks prior to the start of these work activities. Any comments provided will be addressed prior to start of work activities.

The operator shall prepare an Emergency Response Plan (ERP) as part of the HASP that addresses emergency situations. It is the responsibility of the operator to familiarize their employees, subcontractors and all other personnel involved in the on-site inspections, monitoring, and maintenance and repair with the ERP. Incidents and emergencies that are to be addressed by the ERP shall include but are not limited to:

- Toxic Substance Exposure
- Fire/ Explosion
- Hazardous material spills
- Personnel Injury

In the event that a life threatening emergency does occur, the operator is responsible for ensuring all personnel follow the ERP.

6.2 Contingencies

A contingency plan discusses the technically and financially feasible course of action to be taken in responding to emergencies or other special conditions. In accordance with 360.2.15(k)(7)(v), the contingency plan shall address the following:

1. Responses to problems that have a reasonable likelihood of occurrence including, but not limited to, major erosion problems, leaks and/or spills, significant differential settlement, and fire;
2. Action levels above which identified environmental monitoring, environmental control, or maintenance problems require prompt action by the owner and notification to the NYSDEC; and
3. A summary of any corrective measures that must be done to be in accordance with Section 360-2.20 of this subpart.

In accordance with 6NYCRR 360-2.20, the requirement to complete a corrective measures report and implement a corrective measures program when parameters listed in the expanded parameters list outlined under 360-2.11 are detected at levels exceeding the groundwater protection standards specified under Section 360-2.11(c)(5)(iii)(f) do not apply to landfills that stopped receiving waste prior to October 9, 1993, or are subject to Part 375 Environmental Remediation Programs under Title 6 of the Environmental Conservation Law. The BAL meets both conditions. Therefore, the NYCDEP will not be required to comply with the requirements of 360-2.20. This does not however exempt the NYCDEP from source control or other measures that may be necessary to eliminate, minimize or investigate situations—for example, leaks or spills--where the potential for increased impacts onsite or offsite exist or occur.

6.3 Contingency Procedures for Environmental Monitoring

The post-closure environmental monitoring program for the landfill includes on-going groundwater and landfill gas monitoring. The following subsections discuss the action levels and associated regulatory requirements for these programs.

6.3.1 Groundwater Monitoring Program

Existing data from previous shallow groundwater monitoring indicate contaminant levels that exceed NYSDEC standards, criteria, or guidance (SCG) levels. Contaminants detected in the upper glacial aquifer and leachate mound at levels that exceed SCG levels include 13 VOCs, 17 SVOCs, 8 pesticides, 2 PCBs and 13 metals. The most frequently detected contaminants in the shallow groundwater include: benzene, chlorobenzene, toluene, xylene, dichlorobenzene, naphthalene, 4,4-DDE, barium, copper, iron, lead, manganese, sodium, zinc, ammonia, bromide, chloride, and sulfate. No VOC, SVOC or pesticide contamination was detected offsite in the Upper Glacial aquifer.

The BAL is characterized by a mounded municipal/industrial fill layer up to 45 feet thick that overlies areas previously containing both low and high salt marshes. Approximately 5 million cubic yards of waste are present. Some of these materials are most probably in contact with groundwater and are contributing to the elevated parameters detected. The barrier wall, landfill cap and leachate collection system are designed to control the generation and migration of leachate from the landfill. Specifically, the barrier wall is designed to minimize the potential for leachate migration, and the landfill cap is designed to minimize rainfall infiltration and future leachate migration into groundwater, and the leachate collection system is designed to control leachate via passive collection within the landfill cells and on-site treatment before discharging the leachate to the sanitary sewer system. As a result of these control systems groundwater quality with respect to the landfill should improve over time.

To ensure the above environmental controls are performing adequately, groundwater quality results shall be evaluated following each sampling event to identify increasing and decreasing trends in parameter concentrations. Special attention will be required where parameter concentrations dramatically or gradually increase over time as this may indicate a failed control.

As stated earlier, the BAL is not subject to the corrective measure reporting requirements described under Subpart 360-2.20, however the NYCDEP is required to implement a corrective measures program consistent Subpart 360-2.20.

The corrective measure selected must:

- Protect public health, safety, environment, and natural resources;
- Attain groundwater protection standards,
- Control the sources of releases to the maximum extent practical so as to reduce or eliminate further releases of contaminants in the environment;
- Comply with other applicable State and Federal requirements, and
- Consider the long and short term effectiveness, protectiveness, probability of success, risk reduction, long-term management, reliability, timing, construction issues, economic resources, and other factors.

The NYSDEC may determine that the proposed corrective measure for contaminant parameters is not necessary if the NYCDEP can demonstrate to the satisfaction of the NYSDEC:

- That groundwater is additionally contaminated by substances that have originated from a source other than the landfill and that those substances are present in concentrations such that cleanup of the landfill would provide no significant reduction in risk to public health, or safety, or the environment or natural resources; or
- The groundwater is not currently or reasonable expected to be a source of drinking water and is not within the critical stratigraphic section or hydraulically connected with waters to which the contaminates are migrating or are likely to migrate in a concentration that would exceed the groundwater protection standards; the remediation of the release is technically impractical; or the remediation results in unacceptable cross-media impacts.

Such determination does not however affect the authority of the NYSDEC to require the NYCDEP to undertake source control measures or other measures that may be necessary to eliminate or minimize further contamination of groundwater or to mitigate the groundwater to concentrations that are technically practical.

6.3.2 Landfill Gas Monitoring Program

As discussed previously, the landfill gas control system is required to control landfill gas so that the concentration of combustible gases generated by the landfill does not exceed the LEL at or beyond the property boundary, and 25 percent of the LEL in any structure on or off the site. If these conditions are encountered during a sampling event, in accordance with 6NYCRR 360-2.17, actions shall be taken to ensure the safety and protection of human health and NYSDEC shall be notified.

Upon detection of explosive gases at or above specified action limits, the City's representative shall verify the measurement by checking the CGI calibration, function and reading. If verified, the City's representative shall evaluate the area in the immediate vicinity of where the detection was recorded to verify that no other sources of vapors or gases are contributing to the elevated reading. If a source other than the landfill is identified, such as an open or spilled gas or solvent containers, details about the contributing source shall be documented in the field log book and the City shall be notified to ensure the situation be addressed appropriately.

If explosive gases are detected above the specified action limits and the readings have been verified and are attributed to landfill gas, then actions to secure the area and ensure the safety and protection of human health shall be taken. Appropriate actions include:

1. The immediate vicinity of the elevated reading shall be evacuated and marked with warning/caution tape.
2. If elevated readings are reported inside and enclosed structure (i.e., within a building or catch basin) the contained area shall be ventilated by opening windows and/or doors to dilute the gas concentrations.
3. All sources of ignition within the enclosed structure shall be seized or removed until the source of the detection had been adequately addressed. This may include shutting off electric and gas utilities as well as limiting vehicular access in certain areas.

Once appropriate actions have been taken, the City shall notify the NYSDEC by certified letter within seven days of the detection. Notification shall include the methane gas levels detected and a description of the actions employed. Following notification, within 45 days of the detection, the City will provide the NYSDEC a remediation plan to address the explosive gas release. The plan will describe the nature and extent of the problem, proposed remedy and schedule for the implementation of the plan within 60 days beyond the date of detection.

6.4 Contingency Plan for Environmental Control Systems

As discussed in Section 2, the environmental control systems include a barrier wall, landfill cap, stormwater management system, leachate collection and treatment system, groundwater monitoring system, surface water monitoring system, and a landfill gas management system. Situations that require corrective actions to be implemented in an expedited manner (contingencies) may occur at the site. Although all potential situations of this nature can be foreseen, some of these situations include, but are not limited to, the following:

- Leachate Spills;
- High Leachate Levels in Pump Station Wells;
- Broken Force Main;
- Fire;
- Power failure for an extended period of time;
- Landfill Gas Flare & Blower Compound Shutdown;
- Significant Differential Settlement;
- Significant Erosion;
- Extensive Loss of Vegetation;
- Cap damage due to burrowing animals
- Blocked Gas Vents or Monitoring Wells;

- Blocked Leachate Collection Systems;
- Breach of Security; and
- Natural Disasters.

In general, the operator shall follow the corrective action process outlined below to resolve contingency problems:

1. Identify/verify the problems and its cause. Where possible, the operator shall make a preliminary assessment of the severity of the problem.
2. Notify the proper authorities (i.e., NYSDEC, New York City Parks and Recreation) of the problem and its severity within 24 hours. The operator shall initiate a decision making process for a course of action. Appropriate local/state/federal agencies shall also be contacted, as necessary. An emergency contact list is included in **Table 6-1** below.
3. Make recommendation to the NYSDEC or its authorized representative, as appropriate, for corrective actions and a schedule of implementation. The implementation schedule shall be consistent with the applicable regulations. If necessary perform investigations and more detailed assessments of the problem and evaluation of alternatives prior to initiating a corrective action following NYCDEP approval.
4. Obtain authorization from the NYSDEC for the operator to implement any corrective actions.
5. Implement the corrective action at the direction and approval of the NYCDEP and/or its authorized representative.

Table 6-1 Emergency Contacts and Telephone Numbers

Emergency Contact	Telephone Number
Ambulance	911
Fire Department	911
Police Department	911
Medical Center	(718)356-8910
Poison Control Center	(800) 962-1253
USEPA National Response Center	(800) 424-8802
Security Guard Trailer	
NYS Spill Hotline	(718) 482-4900
Poisoning (New York)	(212) 764-7667
Office of Environmental Planning and Assessment	(718) 595-4426
NYCDEP Landfill Remediation	(718) 595-3635
NYCDEP Div. of Hazmat Management	(718) 595-3767
HazMat Emergency Response	(718) 595-4650
NYCDEP Communications Center	(718) 595-6700

The following sections describe the initial steps that shall be taken in response to the contingency situations described above.

6.4.1 Leachate Spill

The following initial steps shall be taken in response to a leachate spill:

- Cease operation of all pumps.
- Assess the extent of the leachate spill and contamination of the spill area.
- Identify possible cause(s) of spill, such as which pump(s) contributed to the spill and corrective actions that may be necessary.
- Restart leachate pumps and force mains not contributing to or affected by the spill.
- Assess the need to set up emergency hauling in coordination with the NYSDEC.
- Set up emergency hauling of any contaminated materials, if so directed by the NYSDEC.
- Implement emergency remediation procedures if so directed by the NYSDEC.
- Implement procedures to correct the cause of the spill.

6.4.2 High Leachate Levels in Pump Station Wells

A high level of leachate in pump station wells may indicate that the downgradient groundwater level from the landfill is greater than the system design. The high level of leachate could cause leachate to migrate laterally around the barrier wall, and flow towards Richmond Creek. The following initial steps shall be taken in response to high leachate levels along the interceptor trench.

- Notify NYSDEC and its authorized representative.
- Check that pump station pumps are operational.
- Check that leachate is flowing through the force main.
- If leachate is not flowing to the Eltingville Pump Station, the pipe may be clogged and shall be cleaned using high-pressure pipe cleaning equipment.
- Follow the general corrective action process above.

6.4.3 Broken Force Main

A broken force main carrying leachate can create a potential environmental release. A broken force main may be identified by loss of pressure in force main pumps or by evidence of settlement or erosion on the surface above the force main. Immediately notify NYSDEC and its authorized representative of any force main break and shut down pumps to the force main. Locate and repair the break with like materials and test piping in accordance with the record drawings and specifications, as appropriate. Remove all contaminated materials and dispose of off-site at a disposal facility approved by the NYSDEC.

6.4.4 Fire

The possibility of a fire beneath the geomembrane is highly unlikely due to the anaerobic nature of this zone. Although unlikely, a more probable cause of fire at the landfill would result from a lightning strike or combustible material dumped on or adjacent to the landfill, which may become ignited. A fire, if

one should occur at the landfill, could result in the damage of one or more of the landfill environmental control systems and destroy the vegetative cover.

To reduce fire danger, dead grass and weeds shall be cleared from the site in the spring and summer months. If smoke or fire is detected within or adjacent to the landfill the local Fire Department shall be notified immediately (Richmond Engine Co. (718) 351-0252 or 911). Upon notification, either the local fire department or NYCDEP personnel will use soil or water to smother the fire. In the event of subterranean smoldering, as evidenced by smoke rising from the gas vents, the NYCDEP and Fire Department will need to prepare an action plan for NYSDEC approval. Measurements of the gas from the gas vents should be taken immediately. Elevated levels of carbon monoxide (generated by the fire) should be reported to NYSDEC. A potential remedy may include injecting water into the landfill through the gas vents. This option must however take into consideration the presence of the geomembrane liner and other control systems and the possibility of leachate breakouts.

6.4.5 Power Failure for an Extended Period of Time

If a power failure is expected for an extended period of time, the operator shall contact the NYSDEC and its authorized representative for approval to mobilize portable generating units as a source of temporary power. Hook-up to the portable unit shall be provided by a qualified electrician. The portable generating unit and all operating systems should then be inspected on a daily basis while the main power supply is out of service. Generators should be inspected daily or periodically throughout the day (depending on the size of the unit) to ensure it is adequately fueled and lubricated to provide uninterrupted operation until permanent power can be restored.

6.4.6 Landfill Gas Flare and Blower Compound Shutdown

A potentially hazardous situation can exist if the landfill gas flare and blower compound experiences an unplanned shut down or is malfunctioning. The hazard is created when the active gas system ceases to draw gas to the flare, creating a buildup of gas beneath the geomembrane liner. After time, the pressure may become so significant that portion of the liner may become raised, which can lead to slope instability, ruptured liner or other serious conditions. Common causes of a shutdown or malfunction include; blowers are turned off, the flare extinguishes, or the gas header system is turned off.

In the event that the system does shutdown and gas is not being drawn to the flare an attempt to restart the system should first be made. If the blowers and flare do not restart, the following actions should be taken;

- Notify NYCDEP of the situation
- Remove vent caps from the gas extraction wells (after a period of 7 days)
- Contact the system manufacturer
- Repair blowers as necessary
- Repair the flare as necessary
- Repair the flare control system as necessary
- Place system back online as soon as possible

- Reseal extraction wells

When blowers and flare systems are brought on-line, any gas extraction wells that were opened must be resealed to avoid pulling oxygen into the system. Immediately after the flare system is running, check all gas extraction wells for vacuum pressure readings. If vacuum is not recorded at each well head, check that all valves are properly set. The piping system shall also be checked for blockages or condensate filling the lines. This shall be done by identifying the potential gas lines that could be plugged (based on the problematic well heads). Field check the gas header pipe alignment for settlement or indications of low spots that could be trapping condensate.

If low spots are identified, excavate to the gas collection piping, regrade area and reset gas collection piping to drain. Close valves to the lines being repaired and observe proper Health and Safety guidelines when performing work on any gas lines to avoid flammable or explosive conditions.

6.4.7 Significant Differential Settlement

Significant differential settlement of the landfill cap can be caused by factors such as: biodegradation of wastes, consolidation of wastes under the weight of waste material and the cap, and compaction of waste during cap construction. Excessive settlement may result in the instability of waste or soil cover, which can damage the cap. Differential settlement occurs when one area of waste settles more readily than another because of moisture content, waste compaction or waste composition. Settlement, especially differential settlement, may result in changes in topography which can cause ponding or create breaches in the cap resulting in rainwater infiltration.

Areas of settlement should be investigated immediately upon discovery. All maintenance activities including mowing, fertilizer application, and monitoring should be postponed until the cause of settlement is identified and repaired. For significant differential settlement it will be necessary to excavate the soil overlying the geomembrane liner within the settled area and then cut and remove the geomembrane and geosynthetic filter. The subgrade shall be compacted using a vibratory roller or other means to minimize or prevent future settling in this area. The area shall then be backfilled with a suitable material to achieve the original geomembrane subgrade elevations. New cap materials shall then be installed in accordance with technical specifications. All geosynthetic materials shall be seamed and repaired by qualified, certified technicians.

6.4.8 Significant Erosion

Once the site becomes stabilized with a vegetative cover, the potential for significant erosion should be minimal. However, it is possible that the site may experience significant erosion following severe weather events. In the event that this occurs, it is critical that the cap/cover be repaired and protected to prevent future erosion problems.

The most common type of significant erosion is in the form of rills, or gullies and washouts. Washouts are most common after heavy downpours of rain or other steam flooding and if unaddressed may turn into a sinkhole. Erosion rills and gullies typically develop on steeper slopes and run parallel to the direction of the slope. Rills are narrow and shallow incision into topsoil layers resulting from erosion and surface runoff. Rills are typically the first sign of major soil erosion and if left uncorrected often results into gullies. If not corrected promptly, rills and gullies have potential to erode through the landfill cover soils exposing the geomembrane liner.

If significant erosion is observed in the form of rills and/or washouts, the disturbed components of the cap shall be restored to original conditions. The materials and installation procedures to complete the

repairs shall be in accordance with Technical Specifications. In order to prevent future erosion in restored areas, consideration will be given to installing temporary soil erosion and sediment control structures such as hay bales and silt fences as well as erosion control fabrics, if needed. If utilized, these temporary erosion control structures shall be inspected and maintained regularly until the area becomes stabilized with vegetative cover.

6.4.9 Stormwater System Failure

Stormwater system failures may be caused by many factors. For example, stormwater connection piping or inlet/outlet structures could be clogged, a precipitation event exceeding the design capacity could have occurred, frozen water may have blocked part of the conveyance systems during snow melt, etc. Inspect and repair any blockages or failed stormwater piping and repair.

6.4.10 Seepage from Sideslopes

Any water seeping from the sideslopes is a serious condition. The saturated conditions and erosion from seeps can eventually lead to progressive slope failure. Seepage from side slopes may indicate an accumulation of leachate beneath the cover and a failure in the geomembrane liner. Or the seepage may be a buildup of groundwater above the membrane liner. Seeps from under the liner represent an escape of contamination from the landfill containment as well as a breach of the liner and are of environmental concern. More likely, a seep may be caused by infiltration surface water building up over the geomembrane and saturating the sideslope. Inspect the area for the source of the seepage and carefully hand excavate to the geocomposite surface. Check the water quality of the samples of the seepage by performing an analysis similar to that for groundwater samples. If the seepage is not leachate, there may be a blockage of the drainage trench, 6" diameter HDPE corrugated slotted piping, or geocomposite. Excavate and remove the geocomposite along the slope in the saturated area down to and including the infiltration drainage trench at the base of the slope. Check and repair or replace the 60 mil HDPE geomembrane if damaged. Use like materials and replace all geocomposites and cover soils in accordance with the requirements of the record drawings and specifications. If the seepage is leachate, contact the NYSDEC and follow the general corrective action process above.

6.4.11 Extensive Loss of Vegetation

The landfill cap is the most important environmental control system in place at the landfill. The purpose of the vegetative cover component of the cap at the landfill is to protect the underlying aggregate components of the cap from erosion and to create and aesthetically pleasing appearance. If extensive vegetative loss is observed during the growing season, the affected area shall be reseeded in accordance with Technical Specifications. Temporary erosion control measures including hay mulch or an erosion fabric shall be laid over reseeded areas to protect the previously disturbed area until the vegetation becomes established. If vegetation does not become established within one growing season, an investigation of the disturbed area shall be initiated. The investigation may include, but is not limited to, an examination of the top soils to determine if it is nutrient deficient. Combustible gas readings shall also be collected at and around the disturbed area. If levels are elevated, the NYSDEC should consider installing a gas vent.

6.4.12 Blocked Gas Vents or Monitoring Wells

Blocked extraction and monitoring wells shall be repaired as soon as the problem is identified. Sudden decreases in gas production in an extraction well and refusal at shallow depths in monitoring wells may be indicators that the well has become obstructed.

If blockage is suspected at a gas well, ports can be installed to determine if the blockage is above ground or below ground. If above ground, the obstruction or section of the pipe shall be removed and replaced. If the obstruction is below ground surface, and records show that the well historically produced gas, consideration shall be given to replacing the gas well. NYSDEC shall be notified with a plan and permission requested to replace a LFG well a minimum of two weeks prior to the well replacement.

If gas and/or groundwater monitoring wells are observed to be blocked during routine sampling events, the sampler shall attempt to locate the blockage and shall, if prepared, attempt to remove the obstruction.

6.4.13 Blocked Leachate Collection Systems

The ongoing functionality of the leachate collection system will be evaluated during routine landfill inspections. In addition to inspections, the leachate collection system should be flushed once annually. Blockage in the system will be most easily identified during flushing or through the interior inspection of connecting manholes, where the discharge pipe can be observed. If the pipe is not flowing, then the pipes are either blocked or the groundwater table is at or below the perforations.

6.4.14 Breach of Security

The perimeter fence surrounding the site shall be inspected and maintained throughout the post-closure period to control site access and ensure site security. If any damage to the perimeter fence is observed, which allows animal or human access, those portions of fencing shall be replaced or repaired. If minor damage such as tunneling or vandalism is observed then corrective actions should be employed. The placement and compaction of soil or crushed stone at the disturbed location should deter further tunneling. Vandalized areas should be inspected for evidence of illegal actions such as illegal waste disposal and a report to local authorities should be made to initiate an investigation to identify guilty persons. If vandalism is reoccurring at one or more locations around the landfill perimeter, the NYCDEP may choose to investigate further or employ additional security measures.

6.4.15 Natural Disasters

Natural disasters may occur in the form of hurricanes, tornadoes, floods, droughts, blizzards, earthquakes and other severe weather events such as intense rain events. If the site encounters a natural disaster, the site will be inspected as soon as conditions allow following the event (preferably within 48 hours).

A report of any damage shall be submitted to NYSDEC within 24 hours. Damage to the environmental control systems shall be repaired as necessary and as expeditiously as possible.

Section 7
Contact Information

The NYCDEP will oversee the maintenance and management of the fully remediated site and will serve as the primary contact regarding questions pertaining to this Manual and post-closure monitoring, maintenance and inspections during the post-closure period. In accordance with 6NYCRR 360-2.15 (k)(7)(vi), this section provides the address and telephone number of the office to contact on post-closure monitoring and maintenance, and corrective measure concerns during the post-closure period.

New York City Department of Environmental Protection
96-05 Horace Harding Expressway
Corona, NY 11368
Telephone: (718) 595-6210

Section 8
Financial Assurance

6NYCRR 360-2.15 (k)(7)(vii) states that this manual shall provide a summary of the financial assurance criteria concerns that must be addressed to remain in compliance with the provisions of Section 360-2.19. However, as discussed in 6NYCRR 360-2.19(a), the applicability of financial assurance does not apply to owners and operators of landfills who are State or Federal government entities whose debts and liabilities are the debts and liabilities of a State or the United States.

An Operation, Monitoring, and Maintenance service contract will be publically bid in 3-year increments, much the same as the other long-term maintenance contracts for the Freshkills, Pennsylvania Avenue, Fountain Avenue, and Pelham Bay Landfills. Utilizing the public bidding process, the NYCDEP will secure the appropriate funding through the NYCDEP annual budget, the City of New York's annual budget, or through the municipal bonding capacity of the City of New York. The NYCDEP is a department of the City of New York and its funding stems from the City of New York and the tax payers of the State and City of New York.

Section 9
End Use Plans

9.1 Introduction

In accordance with 6NYCRR 360-2.15 (k)(7)(vii), this section provides a description of the planned uses of the property during the post-closure period. From a land reuse planning perspective, the BAL is seen as a linear 272-acre site with 132 acres of landfill and 140 acres of buffer area consisting of wetlands, woodlands, tidal marsh, stream corridors and ponds. The site, bordered by Arthur Kill Road on the south and Richmond Creek to the north has three primary physiographic areas: the central area, the East Cell, and the West Cell, as described below:

- The Central area of the site is relatively level and consists of ponds, wetlands and the Eltingville pump station. A number of storm and sanitary sewers run through this area. The existing pond area acts as a drainage basin for a large portion of the landfill.
- The western area (West Cell) of the site consists of two landfill mounds totaling approximately 33 acres. An interceptor sewer line runs east to west separating the mounds. The area is bordered by wetlands and tidal marsh.
- The eastern area (East Cell) of the site consists of a single, 90-acre landfill mound surrounded by wetlands, ponds, woodlands and tidal marsh. A linear valley consisting of two ponds and wetlands extends deep into the mound from the west. The east cell is bordered on the far eastern side by Colonial Square.

9.2 End Use Concept

The End Use Concept for the BAL provides a unique opportunity to establish native plant communities, and to provide both active and passive recreational uses following site capping and closure. It provides opportunities for community education, protection and replication of natural resource areas that will be a community asset. An illustration of the End Use Plan is provided in **Figure 9** of Appendix A.

9.2.1 Central Area

The End Use Plan for the BAL provides for a formal park entrance in the central area of the site at the intersection of Arthur Kill Road and Brookfield Avenue. Paved parking for 28 vehicles will be located off the main entrance road south of the Eltingville Pump Station. This will serve visitors utilizing the extensive pedestrian trail system on both the East and West cells. The parking area will lead to accessible pathways providing access to the active recreation area of the west cell. There is additional space available for future parking areas to accommodate up to an additional 162 vehicles. Several wetland areas/stormwater detention basins and wet meadow interpretive areas could offer public educational opportunities. The main entrance road will also provide access to the Eltingville Pump

Station and the landfill gas flare compound and leachate treatment facilities. Further north of the maintenance compound will be a wetlands area and detention basin that will emulate the existing wetlands. Stormwater from other areas of the site will be directed to the wetlands/detention basins. Ultimately, stormwater will flow from the detention basins/wetlands toward Richmond Creek. Waste in the central area will be capped in place. Clean fill will be placed to define the new wetland/detention basins and establish new wetlands.

9.2.2 West Cell

The two distinct mounds of the West Cell provide a unique opportunity to separate active and passive recreation areas while providing common parking and access to both. Under this plan, the active recreation areas will be focused on the north mound of the West Cell. This area provides the fewest potential conflicts with environmental problems identified in the remedial investigation report and also offer no significant problems in site development. The existing topography also offers the best location for development of future athletic fields, which require large areas with minimum change in elevation. The active recreation area will accommodate up to three full size soccer fields.

The public access road will terminate just beyond the parking areas with vehicle control gates to prevent public access beyond that point. The road will continue beyond the parking area for maintenance and access to the flare compound. An ADA accessible pathway will lead from the parking area to the active recreation area on the north mound. Maintenance and pedestrian pathways and trails will also provide access to all areas of the west cell. The turf areas will be planted with low maintenance grasses capable of withstanding low impact recreation activity. If constructed in the future, the multi-purpose field areas would require additional loam and grasses, capable of withstanding active recreation activities. An automatic irrigation system would also be required for future athletic fields.

The passive open area will be focused on the south mound of the west cell. This area would not require a future automatic irrigation system. Turf areas will be planted with low maintenance grasses capable of withstanding low impact recreation activity. Trails will provide access to the passive areas but will not be paved. Surface materials will be chosen to provide an accessible route to meet requirements outlined in the Americans with Disabilities Act. Although more formal planting may be provided around the parking area, the primary goal of landscaping on the west cell will also be establishment of native plant communities outlined previously in this section. A paved service road will provide vehicular maintenance access around the perimeter of the west cell.

9.2.3 East Cell

The primary goal of reuse on the east cell will be to reclaim the vegetative character of the site that will be removed during the capping phase of the project. Extensive research has been conducted to develop plant communities that will survive the conditions found on this site. There are currently three ponds on the East Cell. The end use plan will retain these ponds as wetland/detention areas, providing a separate pond liner system while allowing the landfill drainage layer to pass beneath the wetland areas. The two ponds located on the perimeter of the east cell will be retained in the same

location and at roughly the same elevation. Due to minimum capping requirements the pond located on the interior of the east cell will be raised to a slightly higher elevation to accommodate the landfill capping system. A surface swale designed with a natural appearance will direct stormwater from the interior wetland to the lower wetland on the west perimeter. Drainage will then pass beneath the perimeter service road into the stormwater detention basin/wetland in the Central area.

Consistent with the End Use Plan, the wetland and woodland buffer area between Arthur Kill Road and the landfill will be upgraded by means of selective removal of exotic plant materials and replanting to enhance the indigenous plant communities.

Following construction of the cap, the eastern landfill mound will be revegetated with plant materials consisting of native plant communities. Large open areas of warm season grasses and shrubland will be planted to contrast and complement the areas that are reforested. As with the construction of the cap in the western area of the site, a significant focus of the plan will be the minimization of encroachment into wetland and tidal marsh areas. Along the northern side of this area, planting on the cap will attempt to match and expand the existing woodland area. The higher elevations and long views and vistas on the eastern mound will be enhanced to provide observation points linked by over 4.5 miles of hiking/interpretive trails and unpaved service roads, leading across the site and back to the central part of the site.

9.2.4 Perimeter Areas

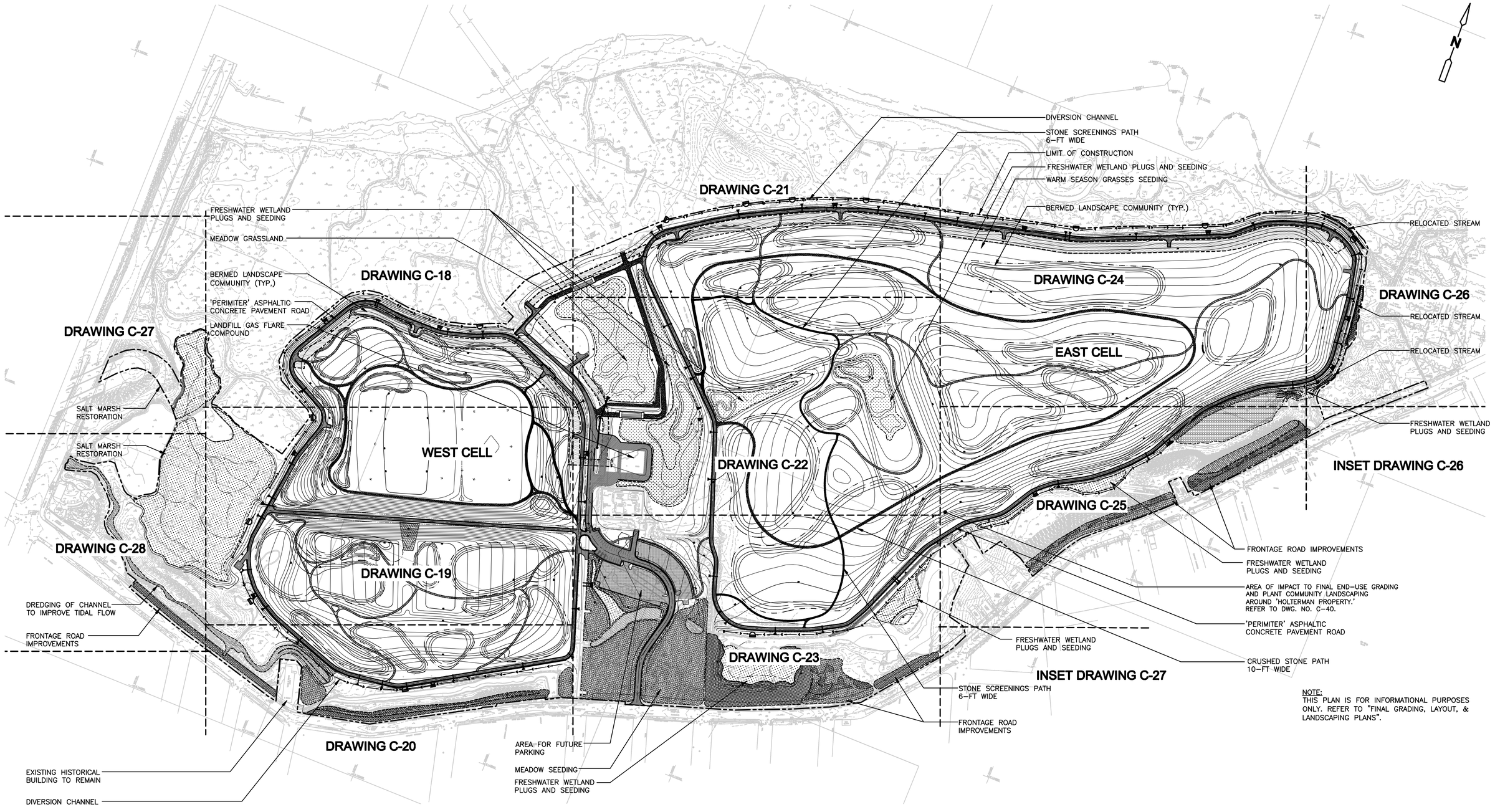
Reclamation of the perimeter areas are a priority. Wetlands, woodlands, tidal marsh areas, and stream banks disturbed during capping operations or waste relocation will be restored or reclaimed as outlined in previous parts of this section.

APPENDIX A

Brookfield Avenue Landfill Remediation Drawings

FIGURE 1

Overall Final Site Plan
(Sheet C-17 of Brookfield Avenue Landfill Remediation OU1,
Capital Project EP-8, 2007)



NOTE:
THIS PLAN IS FOR INFORMATIONAL PURPOSES ONLY. REFER TO "FINAL GRADING, LAYOUT, & LANDSCAPING PLANS".

PLAN
1"=200'
100 0 200

WARNING
IT IS A VIOLATION OF SECTION 7209, SUB–DIVISION 2 OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR TO ALTER IN ANY WAY PLANS, SPECIFICATIONS, PLATES OR REPORTS TO WHICH THE SEAL OF A PROFESSIONAL ENGINEER OR LAND SURVEYOR HAS BEEN ATTACHED.

NO.	DATE	DESCRIPTION	APPR'D
		REVISIONS	

DESIGNED BY: G.HOWARD
DRAWN BY: J.LOSCHMANN
SHEET CHK'D BY: G.HOWARD
CROSS CHK'D BY: H.BOUCHER
APPROVED BY:

CDM Camp Dresser & McKee
consulting engineering construction operations

APPROVED FOR THE CITY OF NEW YORK
P.E. PROJECT MANAGER
P.E. ACTING CHIEF, WASTEWATER AND WATER INFRASTRUCTURE AND SUPPORT

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION DEP

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
BROOKFIELD AVENUE LANDFILL REMEDIATION
OPERABLE UNIT 1
CAPITAL PROJECT EP-8

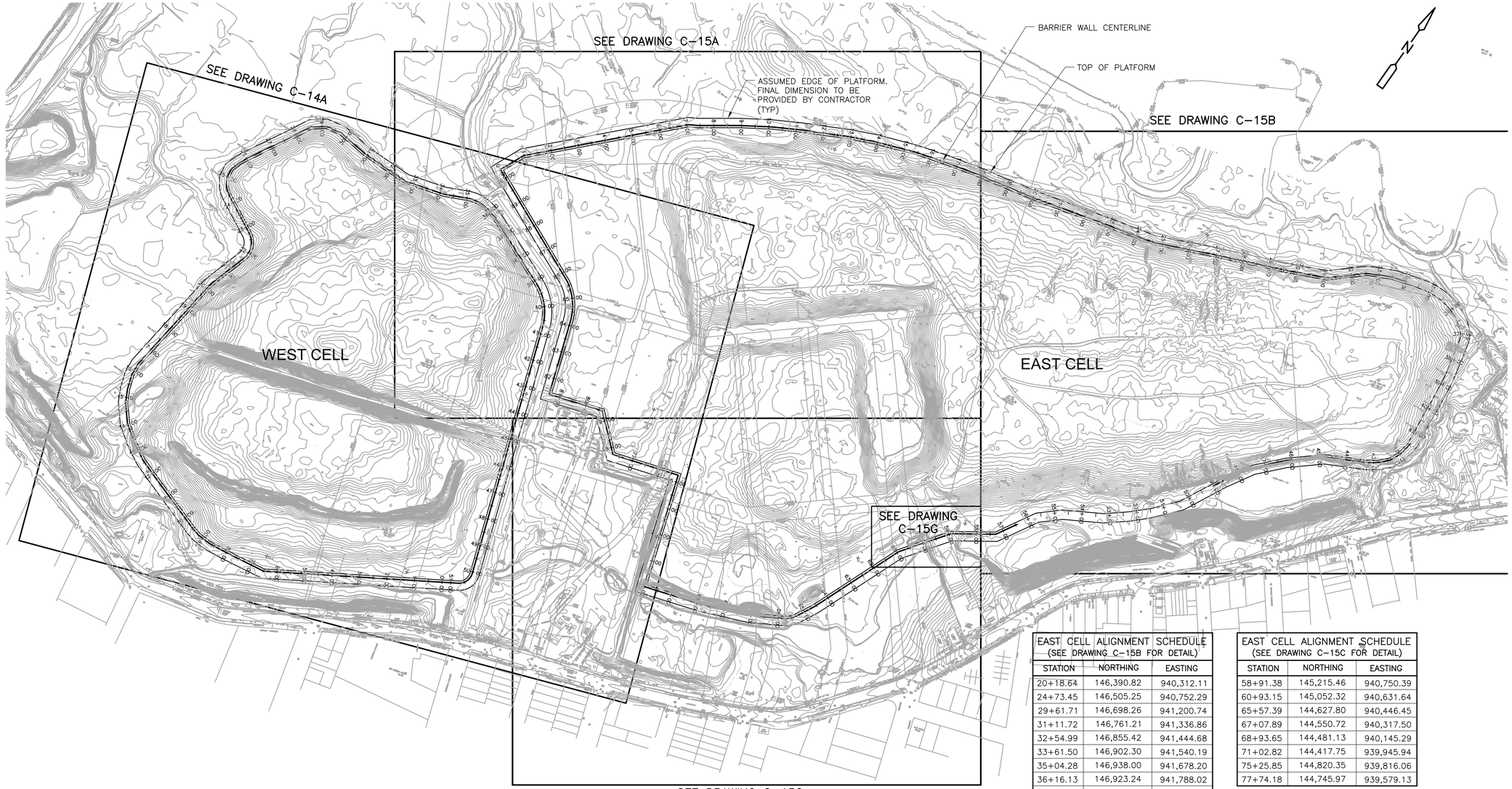
CONTRACT NO. LF-BAL-1C

OVERALL FINAL SITE PLAN

DATE: APRIL 2007
FILENAME: COVPL001
DWG. NO: C-17
SHEET NO: OF OF

FIGURE 2

Barrier Wall Plan East and West Cell Key Map
(Sheet C-14 of Brookfield Avenue Landfill Remediation OU1,
Capital Project EP-8, 2007)



WEST CELL ALIGNMENT SCHEDULE (SEE DRAWING C-14A FOR DETAIL)		
STATION	NORTHING	EASTING
0+00	144,009.95	939,336.04
3+00	143,853.33	939,080.15
6+49	143,671.10	938,782.43
8+70.42	143,640.42	938,563.16
9+20.45	143,642.67	938,513.13
12+58.30	143,749.57	938,192.82
14+05.28	143,827.68	938,068.55
14+79.76	143,884.85	938,020.51
15+84.78	143,981.37	937,980.69
16+31	144,027.44	937,976.88
20+20.60	144,413.78	938,026.90
21+72.09	144,558.72	938,070.94
22+24.50	144,610.00	938,068.37
22+76.90	144,647.61	938,033.41
24+42.66	144,724.50	937,886.65
24+95.58	144,764.84	937,853.28
25+32.33	144,801.14	937,847.55
25+72.90	144,839.76	937,859.97
28+60.63	145,092.35	937,997.71
29+15.88	145,125.79	938,041.69
29+77.20	145,137.26	938,101.92
30+90.69	145,124.84	938,214.73
32+66.74	145,126.93	938,390.77
34+13.28	145,168.00	938,531.43
35+00	145,204.50	938,609.49
35+56.79	145,217.87	938,664.72
36+35.45	145,202.27	938,741.31
39+08.27	145,096.65	938,992.85
39+92.34	145,048.99	939,061.36
40+76.42	144,977.52	939,061.36
45+00	144,577.16	939,242.77
50+04.95	144,099.93	939,407.78
50+38.83	144,066.70	939,407.60
50+72.70	144,040.92	939,386.64

EAST CELL ALIGNMENT SCHEDULE (SEE DRAWING C-15A FOR DETAIL)		
STATION	NORTHING	EASTING
0+00	145,359.46	938,650.52
0+97.38	145,448.66	938,689.74
4+50	145,700.79	938,936.16
7+07.43	145,884.95	939,116.14
11+20.16	146,105.22	939,464.64
12+91.08	146,182.78	939,616.95
15+46.42	146,277.84	939,853.79
17+79.45	146,339.38	940,078.52
79+37.76	144,853.66	939,456.00
81+39.70	144,792.52	939,263.53
84+12.53	145,050.78	939,175.60
84+88.46	145,117.11	939,139.52
85+64.39	145,166.07	939,082.05

EAST CELL ALIGNMENT SCHEDULE (SEE DRAWING C-15B FOR DETAIL)		
STATION	NORTHING	EASTING
20+18.64	146,390.82	940,312.11
24+73.45	146,505.25	940,752.29
29+61.71	146,698.26	941,200.74
31+11.72	146,761.21	941,336.86
32+54.99	146,855.42	941,444.68
33+61.50	146,902.30	941,540.19
35+04.28	146,938.00	941,678.20
36+16.13	146,923.24	941,788.02
37+06.19	146,870.56	941,859.66
38+67.59	146,714.44	941,899.44
40+21.14	146,561.77	941,915.51
41+48.74	146,434.94	941,929.31
42+38+78	146,349.28	941,904.03
43+25.47	146,292.87	941,838.76
44+80.52	146,221.81	941,700.95
46+20.64	146,131.02	941,594.22
47+46.04	146,039.34	941,508.66
50+34.35	145,786.02	941,371.35
52+29.82	145,643.65	941,237.76
53+21.59	145,585.81	941,166.51
54+70.50	145,511.66	941,037.37
55+66.12	145,447.89	940,966.13
57+29.69	145,306.37	940,884.09

EAST CELL ALIGNMENT SCHEDULE (SEE DRAWING C-15C FOR DETAIL)		
STATION	NORTHING	EASTING
58+91.38	145,215.46	940,750.39
60+93.15	145,052.32	940,631.64
65+57.39	144,627.80	940,446.45
67+07.89	144,550.72	940,317.50
68+93.65	144,481.13	940,145.29
71+02.82	144,417.75	939,945.94
75+25.85	144,820.35	939,816.06
77+74.18	144,745.97	939,579.13

SCALE IN FEET
100 0 200

WARNING
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NO.	DATE	DESCRIPTION	APPR'D
		REVISIONS	

DESIGNED BY: B. SOLTAU/KS
DRAWN BY: T. MORGAN/SS
SHEET CHK'D BY: M. SANFORD
CROSS CHK'D BY: L. GOLDFARB
APPROVED BY:

CDM Camp Dresser & McKee
consulting engineering construction operations

APPROVED FOR THE CITY OF NEW YORK
P.E. PROJECT MANAGER
P.E. ACTING CHIEF, WASTEWATER AND WATER INFRASTRUCTURE AND SUPPORT

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
BROOKFIELD AVENUE LANDFILL REMEDIATION OPERABLE UNIT 1
CAPITAL PROJECT EP-8

CONTRACT NO. LF-BAL-1G

BARRIER WALL PLAN EAST AND WEST CELL KEY MAP

DATE: APRIL 2007
FILENAME: CBWPL014
DWG. NO: C-14
SHEET NO: OF OF

C:\Projects\5215\12929\CIVL\ CBWPL014 04/10/07 10:14 morgantm XREFS: C22X34H

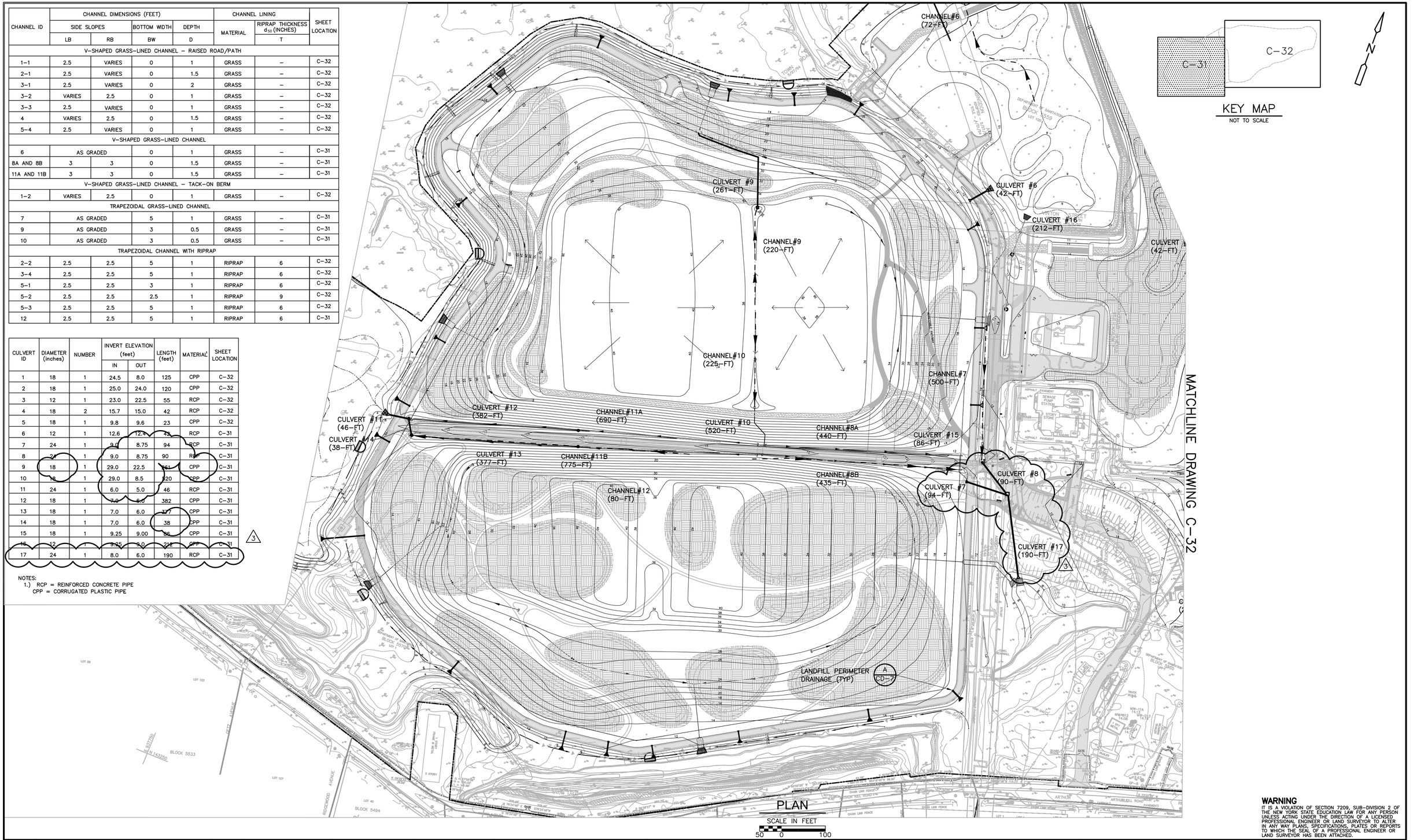
FIGURE 3

Stormwater Drainage Plan I
(Sheet C-31 of Brookfield Avenue Landfill Remediation OU1,
Capital Project EP-8, 2007)

CHANNEL ID	CHANNEL DIMENSIONS (FEET)				CHANNEL LINING		SHEET LOCATION
	SIDE SLOPES		BOTTOM WIDTH	DEPTH	MATERIAL	RIPRAP THICKNESS d_{50} (INCHES)	
	LB	RB	BW	D		T	
V-SHAPED GRASS-LINED CHANNEL - RAISED ROAD/PATH							
1-1	2.5	VARIES	0	1	GRASS	-	C-32
2-1	2.5	VARIES	0	1.5	GRASS	-	C-32
3-1	2.5	VARIES	0	2	GRASS	-	C-32
3-2	VARIES	2.5	0	1	GRASS	-	C-32
3-3	2.5	VARIES	0	1	GRASS	-	C-32
4	VARIES	2.5	0	1.5	GRASS	-	C-32
5-4	2.5	VARIES	0	1	GRASS	-	C-32
V-SHAPED GRASS-LINED CHANNEL							
6	AS GRADED		0	1	GRASS	-	C-31
8A AND 8B	3	3	0	1.5	GRASS	-	C-31
11A AND 11B	3	3	0	1.5	GRASS	-	C-31
V-SHAPED GRASS-LINED CHANNEL - TACK-ON BERM							
1-2	VARIES	2.5	0	1	GRASS	-	C-32
TRAPEZOIDAL GRASS-LINED CHANNEL							
7	AS GRADED		5	1	GRASS	-	C-31
9	AS GRADED		3	0.5	GRASS	-	C-31
10	AS GRADED		3	0.5	GRASS	-	C-31
TRAPEZOIDAL CHANNEL WITH RIPRAP							
2-2	2.5	2.5	5	1	RIPRAP	6	C-32
3-4	2.5	2.5	5	1	RIPRAP	6	C-32
5-1	2.5	2.5	3	1	RIPRAP	6	C-32
5-2	2.5	2.5	2.5	1	RIPRAP	9	C-32
5-3	2.5	2.5	5	1	RIPRAP	6	C-32
12	2.5	2.5	5	1	RIPRAP	6	C-31

CULVERT ID	DIAMETER (inches)	NUMBER	INVERT ELEVATION (feet)		LENGTH (feet)	MATERIAL[1]	SHEET LOCATION
			IN	OUT			
1	18	1	24.5	8.0	125	CPP	C-32
2	18	1	25.0	24.0	120	CPP	C-32
3	12	1	23.0	22.5	55	RCP	C-32
4	18	2	15.7	15.0	42	RCP	C-32
5	18	1	9.8	9.6	23	CPP	C-32
6	12	1	12.6	12.4	42	RCP	C-31
7	24	1	9.0	8.75	94	RCP	C-31
8	24	1	9.0	8.75	90	RCP	C-31
9	18	1	29.0	22.5	261	CPP	C-31
10	18	1	29.0	8.5	220	CPP	C-31
11	24	1	6.0	5.0	46	RCP	C-31
12	18	1	7.0	6.0	382	CPP	C-31
13	18	1	7.0	6.0	377	CPP	C-31
14	18	1	7.0	6.0	38	CPP	C-31
15	18	1	9.25	9.00	86	CPP	C-31
16	12	1	9.25	9.0	212	CPP	C-31
17	24	1	8.0	6.0	190	RCP	C-31

NOTES:
1.) RCP = REINFORCED CONCRETE PIPE
CPP = CORRUGATED PLASTIC PIPE



WARNING
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NO.	DATE	DESCRIPTION	APPR'D
3	11/14/11	REFLECT CHANGES PER RFI 117	
2	11/17/10	GRADING/PIPING CHANGES PER RFI 43	
	7/09	CONFORMED DRAWINGS	
1	7/07	CHANGES MADE PER ADDENDUM NO. 2	

REVISIONS

DESIGNED BY: M.BRINCHEK
DRAWN BY: J. LOSCHMANN
SHEET CHK'D BY: M. BRINCHEK
CROSS CHK'D BY: M. SANFORD
APPROVED BY:
DATE:

CDM Camp Dresser & McKee
consulting engineering construction operations

APPROVED FOR THE CITY OF NEW YORK
P.E.
PROJECT MANAGER
P.E.
ACTING CHIEF, WASTEWATER AND WATER INFRASTUCTURE AND SUPPORT

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION DEP

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
BROOKFIELD AVENUE LANDFILL REMEDIATION OPERABLE UNIT 1
CAPITAL PROJECT EP-8

CONTRACT NO. LF-BAL-1G

STORMWATER
DRAINAGE PLAN I

DATE: APRIL 2007
FILENAME: CSTRM001
DWG. NO: C-31 OF
SHEET NO: OF

FIGURE 4

Stormwater Drainage Plan II
(Sheet C-32 of Brookfield Avenue Landfill Remediation OU1,
Capital Project EP-8, 2007)



CULVERT ID	DIAMETER (inches)	NUMBER	INVERT ELEVATION (feet) IN	INVERT ELEVATION (feet) OUT	LENGTH (feet)	MATERIAL[1]	SHEET LOCATION
1	18	1	24.5	8.0	125	CPP	C-32
2	18	1	25.0	24.0	120	CPP	C-32
3	12	1	23.0	22.5	55	RCP	C-32
4	18	2	15.7	15.0	42	RCP	C-32
5	18	1	9.8	9.6	23	CPP	C-32
6	12	1	12.6	12.4	43	RCP	C-31
7	24	1	9.0	8.75	94	RCP	C-31
8	24	1	9.0	8.75	90	RCP	C-31
9	18	1	29.0	22.5	351	CPP	C-31
10	18	1	29.0	8.5	320	CPP	C-31
11	24	1	6.0	5.0	46	RCP	C-31
12	18	1	7.0	6.0	382	CPP	C-31
13	18	1	7.0	6.0	327	CPP	C-31
14	18	1	7.0	6.0	38	CPP	C-31
15	18	1	9.25	9.00	86	CPP	C-31
16	12	1	9.25	9.0	222	CPP	C-31
17	24	1	8.0	6.0	190	RCP	C-31

NOTES:
1.) RCP = REINFORCED CONCRETE PIPE
CPP = CORRUGATED PLASTIC PIPE

CHANNEL ID	CHANNEL DIMENSIONS (FEET) SIDE SLOPES LB	SIDE SLOPES RB	BOTTOM WIDTH BW	DEPTH D	CHANNEL LINING MATERIAL	RIPRAP THICKNESS d_{50} (INCHES) T	SHEET LOCATION
V-SHAPED GRASS-LINED CHANNEL - RAISED ROAD/PATH							
1-1	2.5	VARIES	0	1	GRASS	-	C-32
2-1	2.5	VARIES	0	1.5	GRASS	-	C-32
3-1	2.5	VARIES	0	2	GRASS	-	C-32
3-2	VARIES	2.5	0	1	GRASS	-	C-32
3-3	2.5	VARIES	0	1	GRASS	-	C-32
4	VARIES	2.5	0	1.5	GRASS	-	C-32
5-4	2.5	VARIES	0	1	GRASS	-	C-32
V-SHAPED GRASS-LINED CHANNEL							
6	AS GRADED		0	1	GRASS	-	C-31
8A AND 8B	3	3	0	1.5	GRASS	-	C-31
11A AND 11B	3	3	0	1.5	GRASS	-	C-31
V-SHAPED GRASS-LINED CHANNEL - TACK-ON BERM							
1-2	VARIES	2.5	0	1	GRASS	-	C-32
TRAPEZOIDAL GRASS-LINED CHANNEL							
7	AS GRADED		5	1	GRASS	-	C-31
9	AS GRADED		3	0.5	GRASS	-	C-31
10	AS GRADED		3	0.5	GRASS	-	C-31
TRAPEZOIDAL CHANNEL WITH RIPRAP							
2-2	2.5	2.5	5	1	RIPRAP	6	C-32
3-4	2.5	2.5	5	1	RIPRAP	6	C-32
5-1	2.5	2.5	3	1	RIPRAP	6	C-32
5-2	2.5	2.5	2.5	1	RIPRAP	9	C-32
5-3	2.5	2.5	5	1	RIPRAP	6	C-32
12	2.5	2.5	5	1	RIPRAP	6	C-31

KEY MAP
NOT TO SCALE

WARNING
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NO.	DATE	DESCRIPTION	APPR'D
3	11/14/11	REFLECT CHANGES PER RFI 117	
2	11/17/10	TABLE CHANGES PER RFI 43	
	7/09	CONFORMED DRAWINGS	
1	7/07	CHANGES MADE PER ADDENDUM NO. 2	

REVISIONS

DESIGNED BY: M. BRINCHEK
DRAWN BY: J. LOSCHMAN
SHEET CHK'D BY: M. BRINCHEK
CROSS CHK'D BY: M. SANFORD
APPROVED BY:
DATE:

CDM Camp Dresser & McKee
consulting engineering construction operations

APPROVED FOR THE CITY OF NEW YORK
P.E.
PROJECT MANAGER
P.E.
ACTING CHIEF, WASTEWATER AND WATER INFRASTUCTURE AND SUPPORT

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION DEP

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
BROOKFIELD AVENUE LANDFILL REMEDIATION
OPERABLE UNIT 1
CAPITAL PROJECT EP-8

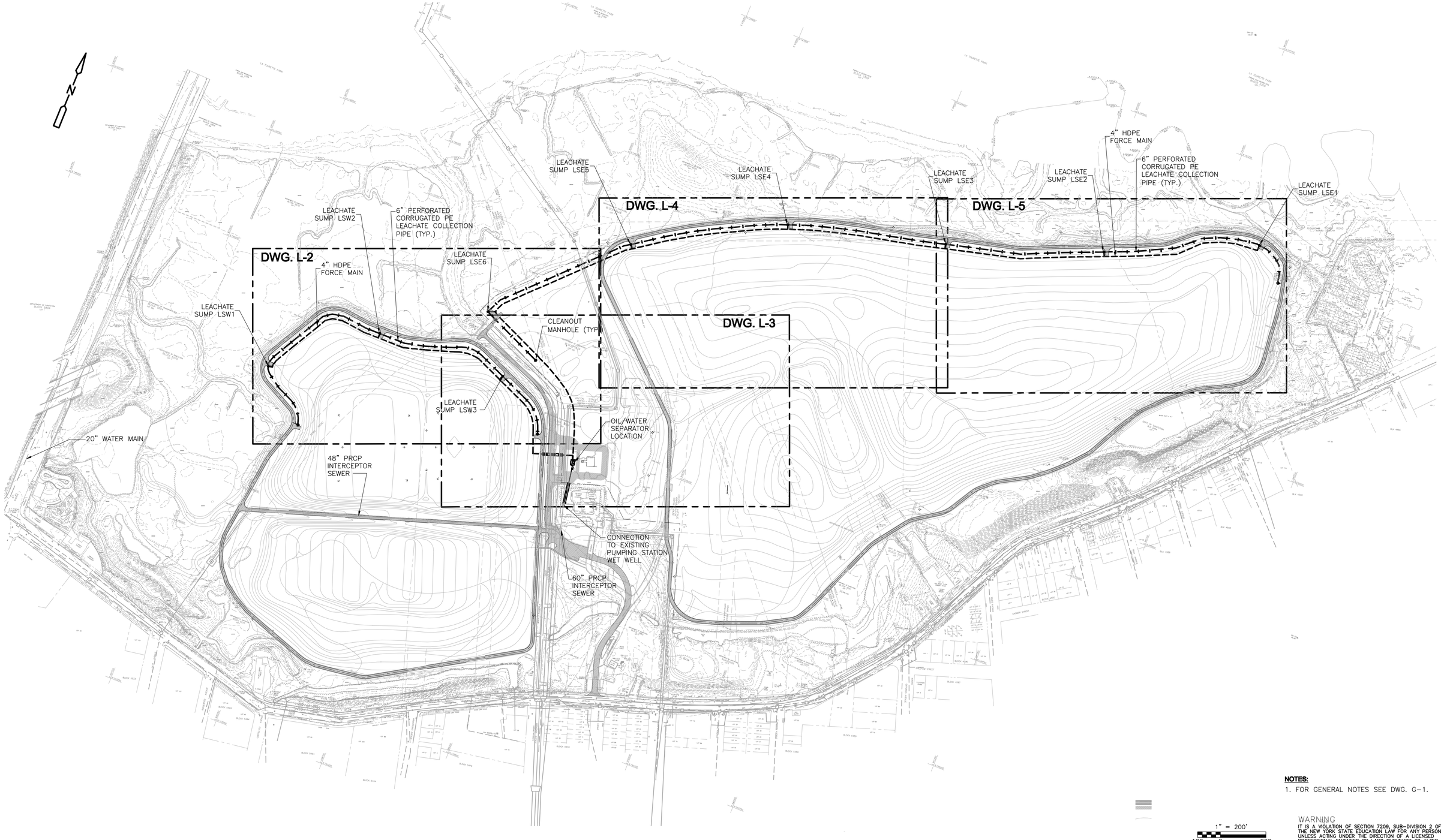
CONTRACT NO. LF-BAL-1G

STORMWATER
DRAINAGE PLAN II

DATE: APRIL 2007
FILENAME: CSTRM002
DWG. NO: C-32
SHEET NO:
OF
OF

FIGURE 5

Leachate Collection Overall Plan
(Sheet L-1 of Brookfield Avenue Landfill Remediation OU1,
Capital Project EP-8, 2007)



NOTES:

1. FOR GENERAL NOTES SEE DWG. G-1.

1" = 200'

100 0 200

WARNING

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NO.	DATE	DESCRIPTION	APPR'D
		REVISIONS	

DESIGNED BY: P. GRIFFIN
DRAWN BY: B. KNITTLE
SHEET CHK'D BY: J. GAVIN
CROSS CHK'D BY: T. CHEATHAM
APPROVED BY: J. GAVIN
DATE:

CDM Camp Dresser & McKee
consulting engineering construction operations

SAVIN ENGINEERS, P.C.
3 CAMPUS DRIVE
PLEASANTVILLE, NY 10570

APPROVED FOR THE CITY OF NEW YORK

PROJECT MANAGER P.E.

ACTING CHIEF, WASTEWATER AND WATER INFRASTRUCTURE AND SUPPORT P.E.

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION — DEP

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENGINEERING DESIGN AND CONSTRUCTION
BROOKFIELD AVENUE LANDFILL REMEDIATION
OPERABLE UNIT 1
CAPITAL PROJECT EP-8

CONTRACT NO. LF-BAL-1G

LEACHATE COLLECTION OVERALL PLAN

DATE: APRIL 2007
FILENAME: L-1
DWG. NO: L-1
SHEET NO:
OF
OF

FIGURE 6

Long-Term Groundwater Monitoring Plan Monitoring Well Locations
(Sheet G-8 of Brookfield Avenue Landfill Remediation OU1,
Capital Project EP-8, 2007)



WELLS INCLUDED IN THE LONG-TERM GROUNDWATER MONITORING NETWORK FOR THE BROOKFIELD AVENUE LANDFILL

WELL ID	EASTNG (ft)	NORTHING (ft)	TOS (ft)	BOS (ft)	EXISTING WELL ID
** LTMW-1	938730	145232	-17	-22	* GW-10M
LTMW-2	938326	145156	-12	-22	
LTMW-3	937927	145044	-17	-22	
LTMW-4	937955	144643	-32	-42	
LTMW-5a	937961	144235	-20	-25	
LTMW-5b	937951	144225	-38	-43	
LTMW-6	938032	143808	-20	-25	
LTMW-7	938517	143603	-15	-20	
LTMW-8	939025	143786	-20	-30	
LTMW-9	940157	144451	-30	-40	
LTMW-10	940627	144958	-25	-30	
LTMW-11	941427	145831	-25	-30	
LTMW-12	941927	146666	-25	-30	
LTMW-13	941604	146942	-20	-30	
LTMW-14	941164	146706	-25	-30	
LTMW-15	940788	146551	-20	-25	
LTMW-16	940226	146407	-22	-27	
LTMW-17	939848	146309	-18	-23	
** LTMW-18ug	939451	146135	-22.5	-27.5	* GW-13D
** LTMW-18c	939466	146165	-113	-118	* GW-13CS
LTMW-19	939077	145889	-10	-15	
LTMW-20	938747	145536	-15	-25	
LTMW-21	938056	143791	-81	-86	
LTMW-22	940101	144427	-100	-105	
** LTMW-23	941717	145869	-107	-112	* SAC-24B

* SHALL BE REDEVELOPED USING STANDARD PRACTICES AND METHODS TO ENSURE PROPER COMMUNICATION WITH THE ACQUIFER.

** SHALL BE REDEVELOPED USING STANDARD PRACTICES AND METHODS TO ENSURE PROPER COMMUNICATION WITH THE AQUIFER. IN ADDITION, THE OUTER PROTECTIVE CASING SHALL BE REPLACED WITH NEW CASING AS PER MONITORING WELL SPECIFICATIONS.

NOTES:
1. LTMW = LONG-TERM MONITORING WELL.
2. COORDINATES ARE IN NAD 83, US STATE PLANE, NEW YORK ISLAND.
3. TOS = TOP OF SCREEN; BOS = BOTTOM OF SCREEN; DATUM = MEAN SEA LEVEL.
4. THE HORIZONTAL SPACING OF THESE WELLS SHALL NOT EXCEED 500 FEET AND THE WELLS SHALL NOT BE FURTHER THEN 50 FEET FROM THE BARRIER WALL.

WARNING
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NO.	DATE	DESCRIPTION	APPR'D
1	6/27/12	REVISED LONG TERM MONITORING WELL LOCATIONS	

REVISIONS

DESIGNED BY: G.HOWARD, J.LOSCHMANN
DRAWN BY: N. SWAIN, T. MORGAN
SHEET CHK'D BY: G.HOWARD
CROSS CHK'D BY: H.BOUCHER
APPROVED BY:
DATE:

CDM Smith
Camp Dresser & McKee
60 Crossways Park Drive West, Suite 340
Woodbury, NY 11797
Tel: (516) 496-8400

APPROVED FOR THE CITY OF NEW YORK
P.E.
PROJECT MANAGER
P.E.
ACTING CHIEF, WASTEWATER AND WATER INFRASTUCTURE AND SUPPORT

NYC Environmental Protection

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
BROOKFIELD AVENUE LANDFILL REMEDIATION
OPERABLE UNIT 1
CAPITAL PROJECT EP-8

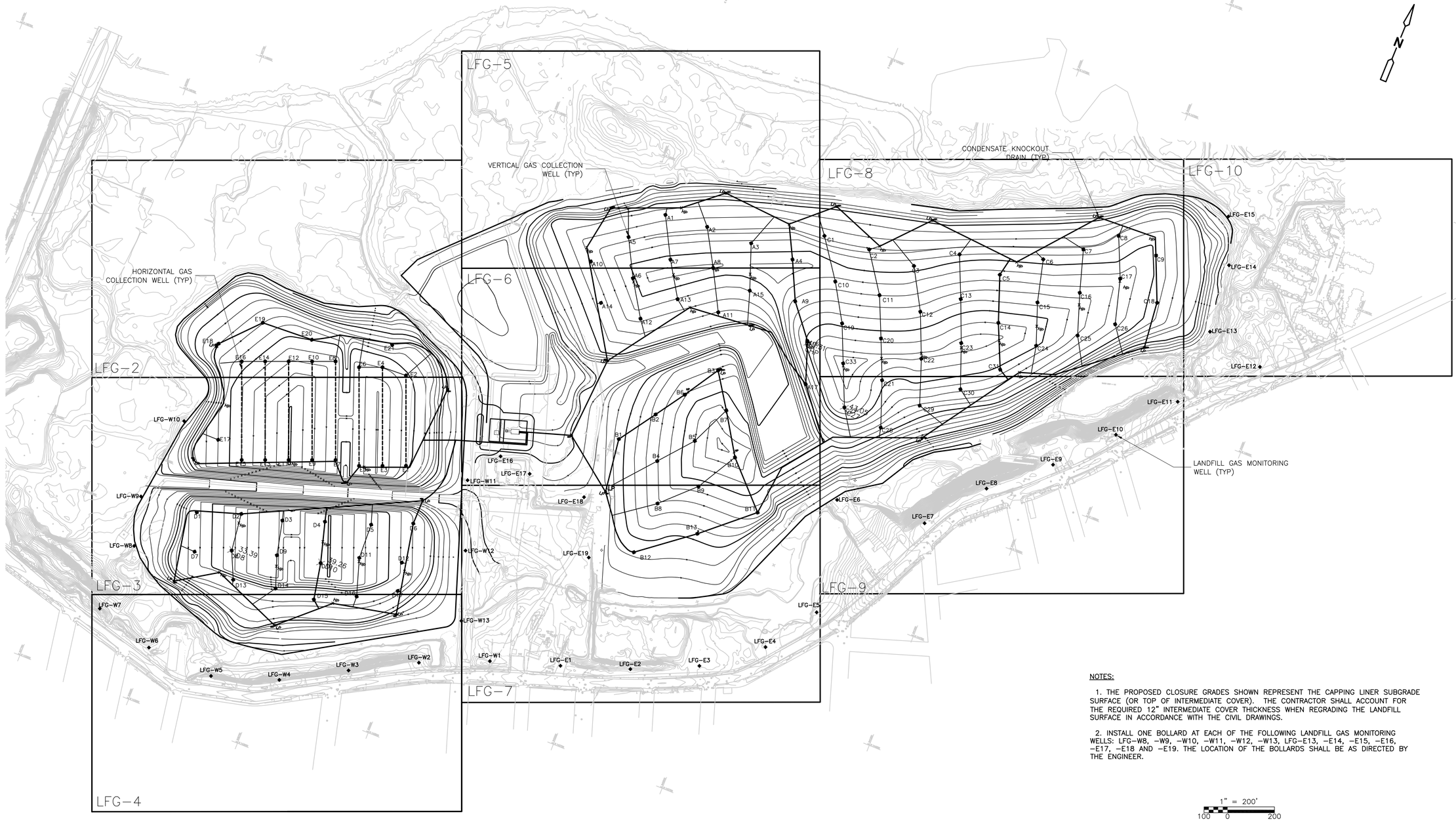
CONTRACT NO. LF-BAL-1G

LONG-TERM GROUNDWATER MONITORING PLAN
MONITORING WELL LOCATIONS

DATE: APRIL 2007
FILENAME: GSTPMW08
DWG. NO: G-8
SHEET NO:
OF
OF

FIGURE 7

Landfill Gas Collection Key Plan
(Sheet LFG-1 of Brookfield Avenue Landfill Remediation OU1,
Capital Project EP-8, 2007)



NOTES:

1. THE PROPOSED CLOSURE GRADES SHOWN REPRESENT THE CAPPING LINER SUBGRADE SURFACE (OR TOP OF INTERMEDIATE COVER). THE CONTRACTOR SHALL ACCOUNT FOR THE REQUIRED 12" INTERMEDIATE COVER THICKNESS WHEN REGRADING THE LANDFILL SURFACE IN ACCORDANCE WITH THE CIVIL DRAWINGS.

2. INSTALL ONE BOLLARD AT EACH OF THE FOLLOWING LANDFILL GAS MONITORING WELLS: LFG-W8, -W9, -W10, -W11, -W12, -W13, LFG-E13, -E14, -E15, -E16, -E17, -E18 AND -E19. THE LOCATION OF THE BOLLARDS SHALL BE AS DIRECTED BY THE ENGINEER.

1" = 200'
100 0 200

NO.	DATE	DESCRIPTION	APPR'D
2	5/19/10	CHANGE ORDER 3 REVISIONS	
1	7/2009	CONFORMED DRAWINGS	

REVISIONS

DESIGNED BY: T. SCHAFFER
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: J. RICCIO
CROSS CHK'D BY: C. KOEHLER
APPROVED BY:
DATE: APRIL 2007

CDM Camp Dresser & McKee
consulting engineering construction operations

APPROVED FOR THE CITY OF NEW YORK
PROJECT MANAGER P.E.
ACTING CHIEF, WASTEWATER AND WATER INFRASTRUCTURE AND SUPPORT P.E.

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION DEP

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENGINEERING DESIGN AND CONSTRUCTION
BROOKFIELD AVENUE LANDFILL REMEDIATION
OPERABLE UNIT 1
CAPITAL PROJECT EP-8

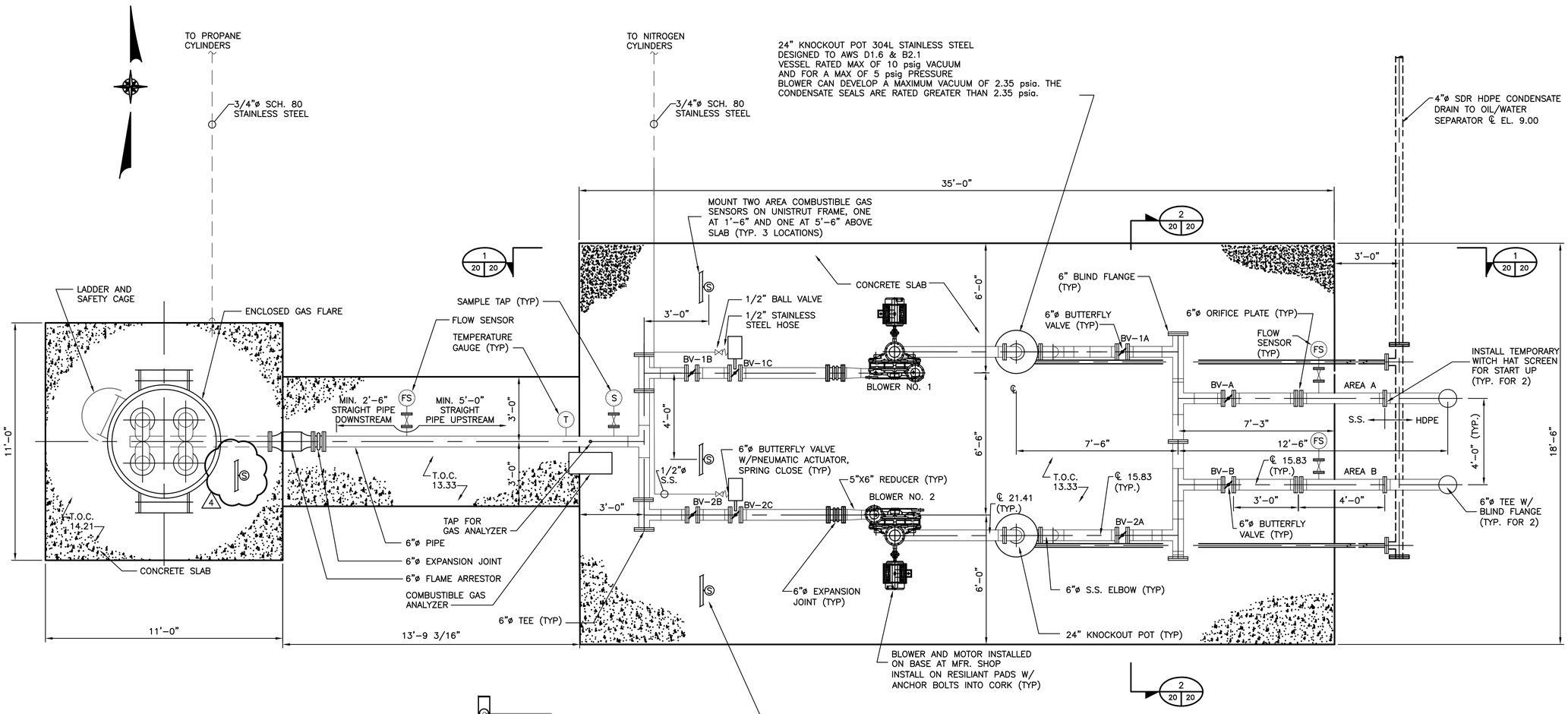
CONTRACT NO. LF-BAL-1G

LANDFILL GAS COLLECTION KEY PLAN

DATE: APRIL 2007
FILENAME: 1215-PL00
DWG. NO: LFG-1
SHEET NO:
OF OF

FIGURE 8

Gas Flare System
(Sheet LFG-19 of Brookfield Avenue Landfill Remediation OU1,
Capital Project EP-8, 2007)



NOTES:

1. NO VEGETATION SHALL BE PERMITTED WITHIN THE GAS FLARE AND BLOWER COMPOUND NOR WITHIN 25 FEET OF EITHER SIDE OF THE SECURITY FENCE.
2. THE TALLEST METALLIC STRUCTURE(S) SHALL BE GROUNDED FOR LIGHTNING PROTECTION.
3. ALL PIPING SHALL BE SCHEDULE 40 STAINLESS STEEL UNLESS OTHERWISE NOTED.

GAS FLARE SYSTEM – PLAN

SCALE: 3/8"=1'-0"

NO.	DATE	DESCRIPTION	APPR'D
4	12/13/11	REVISIONS PER FDNY	
3	9/19/11	REVISIONS PER FDNY	
2	5/19/10	CHANGE ORDER 3 REVISIONS	
1	7/2009	CONFORMED DRAWINGS	

REVISIONS

DESIGNED BY: T. SCHAFFER
DRAWN BY: M. TOUAYL
SHEET CHK'D BY: J. RICCIO
CROSS CHK'D BY: C. KOEHLER
APPROVED BY:
DATE: APRIL 2007

CDM Camp Dresser & McKee
consulting engineering construction operations

APPROVED FOR THE CITY OF NEW YORK

P.E.
PROJECT MANAGER

P.E.
ACTING CHIEF, WASTEWATER AND WATER INFRASTRUCTURE AND SUPPORT

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION DEP

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENGINEERING DESIGN AND CONSTRUCTION
BROOKFIELD AVENUE LANDFILL REMEDIATION OPERABLE UNIT 1
CAPITAL PROJECT EP-8

CONTRACT NO. LF-BAL-1G

GAS FLARE SYSTEM

DATE: APRIL 2007
FILENAME: 1215-M3
DWG. NO: LFG-19
SHEET NO:
OF
OF

FIGURE 9

End Use Plan



NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION

BROOKFIELD AVENUE LANDFILL REMEDIATION

Figure 9 - End Use Plan

CDM Smith

NYC Environmental Protection

Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Brookfield Avenue Landfill Site
New York City, Richmond County
Site Number 2-43-006
Operable Unit 1

March 2002

New York State Department of Environmental Conservation

GEORGE E. PATAKI, *Governor* ERIN M. CROTTY, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Brookfield Avenue Landfill Inactive Hazardous Waste Disposal Site
New York City, Richmond County
Site No. 2-43-006
Operable Unit 01

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the Brookfield Avenue Landfill Class 2 inactive hazardous waste disposal site which was chosen in accordance with the New York State Environmental Conservation Law. The remedial program selected is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300).

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Brookfield Avenue Landfill inactive hazardous waste disposal site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous waste constituents from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential significant threat to public health and the environment.

Description of Selected Remedy

Based on the results of the Remedial Investigation/Feasibility Study (RI/FS) for the Brookfield Avenue Landfill and the criteria identified for evaluation of alternatives, the NYSDEC has selected Alternative 2B, capping with active gas collection, leachate collection and barrier wall . The components of the remedy are as follows:

- A remedial design program;
- A Part 360 landfill cap;
- Active landfill gas collection and treatment;
- A barrier wall to prevent groundwater inflow into the landfill and prevent methane migration along Arthur Kill Road;
- Surface water runoff collection;
- Leachate collection and treatment;
- Minimization of encroachment into freshwater and tidal wetlands;
- Institutional controls including deed restrictions to supplement engineering controls; and
- Initiation of a long term monitoring program to ensure that the contained hazardous waste does not leave the site.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

3/19/2002
Date

Michael J. O'Toole, Jr., Director
Division of Environmental Remediation

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Brookfield Avenue Landfill
Operable Unit No.1
New York City, Richmond County
Site No. 2-43-006
March 2002

SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) has selected this remedy to address the significant threat to human health and/or the environment created by the presence of hazardous waste at the Brookfield Avenue Landfill (the Landfill), Operable Unit#1, a Class 2, inactive hazardous waste disposal site. The NYSDEC decided that it would be more efficient for remediation purposes to separate the site into two Operable Units. An Operable Unit represents a portion of the site remedy which for technical or administrative reasons can be addressed separately to eliminate/mitigate a release, threat of release or exposure pathway resulting from the site contamination. Operable Unit #1 is the Landfill and Operable Unit #2 will be the Landfill's impacts to Richmond Creek. The first step in the investigation and remediation of Operable Unit #2 is the delineation of the wetlands adjacent to the Landfill. This took place and we are awaiting the results. As more fully described in Sections 3 and 4 of this document, the disposal of liquid industrial hazardous wastes with municipal solid waste at this landfill have resulted in the disposal of a number of hazardous wastes, including semi-volatile organic chemicals, pesticides and metals within the fill mass at the site, some of which were released or have migrated from the site to the groundwater and Richmond Creek. These disposal activities have resulted in the following significant threats to the public health and the environment:

(i) a significant threat to human health associated with ingestion of surface soil, ingestion of shallow groundwater, inhalation of volatile organics from shallow groundwater, and ingestion of shellfish from Richmond Creek.

(ii) a significant environmental threat associated with the impacts of chlordane, arsenic, copper, lead, and mercury to Richmond Creek.

In order to eliminate or mitigate the significant threats to the public health and the environment that the hazardous waste disposed at the Brookfield Avenue Landfill Site has caused, the following remedy was selected: Alternative 2B, capping with active gas collection, leachate collection and barrier wall. The components of the remedy are as follows:

A Remedial Design Program;
A Part 360 landfill cap;
Active landfill gas collection and treatment;
A barrier wall to prevent groundwater inflow into the landfill and prevent methane migration along Arthur Kill Road;
Surface water runoff collection;
Leachate collection and treatment;
Minimization of encroachment into freshwater and tidal wetlands;
Institutional controls including deed restrictions to supplement engineering controls; and
Initiation of a long term monitoring program to ensure that the contained hazardous waste does not leave the site.

The selected remedy, discussed in detail in Section 8 of this document, is intended to attain the remediation goals selected for this site, in Section 6 of this Record of Decision (ROD), in conformity with applicable standards, criteria, and guidance (SCGs).

SECTION 2: SITE LOCATION AND DESCRIPTION

The Brookfield Avenue Landfill, site # 2-43-006, is located to the north of Arthur Kill Road and to the east of Richmond Avenue in Richmond County, New York City. Approximately 132 acres of this 272-acre site have been used for the disposal of municipal solid waste. Figures 1-A , 1-B and Figure 2 show site location maps. The site is adjacent to a primarily suburban residential area and is adjoined immediately to the north by Richmond Creek.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The site was opened for receipt of municipal solid waste in 1966. The site was operated 24 hours per day, six days per week and accepted approximately 1000 tons of solid waste per day. The landfill ceased operation in 1980. In 1982, testimony before the New York State Select Committee on Crime indicated that, during the period from 1974 through 1980, industrial hazardous waste including waste oil, sludges, metal plating wastes, lacquers and solvents were dumped at several New York City landfills, including the Brookfield Avenue Landfill.

3.2: Investigation

Beginning in 1982 and in the following years, numerous site investigations were undertaken at the site in response to the allegation that illegal dumping had occurred, and to health related complaints that were made regarding the vapors/odors that were released during the excavation for a sewer line through the landfill. In 1983, the NYSDEC conducted a New York State Superfund Phase I site assessment, and the site was listed as a Class 2a Inactive Hazardous Waste Disposal Site. Class 2a is a temporary classification assigned to sites that have inadequate and/or insufficient data for inclusion in any of the other classifications. In 1986, a re-evaluation of existing data and testimony at the Senate Subcommittee hearing led the NYSDEC to upgrade the site to a Class 2 Inactive Hazardous Waste Disposal Site, meaning that "a significant threat to the public health or environment exists, and that action is required." In 1993, there was an allegation that illegal disposal of hazardous waste had occurred at Colonial Square, a housing development located on the eastern edge of the landfill. An Immediate Investigation Work Assignment (IIWA) was performed at this site. The Colonial Square Condominium development is 7 acres in size and is adjacent to Richmond Creek (and its unnamed tributaries). The investigation revealed the presence of some building debris, but did not indicate that hazardous waste was disposed at that site.

3.3: Remedial History

From 1982 to 1999, activities were undertaken to address off-site migration of methane, to remove onsite fuel tanks, and to prevent unauthorized access to the site. Methane is a combustible gas and a component of landfill gas which is generated as garbage decomposes. In 1982, capping of the eastern end of the site commenced, along with the installation of 10 passive gas vents. In 1984, a passive gas trench system was installed at the site in the vicinity of Brookfield and Colonial Avenues in response to high methane concentrations found off-site. In 1986, this trench was extended to further inhibit gas migration. In 1995, two 550 gallon diesel fuel tanks were removed from the area of the site entrance. In 1998, a sorbent boom was

placed to contain an observed oil seep in the center of the southern east cell of the landfill. In 1998 and 1999, additional fencing was placed to further limit access via the southern and western site borders.

SECTION 4: SITE CONTAMINATION

The New York City Department of Environmental Protection (NYCDEP) in 1998 completed a Remedial Investigation/Feasibility Study (RI/FS) to evaluate the contamination present at the site and to evaluate alternatives to address the significant threat to human health and the environment posed by the presence of hazardous waste.

4.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of the contamination resulting from previous activities at the site. The RI was conducted in three phases. Phase I of the field investigations was performed from December 1993 through July 1994. The Phase I activities are described in the original project work plan dated August 1993. The Phase II field investigations were performed from December 1996 through December 1997. Phase II included follow-up study activities recommended by the City, NYSDEC, USEPA, and the community. The Phase III investigations began January 1998 and concluded in May 1998 at the request of the Scientific Advisory Committee (SAC). This Committee was set up by the NYCDEP and Citizen Advisory Committee (CAC) in order to advise the residents of the surrounding community regarding the science and engineering of landfill remediation. The Phase III investigations included (1) additional acute, chronic, and bio accumulation studies to better evaluate Richmond Creek sediment toxicity and (2) three additional deep monitoring wells in the Cretaceous aquifer to better evaluate the connection between the Upper Glacial and Cretaceous aquifers (see section 4.1.2 for a description of these aquifers). Independent validation of the Phase I and Phase II analytical results were completed in March 1998. A report entitled "Brookfield Avenue Landfill Remediation Project, Final Remedial Investigation Report" was prepared in September 1998 and describes the field activities and findings of the RI in detail.

The RI included the following activities:

- Installation of soil borings and monitoring wells for analysis of soils, wastes, groundwater and leachate as well as physical properties of soil and hydrogeologic conditions;
- Excavation of test pits to determine the limits of solid waste disposal, to provide visual analysis of disposed wastes, and to allow for the sampling of the disposed wastes for chemical analysis;
- Collection of surface water samples from Richmond Creek and on-site ponds and drainage ditches to assess the potential impacts from landfill leachate (also to be used in OU-2);
- Collection of stream sediment samples for chemical analysis and biota toxicity assessment and bioaccumulation (also to be used in OU-2);
- Collection of ambient air samples to determine the potential impact of landfill gas emissions;
- Collection of soil gas samples to find potential hot spots and assess the migration of soil gas; and
- Measurement of surface flux emissions to evaluate landfill gas quality.

In order to determine which media (soil, groundwater, etc.) contain contamination at levels of concern, the RI analytical data were compared to environmental Standards, Criteria, and Guidance Values (SCGs). Groundwater, drinking water and surface water SCGs identified for the Brookfield Avenue Landfill site are based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part 5 of NYS Sanitary Code. For soils, NYSDEC TAGM 4046 provides soil cleanup guidelines for the protection of groundwater, background conditions, and health-based exposure scenarios. Guidance values for evaluating contamination in sediments are provided by the NYSDEC Technical Guidance for Screening Contaminated Sediments. Ambient air samples are compared to NYSDEC Annual Guideline Concentrations (AGCs) and Short-term Guideline Concentrations (SGCs).

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain areas and media of the site require remediation. These are summarized below. More complete information can be found in the RI Report.

Chemical concentrations are reported in parts per billion (ppb) for ground water, parts per million (ppm) for soil, and micrograms per cubic meter (ug/m^3) for air samples. For comparison purposes, where applicable, SCGs are provided for each medium.

4.1.1 Geology and Hydrogeology

Three main aquifer systems were investigated at the landfill. These include the Recent/Shallow Glacial, Deep Glacial/Reworked Cretaceous and the Cretaceous aquifer systems. The first two systems comprise the Upper Glacial aquifer. Confining units separate the shallow Glacial, the deep Glacial, and the Cretaceous aquifer. A confining unit is a geological stratum (or layer) such as clay/silt which impedes vertical groundwater flow. The shallow Glacial is found from the surface to a depth of about 30 ft, the deep Glacial is generally found from about 30 to 50 feet below the surface, and the Cretaceous aquifer is generally found from about 50 to 150 feet below the surface. The shallow Glacial aquifer flows from south to north and discharges into Richmond Creek. The deep Glacial aquifer also flows from south to north; the Cretaceous aquifer flows from north to south, generally toward the ocean. A Cretaceous Sand formation forms the main aquifer formation within the Cretaceous flow systems. This unit dips to the southeast and increases in thickness in the southern portions of the site. In the northern portion of the site, this Cretaceous sand unit appears to be in contact with glacial till, which may form a pathway for the migration of contaminants downward from the shallow flow system to the Cretaceous flow system.

4.1.2 Nature of Contamination:

As described in the RI Report, soil, groundwater, leachate, sediment and air samples were collected at the Site to characterize the nature and extent of contamination. The main categories of contaminants which exceed their SCGs are inorganics (metals), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides and polychlorinated biphenyls (PCBs). The specific inorganic contaminants of concern are calcium, copper, iron, lead, magnesium, mercury, nickel, potassium, and zinc. The specific volatile organic contaminants of concern are 2-butanone, 4-methyl-2-pentanone, acetone, benzene, chlorobenzene, xylenes and toluene. The specific semivolatile organic compounds are phenol, 1,4-dichlorobenzene, 2-methylnaphthalene, naphthalene, 4-methylphenol and 4-chloro-3-methylphenol. The specific pesticide compound is 4,4'-DDE. The specific conventional compound is ammonia. Ammonia is normally found in all hazardous and non-hazardous landfills, and in many cases is used as an indicator of leachate.

4.1.3 Extent of Contamination

Tables 1 through 11 summarize the extent of contamination for the contaminants of concern in soil, groundwater, leachate, surface water, and landfill gas and compare the data with the SCGs for the Site. The following media were investigated and the findings of the investigation are summarized below.

Surface Soil

Surface soil samples of 0 to 2" were taken at a number of locations. Surface soil at the landfill is not significantly contaminated. Polyaromatic hydrocarbon (PAH) compounds and a number of metals were commonly found to exceed SCGs in on-site surface soil samples.

PAHs are ubiquitous and typically found at elevated concentrations in highly urbanized areas due to emissions from furnaces, automobiles and other combustion processes. Background values of PAHs in surface soil of urbanized areas range into the thousands of parts per million. SCGs for these compounds (as specified by NYSDEC Technical and Administrative Guideline Memorandum (TAGM) 4046) are significantly lower. Therefore it is not surprising that PAHs were also found in off-site soil in the surrounding communities.

Likewise, metals are often found in elevated concentrations in urbanized areas. Six of nine metals detected above SCGs from both off-site and on-site locations, have associated background values (for eastern US soils) which exceed their SCGs. A summary of surface soil analysis is shown in Table 1. VOCs were not found in surface soil samples at levels above the NYSDEC cleanup criteria.

Subsurface Soil

Five potential areas of concern, selected by the Science Advisory Committee representing the community, were subject to additional investigation. These areas were called "Hot Spots" for identification purposes. The "Hot Spot" areas are shown in Figure 3.

Subsurface soil samples were taken to a maximum depth of 62 ft below ground surface (bgs) using a geoprobe.

Soil samples from Hot Spot No. 1 showed levels of contamination in excess of the NYSDEC Soil Cleanup Objective (SCO) for phenol in 1994 soil borings. In 1997, low to moderate levels of phenol were found to be widely dispersed throughout the study area. Soil samples taken from Hot Spot No. 2 in 1994 showed levels of contamination in excess of the NYSDEC SCO for polychlorinated biphenyl (PCB). Follow up testing in 1997, found only one PCB hit at 2.5 ppm. The SCO for PCBs in subsurface soil is 10 ppm as per TAGM 4046 (This soil will not be disturbed). Soil samples taken from Hot Spot No. 3 showed levels of contamination in excess of the NYSDEC SCO for phenol in 1994. In 1997, methylene chloride, tetrachloroethene, chlorobenzene, ethylbenzene, and xylenes were found in excess of NYSDEC SCOs. Xylene is the primary contaminant of concern for Hot Spot No. 3. (Additional information is provided in Section 4.2 IRM). Soil samples taken from Hot Spot No. 4 showed levels of chrysene and benzo(b)fluoranthene in excess of the NYSDEC SCO in 1994. Soil samples taken from Hot Spot No. 5 indicated the presence of some low levels of pesticides and PCBs, however only the compound heptachlor epoxide exceeded the NYSDEC SCO (Additional information is provided in Section 4.2 IRM).

VOC analysis of samples collected from the soil borings indicated only sporadic trace detections of several VOCs including acetone, methylene chloride and chlorobenzene, all below their respective TAGM SCO. Semivolatile analysis of boring samples identified low levels of semi-VOC contaminants in a number of

samples. No PCBs were detected within samples selected for analysis from the soil borings. The only pesticides detected were alpha-chlordane and gamma-chlordane. Both are below the TAGM SCO's. Numerous metals were found to be present, within samples collected from the environmental borings, that would be considered elevated above natural ambient levels.

VOCs analysis indicated most samples collected from test pits were free of VOCs or exhibited several VOCs at low to trace concentrations. As with boring samples, a number of phthalate compounds were present within the majority of test pit samples, but well below TAGM SCOs. Only trace levels of pesticides including 4,4'DDE, 4,4'DDD and methoxychlor were detected in two test pit samples. Low levels of PCBs including arochlor 1248 (0.29 ppm) and arochlor 1254 (0.47 ppm) were detected within one test pit. The SCO for total PCBs within subsurface soil is 10 ppm. As with samples collected from the soil borings, test pit samples exhibited metals concentrations well in excess of typical ambient concentrations. A summary of subsurface soil results is shown in Table 2. The maximum test pit depth is approximately 18 feet. The maximum depth of the monitoring wells is 171 to 176 feet.

Groundwater

Groundwater samples were collected from 18 designated on-site wells and 11 designated off-site wells installed in deep/shallow clusters. Shallow groundwater at the perimeter of the solid waste mound has been contaminated by the landfill. This contamination extends to Richmond Creek. Contaminant exceedances of Standards, Criteria, or Guidance (SCG) in the Upper Glacial aquifer and leachate mound include: 13 VOCs, 17 SVOCs, 8 pesticides, 2 PCBs and 13 metals. The most frequently detected contaminants in the shallow groundwater include: benzene, chlorobenzene, toluene, xylene, dichlorobenzene, napthalene, 4,4-DDE, barium, copper, iron, lead, manganese, sodium, zinc, ammonia, bromide, chloride, and sulfate. No VOC, SVOC or pesticide contamination was detected offsite in the Upper Glacial aquifer. Vertical migration of contamination from the shallow sand to the lower portion of the Upper Glacial aquifer occurs in the southwest area, the northern corridor between the two cells and the Holterman's Bakery area summaries of shallow upper glacial aquifer, deep glacial aquifer, and cretaceous aquifer analysis are shown in Table 3, Table 4, and Table 5.

Surface Water

Surface water surrounding the Brookfield Avenue Landfill has been impacted by contamination originating from the landfill. Surface water quality contraventions in Richmond Creek, include tetrachloroethene, copper, lead, zinc, total cyanide, nickel, mercury and a number of pesticides including DDD, DDE, BHC, heptachlor, aldrin, and endrin. Tidal portions of Richmond Creek are classified "SC," with a best use designation for fishing. Class SC waters are defined as suitable for fish propagation and survival as well as primary and secondary contact recreation. Primary contact recreation means recreational activities where the human body may come in direct contact with raw water to the point of complete body submergence. Primary contact recreations include, but are not limited to, swimming, diving, water skiing, skin diving and surfing. Secondary contact recreation means recreational activities where contact with the water is minimal and where ingestion of the water is not probable. Secondary contact recreation includes, but is not limited to, fishing and boating. Although there is no existing NYSDEC water quality standard for ammonia in Class SC waters to which the ammonia data can be compared, the Brookfield Avenue Landfill does contribute significant quantities of ammonia to the creek. Ammonia discharged from the landfill has resulted in exceedances of the EPA established continuous concentration criteria at four of eight surface water sample locations. With the exception of tetrachloromethane, all of these compounds mentioned above are present in the Brookfield Avenue Landfill leachate. In other words, the surface water contamination profile closely matches that of leachate. A summary of surface water analysis is shown in Table 6.

Leachate

Leachate may be defined as liquid that has percolated through solid waste and has extracted dissolved or suspended materials from it. In most landfills, the liquid portion of the leachate is composed of the liquid produced from the decomposition of the wastes and liquid that has entered the landfill from external sources, such as surface drainage, rainfall, ground water, and water from underground springs. Because of the long travel path, contaminants in the leachate undergo significant attenuation as they migrate from the Upper Glacial to the Cretaceous aquifer. This is primarily due to dispersion, adsorption and cation exchange. Ground water monitoring wells (GW-29, SAC-10, SAC-24B and D-13) screened in the Cretaceous aquifer, show very low levels of leachate indicators. SCGs are slightly exceeded for acetone, chloroform, toluene and chlorobenzene.

The Brookfield Avenue Landfill generates approximately 95,000 gallons of leachate per day. Approximately 92,000 gallons per day (96.5%) of the leachate discharge to the local surface water bodies such as Richmond Creek and associated wetlands. It is estimated that approximately 3,500 gallons per day of leachate (3.5%) leak into the Cretaceous aquifer. Because of the complex flow pathway from Upper Glacial to the Cretaceous, the leakage estimate of 3,500 gallons per day is considered a conservative i.e. high estimate.

The leachate within the landfill is of moderate strength and contravenes ground water quality standards in the Upper Glacial aquifer. A summary of leachate analysis is shown in Table 7 and Table 8.

Landfill Gas and Air

In general, the upwind-downwind ambient air data suggest that the Brookfield Avenue Landfill is not a significant source of most VOCs. The ranges of values for samples taken upwind of the landfill are of comparable magnitude to the values taken at downwind ambient air sampling stations. Exceptions to this include some of the methane related compounds (dichlorodifluoromethane, trichloromethane, chloroethane) and possibly benzene. On-Site gas emission sampling was conducted by means of a flux box sampling train. Usually, the Flux Box consists of a plexiglass dome on top of a stainless steel or plexiglass cylinder. A gas sampling port and real-time analyzer are usually attached by an outlet line to the plexiglass top. The flux box is placed over the landfill surface providing a sealed enclosure in which gases are collected. The flux box sampling method identifies the rate at which soil gases are emitted from the landfill surface. Use of the flux box provides a controlled environment to limit the influence of local meteorological conditions on the sampling event. The principle behind the operation of the flux box is to sweep gaseous emissions from an isolated surface through an exit port to the aforementioned portable air sampling system. Although the flux box data show that the landfill is emitting VOCs, the magnitude of the emissions is not large enough to be registered as a significant change between upwind and downwind concentrations. The flux box emission sampling and modeling results suggest that the Brookfield Avenue Landfill is a minor source of benzene, 2-hexanone, tetrachloroethene, carbon tetrachloride and trichloroethene. Acrolein and acrylonitrile were found offsite at estimated concentrations approaching 24% and 45%, respectively, of the Annual Guideline Concentration (AGC). Even though flux box emission samples and air dispersion models suggest that Brookfield is a source of acrolein and acrylonitrile in ambient air, the upwind-downwind ambient air sample analysis did not substantiate this conclusion.

The Brookfield Avenue Landfill is not a significant source of inhalable particulates. PM-10 (particulate matter, 10 microns in size) data for all four rounds were not found to exceed the Federal 24-hour standard for inhalable particulate of 150ug/m^3. In comparing the ambient air results, which were taken over a 24-hour period, to the annual standard, several samples do exceed the annual PM-10 standard of 50ug/m^3, although only one sample location has an average concentration (based on the four rounds) slightly greater than the

annual standard. No upwind-downwind relationship is apparent from the data. Higher concentration samples were just as likely to appear upwind as they were downwind. Because Brookfield is well vegetated, it is not considered a significant source of this particulate.

Hydrogen sulfide and mercaptans were detected in the landfill surface emission samples. They were found at very low levels in landfill gas within the landfill. Based on a landfill gas generation model estimate, the Brookfield Avenue Landfill, under anaerobic conditions, would generate approximately 500 to 760 standard cubic feet per minute (scfm) of gas during the constant phase of generation. Currently this is not expected to be the case due to significant infiltration of air into the waste mass. Gas generation rates are expected to increase once capping is completed and air infiltration is reduced. At that time, gas collection/venting will control gas emissions.

A summary of landfill gas analysis is shown in Table 9 and Table 10.

Radiation

The detailed radiation screening indicates that the soils found within the Brookfield Avenue Landfill do not contain radioactive waste materials. The only radionuclides present are naturally occurring, all with concentrations within the range expected for natural background.

DNAPL

DNAPLs, an acronym for Dense Non-Aqueous Phase Liquids, are heavy liquid compounds that under certain circumstances can flow downward or sink through the landfill and accumulate on confining layers such as bed rock or clay.

There is sufficient anecdotal information on the disposal practices at this site to conclude that chlorinated VOCs (potential DNAPLs) may have been disposed at this site. However, there is no soil or groundwater quality data that indicate the release of significant quantities of chlorinated solvents at this site. In addition, select wells were installed as interface probes for DNAPL. The monitoring results of the wells do not indicate the presence of DNAPL.

4.2 Interim Remedial Measures:

Interim Remedial Measures (IRMs) are conducted at sites when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS. At the Brookfield Avenue Landfill, the following IRMs were conducted:

- Collection of product seep at Hot Spot #5

Sampling performed in 1997 revealed the presence of a Light Non Aqueous Phase Liquids (LNAPL) in Hot Spot No. 5. LNAPL is light free product floating on the groundwater (generally excluding groundwater) containing contaminants of concern. Laboratory analysis of the LNAPL indicated that it was a highly weathered, heavy oil that contained benzene, toluene, ethylbenzene, xylene, PCBs, and pesticides. On February 23, 1998, sorbent booms were installed as an IRM at Hot Spot No.5 to control seepage of the heavy oil at the ground surface.

- SVE system and flare at Hot Spot #3

Soil Vapor Extraction, known as SVE, is the most frequently used innovative treatment at Superfund sites. It is a relatively simple process that physically separates contaminants from soil. As the name suggests, SVE extracts contaminants from the soil in vapor form. Therefore, SVE systems are designed to remove contaminants that have a tendency to volatilize or evaporate easily. SVE removes volatile organic compounds (VOCs) and some semi-volatile organic compounds (SVOCs) from soil beneath the ground surface in the unsaturated zone - that part of the subsurface located above the water table. By applying a vacuum through a system of underground wells, contaminants are pulled to the surface as vapor or gas.

As an IRM, a SVE system has been implemented at the Hot Spot No. 3 location. The soil vapor extraction system was designed and built to provide an interim measure for treating soil gas in this area, until the landfill is capped, and a site-wide active collection system can be installed.

The flare equipment consists of the flare, flame arrestor, blower and motor, condensate trap, and electric controls, pipelines, and wells. Landfill gas is transported to the flare, where hazardous and undesirable constituents are thermally destroyed. This flare is now operational.

4.3 Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the health risks can be found in Section 6.1 of the RI Report. An exposure pathway is how an individual may come into contact with a contaminant. The five elements of an exposure pathway are: 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

Exposure pathways typically evaluated at sites such as the Brookfield Avenue Landfill include:

- Dermal (skin) contact with surface soils
- Ingestion of surface soils
- Inhalation of fugitive dust
- Inhalation of airborne contaminants
- Dermal contact with sediment
- Ingestion of sediment
- Dermal contact with surface water
- Ingestion of surface water
- Consumption of contaminated biota

Based on data collected during the Remedial Investigation, a risk assessment was performed to quantify the carcinogenic and noncarcinogenic risks associated with the above exposures. Using reasonable worst-case exposure scenarios for potential future uses of the site, the following exposure routes were found to produce risks above acceptable guidelines:

- Dermal contact with surface soils
- Ingestion of surface soils
- Dermal contact with leachate

The greatest site wide cancer risk is associated with exposure to benzo(a)pyrene in surface soils.

4.4 Summary of Environmental Exposure Pathways:

This section summarizes the types of environmental exposures which may be presented by the site. The Fish and Wildlife Impact Assessment included in the RI presents a more detailed discussion of the potential impacts from the site to fish and wildlife resources. The following pathways for environmental exposure have been identified:

- Leaching of contaminants from waste and soils into the groundwater (Leachate);
- Transport of contaminants from waste and soils into storm water runoff and surface waters;
- Transport of contaminants in shallow groundwater into surface waters(Leachate);
- Transport of contaminants in shallow groundwater into deep aquifers;
- Transport of contaminants from soils and landfill gas into the air;
- Transport of landfill gas into surrounding soils; and
- Transport of contaminants in surface waters.

SECTION 5: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. They may include past or present owners and operators, waste generators, and haulers.

The NYSDEC and the City of New York entered into a Consent Order on May 15, 1992. The Order obligates the City to implement a full remedial program, and allows the City to apply for up to 75 percent of the eligible remediation cost under the 1986 Environmental Quality Bond Act (EQBA) Title 3 Grant.

Under the grant, the City would be required to seek compensation from responsible parties who generated, transported or disposed of hazardous waste at the site. This has already been accomplished. The total amount of settlement money received by the City of New York from responsible parties is $56,033,052.88 for the five landfill sites. As part of the agreement with New York State, the City will utilize $8,561,701 of the total amount received from the responsible parties at this site. This amount of settlement money will be subtracted from any future grant monies received by New York City for the site. The other $48 million is going towards the remedial construction of the other four landfills, Pelham Bay Landfill, Fountain Avenue Landfill, Pennsylvania Avenue Landfill, and Edgemere Landfill.

The following is the chronological enforcement history of this site.

Orders on Consent

On December 16, 1985, and again on April 17, 1990, the NYSDEC executed Orders on Consent (index #2-0952 and # 2-43-006 respectively) with the New York City Department of Sanitation (DOS) to properly close and remediate the site.

On May 15, 1992, the New York City Department of Environmental Protection (DEP) entered into an Order on Consent (index # 2-43-006) with the NYSDEC to perform a remedial program at the site.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet all Standards, Criteria And Guidance (SCGs) and be protective of human health and the environment. At a minimum, the remedy selected should eliminate

or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The goals selected for this site are:

- Eliminate, to the extent practicable, ingestion of groundwater affected by the site that does not attain NYSDOH Drinking Water Standards;
- Eliminate, to the extent practicable, off-site migration of groundwater that does not attain NYSDEC Class GA Ambient Water Quality Criteria;
- Eliminate, to the extent practicable, exposures to the contamination present in surface soils and waste disposal areas on site;
- Eliminate, to the extent practicable, infiltration of water into the landfill to prevent the generation of leachate;
- Eliminate, to the extent practicable, the migration of leachate into the adjacent freshwater wetlands, tidal wetlands, and to minimize impact to the wetlands during implementation of the remedial measures;
- Eliminate, to the extent practicable, exceedances of applicable environmental quality standards related to releases of contaminants to the waters of the State; and
- Eliminate, to the extent practicable, air emissions from the landfill and prevent the release of contaminants above annual air guideline concentrations (AGC), or risk-based levels.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy should be protective of human health and the environment, be cost effective, comply with other statutory laws and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Brookfield Avenue Landfill Site were identified, screened and evaluated in the report entitled Brookfield Avenue Landfill Remediation Project, Feasibility Study Report, Operable Unit 1, July 2000. This report was approved by the Department.

A summary of the detailed analysis follows. As presented below, the time to implement reflects only the time required to implement the remedy, and does not include the time required to design the remedy, procure contracts for design and construction or to negotiate with responsible parties for implementation of the remedy.

7.1: Description of Alternatives

The potential remedies are intended to address the contaminated soils and groundwater at the site. Although these remedies may eliminate current discharges from the landfill to wetlands and Richmond Creek, they may not eliminate all existing environmental exposures. Therefore, contaminated sediments and surface water will be addressed in the upcoming Operable Unit 2 investigation.

ALTERNATIVE 1- NO ACTION

The no action alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment. The Capital Cost will be for sign installation and replacement.

Present Worth:	$ 4,461,000
Capital Cost:	$2,000
Annual O&M (year 1):	$414,000
Annual O&M (years 2-5):	$413,000
Annual O&M (years 6-30):	$278,000
Time to Implement	0

ALTERNATIVES 2A to 5

Part 360 Cap, Active Gas Collection, On site treatment of Leachate (Oil /Water Separation), Institutional Controls.

Common elements of Alternatives 2A to 5 include the following:

- 6NYCRR Part 360 landfill cap with variable protection layer thickness (from 12 to 24 inches or greater). Figure 4 provides a cross section of this cap;
- Active gas collection (below ground system) and onsite treatment by flaring;
- Onsite treatment of leachate (oil/water separation) with discharge to the sewer; and
- Institutional controls and long-term monitoring of perimeter landfill gas, groundwater and treated leachate.

The following Alternatives contain design components unique to each one in addition to the four components mentioned above.

ALTERNATIVE 2A

Part 360 Cap, Limited Leachate Collection, Active Gas Collection and Trench, Barrier Wall

Alternative 2A also includes the following unique components (as shown on Figure 5):

- Perimeter (active) gas collection trench between the landfill and Arthur Kill Road;
- Leachate collection downgradient of Hot Spot No.3 and the West Cell;
- Barrier wall along the north face of the landfill between the leachate collection trenches; and
- Barrier wall separating the southeast and southwest drainage ditches from the landfill.

Present Worth:	$ 85,763,000
Capital Cost:	$70,681,000
Annual O&M (year 1):	$1,236,000
Annual O&M (years 2-5):	$1,158,000
Annual O&M (years 6-30):	$1,018,000
Time to Implement	41 months

ALTERNATIVE 2B
Part 360 Cap, Limited Leachate Collection, Active Gas Collection, Barrier Wall

Alternative 2B also includes the following unique components (as shown on Figures 6 and 10):

- Leachate collection along the entire north face of the landfill;
- Barrier wall along the entire south face of the landfill; and

Present Worth:	$ 86,745,000
Capital Cost:	$71,293,000
Annual O&M (year 1):	$1,278,000
Annual O&M (years 2-5):	$1,183,000
Annual O&M (years 6-30):	$1,043,000
Time to Implement	41 months

ALTERNATIVE 3
Part 360 Cap, Leachate Collection, Active Gas Collection, Barrier Wall

Alternative 3 also includes the following unique components (as shown on Figures 7 and 11):

- Leachate collection around virtually the entire landfill; and
- Barrier wall connecting the leachate collection trenches south of the landfill.

Present Worth:	$ 87,903,000
Capital Cost:	$71,624,000
Annual O&M (year 1):	$1,320,000
Annual O&M (year 2-5):	$1,242,000
Annual O&M (year 6-30):	$1,102,000
Time to Implement	41 months

ALTERNATIVE 4
Part 360 Cap, Limited Leachate Collection, Active Gas Collection, Barrier Wall

Alternative 4 also includes the following unique components (as shown on Figure 8)

- Limited leachate collection adjacent to Hot Spot No.3 and Hot Spot No.5; and
- Barrier wall along the entire south face of the landfill.

Present Worth:	$ 84,849,000
Capital Cost:	$70,288,000
Annual O&M (year 1):	$1,239,000
Annual O&M (years 2-5):	$1,119,000
Annual O&M (years 6-30):	$979,000
Time to Implement	36 months

ALTERNATIVE 5
Part 360 Cap, Limited Leachate Collection, Active Gas Collection, Barrier Wall

Alternative 5 also includes the following unique components (as shown on Figure 9)

- Limited leachate collection adjacent to Hot Spot No.3 and Hot Spot No.5; and
- Barrier wall separating the southeast and southwest drainage ditches from the landfill.

Present Worth:	$ 84,209,000
Capital Cost:	$69,648,000
Annual O&M (year 1):	$1,239,000
Annual O&M (years 2-5):	$1,119,000
Annual O&M (years 6-30):	$979,000
Time to Implement	36 months

7.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6 NYCRR Part 375). For each of the criteria, a brief description is provided, followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is included in the Feasibility Study.

The first two evaluation criteria are termed threshold criteria and must be satisfied in order for an alternative to be considered for selection.

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance. The remedy for a site must conform with Standards and Criteria, which are officially promulgated rules and standards that are directly applicable, or relevant and appropriate to the action. Guidance documents are unpromulgated guidelines that, upon exercise of engineering judgement, are found to be applicable on a site-specific basis.

One applicable criterion for landfill closure is a cap with a continuous single or double impermeable layer, as specified in 6NYCRR Part 360. The no action alternative does not comply with this criterion.

NYSDEC expects that surface water quality standards adjacent to the landfill would be met by alternatives that provide a Part 360 cap, leachate collection, and barrier wall. Capping, regrading, leachate collection, and barrier wall would eliminate or greatly reduce subsurface leachate flow to surface water, and would eliminate contaminated surface runoff. Together, these are expected to achieve surface water standards for landfill-related contaminants. These objectives are met by Alternatives 2A, 2B, 3, 4 and 5.

Air quality SCGs would be expected to be met by those alternatives that provide active gas collection (Alternatives 2A through 5).

2. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

Human health would be protected by elimination of the routes of exposure identified in Section 4.3 as producing unacceptable health risks. Therefore, alternatives that prevent direct contact with surface soils and

wastes and prevent discharge of site-related contaminants to Richmond Creek surface water and sediments are considered to be protective. Alternatives that provide a landfill cover that reduce or eliminate contaminant flow to Richmond Creek would meet these objectives. Such alternatives would also be protective of the environment and would reduce or eliminate some of the ecological impacts identified in Section 4.4. These objectives would be met by Alternatives 2A, 2B, 3, 4 and 5.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness. The short-term impacts of each alternative are evaluated, generally considering the following: 1) risk to workers during remedial construction; 2) the effectiveness of personal protective equipment and monitoring; 3) environmental impacts caused during construction including impacts to wetlands; 4) effectiveness of engineering controls and mitigative measures implemented during and after construction; 5) manners of transport of capping materials to the site and associated impacts; and 6) time required to complete construction.

Alternatives 2A, 2B, 3, 4, and 5 that provide for grading and capping the landfill would cause short term adverse impacts due to potential exposure to excavated wastes, contaminated runoff and airborne dusts, vapors and gases. Because the amount of waste regrading is the same for the five capping options under consideration, these short term impacts would also be similar.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on the site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

Alternatives 2A, 2B, 3, 4, and 5, which provide leachate collection, would provide a high degree of long term effectiveness. The landfill cap would also minimize leachate production and limit its migration to surface waters. Alternatives 2B and 3 provide better long term leachate control.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site. Significant factors include: 1) the quantity of hazardous contaminants that will be destroyed, treated, or recycled; 2) the degree that treatment is used to reduce site hazards; 3) the degree that treatment is irreversible; and 4) the quantity and characteristics of treatment residuals.

Alternatives 2B and 3 would achieve the greatest reduction of toxicity, mobility and volume through treatment of leachate. Alternative 2A would achieve the greatest reduction of toxicity, mobility and volume through additional collection and destruction of landfill gas because of the trench.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, and coordinating with support agencies.

Technically, the technologies under consideration are well developed and reliable. The greatest technical difficulty for cap construction would be the regrading of wastes to meet final slope requirements and the

availability of cover materials and their transportation to the site. The large volume of waste relocation required would require extensive odor and dust controls during construction.

Alternatives 2A, 2B, 3, 4, and 5 would be considered equally implementable with respect to the landfill cap. Alternatives 4 and 5 are marginally more implementable than Alternatives 2A, 2B and 3, due to less wetland disturbance. Implementability of the leachate collection and containment systems of Alternative 5 is expected to be the highest, followed by (in order) Alternative 4, 2A, 2B and 3.

Administratively, construction activities that effect wetlands would require approvals of several state and federal agencies depending on final designs. Approvals for the landfill cap design, air and surface water discharges would come from NYSDEC, and would require administrative coordination.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. The costs for each alternative are presented in Table 11.

This final criterion is considered a modifying criterion and is taken into account after evaluating those above. It is focused upon after public comments on the Proposed Remedial Action Plan have been received.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the Proposed Remedial Action Plan have been evaluated. The "Responsiveness Summary" included as Appendix A presents the public comments received and the Department's response to the concerns raised.

In general the public comments received were supportive of the selected remedy. Several comments were received, however, which advocated the selection of Alternative 3, Part 360, Cap leachate collection, active gas collecting and barrier wall. Concern was expressed regarding the schedule for design and construction of OU#1 and for the investigation of OU#2. Interest was expressed in the proposed use of dredge material as a cover material. Also, there was concern expressed regarding the impact on the community when invasive construction activities occur.

People live extremely close to the site. Specifically, the entire southern boundary of the landfill is within several feet of Arthur Kill Road, immediately south of which is a heavily populated residential area. During the RI process, there have been many allegations of hazardous waste disposal both on and off the site. The concerns expressed by the public during the numerous meetings held indicate that there is a need for the landfill to be isolated or sealed off from the rest of the community, meaning the waste area should be covered and collection or containment measures should be installed around the entire site. The community has been an active participant throughout the entire process

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the results of the RI/FS, and the evaluation presented in Section 7, the NYSDEC is selecting Alternative 2B, capping with an active gas collection, leachate collection and barrier wall as the remedy for the Brookfield Avenue Landfill.

This selection is based upon the evaluation of the five alternatives developed for this site. With the exception of the no action alternative, each of the alternatives will comply with the threshold criteria. Alternative 2B will be more protective in the long-term because it gives better control of gas and more complete control of leachate than 2A. The barrier wall located along the southern perimeter of the landfill will prevent the potential offsite migration of methane, which could possibly occur, after the installation of the landfill cap, in

the direction of the homes on the south side of Arthur Kill Road. The barrier wall will also prevent leachate from leaving the landfill and will reduce the amount of leachate being generated from ground water that will have entered the landfill. The leachate collection system in Alternative 2B will provide additional prevention of leachate entering Richmond Creek. Alternative 2B is less expensive than Alternative 3, but provides similar control of leachate and gas. Alternatives 4 and 5 lack leachate containment capabilities along the north side of the landfill, and will not be sufficiently protective of the environment. Leachate collection for Alternatives 4 and 5 is limited to the downgradient perimeter of the landfill at Hot Spots No. 3 and No. 5. The long-term effectiveness of Alternatives 4 and 5 is considered to be moderate.

8.1 Selected Remedy

The elements of the selected remedy are as follows:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties identified during the RI/FS will be resolved.

2. Construction of a Part 360 landfill cap, featuring a gas venting layer, synthetic membrane barrier layer, 12"-24" or greater soil barrier protection layer and vegetated topsoil layer.

3. Construction and operation of an active gas collection system, conceptually consisting of a series of perforated pipes set in gravel wells beneath the landfill cap. Landfill gas will be extracted from these wells via blowers to an enclosed flare for combustion.

4. Installation of a barrier wall along Arthur Kill Road to prevent the discharge of leachate to the southeast and landfill gas migration along Arthur Kill Road.

5. Construction of a surface water collection system.

6. Construction of a leachate collection trench along Richmond Creek and pretreatment system.

7. Minimization of encroachment into freshwater and tidal wetlands. The remedy design will meet the permitting standards of 6 NYCRR Parts 661 and 663. Wetland restoration and/or mitigation will be provided for any wetland disturbance along the northern edge of the landfill, and along the Richmond Creek edge between the east and west landfill cells.

8. Institutional controls consisting of deed restrictions or a comparable legal mechanism on the site to ensure that groundwater beneath the site is not extracted for potable use and to ensure that any future site construction or other invasive activity is pre-approved by NYSDEC and NYSDOH.

9. Initiation of a long term monitoring program to ensure that the contained hazardous waste does not leave the site. This program would allow the effectiveness of the selected remedy to be monitored. This long term monitoring program would be a component of the operations and maintenance plan for the site and would be developed in accordance with 6NYCRR Part 360 regulations.

8.2 Additional Issues

1. Holterman's Bakery

Behind Holterman's Bakery, located on Arthur Kill Road, approximately 10,000 ft^2 of the owner's property was used for the disposal of waste material as part of the Brookfield Avenue Landfill operation and requires

remediation. The City is currently investigating the best method of including this portion of the Holterman's Bakery property in its design plan for the landfill closure. If New York City is unsuccessful in acquiring the property, the City will submit a revised design plan to remediate this area.

2. Dredge Material

The New York City Department of Environmental Protection and Economic Development Corporation have initiated a pilot project at the Pennsylvania Avenue and Fountain Avenue Landfills (Penn/Fountain Avenue Dredged Materials Beneficial Reuse Pilot Study). It is designed to confirm that dredged materials are suitable for use under landfill liners for grading and to determine if dredged materials are suitable for use above liners as final cover at landfills with proposed end-use plans similar to Brookfield. The City has notified NYSDEC, that should the pilot project successfully demonstrate that dredged materials can meet all appropriate physical, chemical and agricultural closure specifications, it is interested in the use of these materials for the closure of Brookfield. Any dredge or alternative material will not be a hazardous waste as defined by NYCRR Part 371 and will have to meet specifications when used below the liner as a structural fill. Materials above the liner will have to meet chemical, physical, and structural specifications allowing parkland use and physical and agricultural specifications allowing use as a growing medium.

3. Topsoil (Manufactured)

The City has advised NYSDEC of its intent to consider the use of manufactured topsoil at this facility in areas where grass and other vegetation will be grown. Manufactured topsoil is not a virgin material and is typically composed of compost and other material, for example, silt, sand and clay in varying percentages depending on the soil conditions needed for growth of a specific vegetation. The topsoil will also contain nutrients such as nitrogen and phosphorus so that plant growth can be sustained. This material can not be a waste as defined in NYCRR Part 360 and must meet chemical and physical specifications. Chemical testing of proposed material shall be required in contract specifications.

8.3 End Use

The City has proposed a conceptual end use plan for the landfill that could include the following:

1. Reforestation of the eastern area of the landfill through the planting of trees.

   Among the 40 species to be grown at the landfill is beach plum, pitch pine, white oak, red oak, black oak, chestnut oak, American holly, and Amelanchier. The reasons these species were chosen are (i) they grow well in dry, infertile soil, (ii) they historically existed on Staten Island before human intervention, (iii) they provide a good wildlife habitat, (iv) they grow along the coast, and (v) they are aesthetically pleasing.

   In addition, trees and shrubs provide greater erosion protection than grass alone.

2. Preparation of the western side of the site for the construction of passive and active recreation areas.

3. Preparation of the central areas of the site for the future construction of a formal park entrance, education center, interpretive area, parking, maintenance compound, detention ponds, and canoe/kayak launching area.

4. Preparation of the eastern side of the site as a passive recreation area, including such features as hiking trails and observation areas

The estimated capital costs, operating costs and maintenance costs for construction of the End Use Plan are listed in Table 12. These costs are not reflected in the individual alternatives cost in Table 11.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation activities were undertaken in an effort to inform and educate the public about conditions at the site and the potential remedial alternatives. A highlight of the Citizen Participation Activities included the establishment of a Citizens Advisory Committee (CAC). The CAC and their Engineering and Scientific consultants made a real difference in the way the remedial investigation and subsequent activities were conducted. The following public participation activities were conducted for the site:

The following repositories for documents pertaining to the site were established:

Staten Island Public Library
Richmondtown Branch
200 Clarke Avenue
Staten Island, NY 10306
(718)668-0413

Staten Island Public Library
New Dorp Regional
309 New Dorp Lane
Staten Island, NY 10301
(718)351-2977

Staten Island Borough Hall
Room 100
Staten Island, NY 10301
(718)816-2000

Community Board #3
655-218 Rossville Avenue
Staten Island, NY 10309
(718)356-7900

Community Board #2
460 Brielle Avenue
Staten Island, NY 10301
(718)317-3235

New York City
Department of Environmental Protection
Office of Community Outreach
59-17 Junction Boulevard
Corona, NY 11365-5107
(718)595-3484

New York State Department of Environmental Conservation
Region 2 Office
47-40 21st Street
Long Island City, NY 11101
Nigel N. Crawford
(718) 482-4996

A site mailing list was established which included nearby property owners, local political officials, local media and other interested parties.

On April 20, 1998 a public meeting was conducted at which results of the Remedial Investigation and the Feasibility Study report were presented.

In May 2001, the Proposed Remedial Action Plan (PRAP) was issued. The PRAP public meeting was held at P.S. 32 at 32 Elverton avenue on Tuesday June 12, 2001. As mandated by 6NYCRR Part 375, a minimum thirty-day comment period was held for the PRAP from May 30, 2001 to June 29, 2001. This period was subsequently extended by two weeks. Fact sheets were sent out to everyone on the mailing list in addition to invitations to the PRAP public meeting. The PRAP public meeting was held at P.S. 32 at 32 Elverton Avenue on Tuesday June 12,2001. During this period NYSDEC staff was in contact with the CAC and their consultants.

In March, 2002 a Responsiveness Summary was prepared and made available to the public, to address the comments received during the public comment period for the PRAP.

Table 1
Extent of Contamination
Sampled from 05/94 to 05/97

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)	FREQUENCY of EXCEEDING TAGM	SCG (ppm)
Surface Soil	Semivolatile Organic Compounds (SVOCs)	Benzo(a)anthracene	ND to 5.3	6 of 16	.224
		Chrysene	ND to 4.1	4 of 16	.400
		Benzo(b)fluoranthene	ND to 5.1	2 of 16	1.100
		Benzo(k)fluoranthene	ND to 2.8	2 of 16	1.100
		Benzo(a)pyrene	ND to 3.8	11 of 16	.061
		Dibenzo(a,h)anthracene	ND to 0.56	8 of 16	.014
	Inorganics	Arsenic	2.6 to 25	2 of 17	7.5
		Barium	29.5 to 337	1 of 17	300
		Beryllium	ND to 0.52	1 of 17	0.16
		Cadmium	ND to 5.6	13 of 17	1
		Chromium	9.8 to 40.4	15 of 17	10
		Copper	10.5 to 171	9 of 17	25
		Iron	4,530 to 21,300	17 of 17	2,000
		Mercury	0.16 to 0.73	17 of 17	0.1
		Nickel	ND to 96.4	10 of 17	13
		Zinc	8.3 to 651	9 of 17	20

Table 2
Extent of Contamination
Sampled from 05/94 to 05/97

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)	FREQUENCY of EXCEEDING TAGM	SCG (ppm)
Subsurface Soil	Volatile Organic Compounds (VOCs)	2-Butanone	ND to 1,500	2 of 89	0.30
		Acetone	ND to 21	3 of 89	0.20
		Chlorobenzene	ND to 0.11	0 of 89	1.70
		Methylene Chloride	ND to 8.2	10 of 89	0.1
		Ethylbenzene	ND to 54	13 of 89	5.50
		Tetrachloroethene	ND to 0.024	0 of 89	1.40
		Toluene	ND to 150	1 of 89	1.50
		Xylenes (total)	ND to 190	17 of 89	1.20
	Semivolatile Organic Compounds (SVOCs)	Phenol	ND to 1.3	12 of 46	0.03
		Chrysene	ND to 2.5	2 of 46	0.40
		Benzo(b)fluoranthene	ND to 1.9	2 of 46	1.10
		Benzo(k) Fluoranthene	ND to 2.7	1 of 46	1.10
		Benzo(a)pyrene	ND to 2.0	6 of 46	0.061
		Dibenzo(a,h)anthracene	ND to 0.56	5 of 46	0.014
	Inorganics	Barium	6.7 to 368	2 of 43	300
		Beryllium	ND to 4.5	36 of 43	0.16
		Cadmium	ND to 3.3	7 of 43	1.00
		Chromium	2.7 to 95	37 of 43	10.00
		Iron	3,190 to 72,600	43 of 43	2,000
		Nickel	2.4 to 191	37 of 43	13.0
		Zinc	1.2 to 461	24 of 43	20.0
		Copper	1.2 to 161	24 of 43	25.0
		Mercury	ND to 0.91	24 of 43	25.0
	Pesticides/ PCBs	Aroclor 1254	0.47 to 22	3 of 46	10.00
		Heptochlor epoxide	ND	0 of 68	0.02

SCGs from TAGM 4046

Table 3
Extent of Contamination
Sampled from 05/94 to 05/97

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs	SCG (ppb)
Groundwater (in shallow upper glacial aquifer)	Pesticides	Aldrin	ND to 0.023	0 of 53	0.050
		Dieldrin	ND to 0.021	2 of 53	0.004
		4, 4'-DDE	ND to 0.062	0 of 53	0.2
		4, 4'-DDD	ND to 0.11	0 of 53	0.3
		Endrin	ND to 0.017	0 of 53	ND
		Alpha-Chlordane	ND to 0.12	1 of 53	0.05
		Aroclor 1232	ND to 4.5	1 of 53	0.09
		Aroclor 1254	ND to 1.9	1 of 53	0.09
		Alpha-BHC	ND to 0.0085	0 of 53	0.01
		Beta-BHC	ND to 0.014	0 of 53	0.04
	Inorganics	Aluminum	ND to 4,010	10 of 53	1318
		Arsenic	ND to 27.1	1 of 53	25
		Calcium	3510 to 261,000	50 of 53	8745
		Iron	120 to 67,600	43 of 53	300
		Magnesium	5,670 to 570,000	34 of 53	35,000
		Manganese	16.1 to 14,200	29 of 53	300
		Nickel	ND to 101	2 of 53	100
		Potassium	1,170 to 218,000	50 of 53	1353
		Sodium	17,000 to 4,840,000	41 of 53	20,000
		Vanadium	ND to 15.6	9 of 53	3
		Zinc	18.3 to 456	0 of 53	2,000
	Conventional	Ammonia	ND to 155,000	30 of 53	2,000

Table 3 (cont'd)
Extent of Contamination
Sampled from 05/94 to 05/97

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCG's	SCG (ppb)
Groundwater (in shallow upper glacial aquifer)	Volatile Organic Compounds (VOCs)	Benzene	ND to 12	18 of 53	1
		Chlorobenzene	ND to 48	22 of 53	5
		Toluene	ND to 49	2 of 53	5
		O-Xylenes	ND to 3.8	0 of 53	5
	Semivolatile Organic Compounds (SVOCs)	1,4-Dichlorobenzene	ND to 6	8 of 53	3
		4-Methylphenol	ND to 22	4 of 53	1
		4-Chloro-3-Methylphenol	ND to 10	9 of 53	1

Note: SB Site Background. ND: Non detect.

Table 4
Extent of Contamination
Sampled from 05/94 to 05/97

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs	SCG (ppb)
Groundwater (in deep glacial aquifer)	Volatile Organic Compounds (VOCs)	Chloroform	ND to 21	3 of 30	7
		Methylene Chloride	ND to 5.3	1 of 30	5
		Toluene	ND to 24	1 of 30	5
	Semivolatile Organic Compounds (SVOCs)	Bis(2-Ethylhexyl) Phthalate	ND to 7	1 of 30	5
	Inorganics	Aluminum	90.6 to 8,590	10 of 30	1318
		Calcium	1523 to 605,000	19 of 30	8745
		Barium	86.7 to 1,370	1 of 30	1,000
		Iron	46.2 to 59,200	20 of 30	300
		Magnesium	2,080 to 367,000	14 of 30	35,000
		Manganese	37.6 to 3,480	17 of 30	300
		Nickel	ND to 149	3 of 30	100
		Potassium	660 to 114,000	20 of 30	1353
		Sodium	8,800 to 3,100,000	13 of 30	20,000
		Vanadium	ND to 25.7	9 of 30	3.00
		Copper	ND to 368	1 of 30	200
		Cobalt	ND to 35.6	2 of 30	17.70
	Conventional	Ammonia	ND to 6.07	6 of 30	2,000

Note:
SB: Site Background.

Table 5
Extent of Contamination
Sampled from 05/94 to 05/97

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs	SCG (ppb)
Groundwater (in cretaceous glacial aquifer)	Volatile Organic Compounds (VOCs)	Acetone	ND to 13	0 of 19	50
		Chloroform	ND to 24	1 of 19	7
		Chlorobenzene	ND to 5.4	1 of 19	5
		Methylene Chloride	ND to 5	1 of 19	5
		Toluene	ND to 12	2 of 19	5
		1,1,1-Trichloroethane	ND to 22	2 of 19	5
	Pesticides	Beta-BHC	ND to 0.029	0 of 19	0.04
	Inorganics	Calcium	8,600 to 84,000	6 of 19	8745
		Iron	42.8 to 6,150	6 of 19	300
		Magnesium	18.3 to 36,500	1 of 19	35,000
		Manganese	46.2 to 422	1 of 19	300
		Potassium	1,800 to 42,700	6 of 19	1353
		Sodium	9,730 to 29,400	4 of 19	20,000
		Lead	3.5 to 42.6	1 of 19	25
		Copper	5.9 to 92.8	0 of 19	200
		Zinc	ND to 5,930	2 of 19	2,000
	Conventional	Ammonia	146 to 1,850	0 of 19	2,000

Note:
SB: Site Background.

Table 6
Extent of Contamination
Sampled from 05/94 to 05/97

Media	Class	Contaminant of Concern	Concentration range (ppb)	Frequency of Exceeding SCGs	SCG(ppb)
Surface water	VOCs	Tetrachloroethylene	ND to 2	1 of 20	1.00
	Pesticides	4,4-DDE	ND to 0.0077	1 of 20	0.000011
		4,4-DDD	ND to 0.170	1 of 20	0.000011
		gamma BHC	ND to 0.016	1 of 20	0.008
		Heptaclor	ND to 0.019	1 of 20	0.0002
		Aldrin	ND to 0.015	1 of 20	0.001
		Dieldrin	ND to 0.029	1 of 20	0.0000006
		Endrin	ND to 0.035	1 of 20	0.002
	Inorganics	Lead	ND to 42.1	9 of 20	8.0
		Mercury	ND to 0.91	6 of 20	0.0007
		Nickel	ND to 17.8	7 of 20	8.2
		Zinc	ND to 108	2 of 20	66
		Cyanide	ND to 4.8	5 of 20	1.0
		Ammonia	ND to 5179	0 of 20	

Table 7
Extent of Contamination

Sampled from 05/94 to 05/97

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs	SCG (ppb)
Leachate Seeps	Volatile Organic Compounds (VOCs)	Benzene	ND to 33	1 of 10	10
		Chlorobenzene	ND to 3,200	1 of 10	400
		Xylenes	ND to 240	1 of 10	19
	Semivolatile Organic Compounds (SVOCs)	1,4-Dichlorobenzene	ND to 13	3 of 10	5.0 G
		1,2-Dichlorobenzene	ND to 160	1 of 10	5.0 G
		Naphthalene	ND to 64	0 of 1	16
		Benzo(a)pyrene	ND to 1	1 of 10	0.001
	Pesticides	4,4'-DDE	ND to 0.014	2 of 10	0.0000011
		Alpha BHC	ND to 0.0044	1 of 10	0.02
	Inorganics	Arsenic	ND to 230	3 of 10	63
		Chromium	3.1 to 1,140	5 of 10	54
		Lead	ND to 2,860	9 of 10	8
		Mercury	ND to 39	9 of 10	0.0007
		Nickel	ND to 647	9 of 10	8.2
		Zinc	56.7 to 9,610	9 of 10	66
		Cadmium	ND to 19.6	1 of 10	7.70
	Conventional	Ammonia	ND to 274,000	-	-

Note: Parenthesis indicates a non detect with the detection limit shown.
SB: Site Background.
G: Guidance value.
SCGs for Class SC waters

Table 8
Extent of Contamination
Sampled from 05/94 to 05/97

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs	SCG (ppb)
Ground-water (from leachate well)	Volatile Organic Compounds (VOCs)	2-Butanone	1.7 to 190,000	3 of 10	50
		4-Methyl-2-Pentanone	ND to 1,800	2 of 10	50
		Acetone	ND to 9,300	1 of 10	50
		Benzene	ND to 31	8 of 10	1
		Chlorobenzene	ND to 24	7 of 10	5
		Ethylbenzene	ND to 69	4 of 10	5
		Trichloroethylene	ND to 7	1 of 10	5
		Methylene Chloride	ND to 90	2 of 10	5
		Toluene	ND to 3,600	3 of 10	5
		Xylenes(total)	ND to 310	4 of 10	5
	Semivolatile Organic Compounds (SVOCs)	Phenol	ND to 58	1 of 10	1
		1,4-Dichlorobenzene	ND to 13	4 of 10	3
		2-Methylnaphthalene	ND to 18	0 of 10	50
		4-Chloro-3-Methylphenol	ND to 15	4 of 10	1
		2-Methylphenol	ND to 54	2 of 10	1
		4-Methylphenol	ND to 54	4 of 10	1
		2,4-Dimethylphenol	ND to 26	2 of 10	1
		Di-n-butylphthalate	ND to 98	1 of 10	50
		Naphthalene	ND to 200	8 of 10	10

SCGs are for Class GA waters

Table 8 (cont'd)
Extent of Contamination
Sampled from 05/94 to 05/97

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs	SCG (ppb)
Groundwater	Pesticides	4,4'-DDE	ND to 0.0096	0 of 10	0.2
(from leachate well)	Inorganics	Aluminum	368 to 7,000	4 of 10	1,318
		Calcium	19,300 to 145,000	10 of 10	8,745
		Chromium	ND to 115	2 of 10	50
		Cobalt	25.7 to 40	2 of 10	17.7
		Iron	744 to 65,700	10 of 10	300
		Magnesium	45,400 to 172,000	10 of 10	35,000
		Manganese	47.6 to 133,000	3 of 10	300
		Nickel	ND to 126	7 of 10	100
		Potassium	25,500 to 706,000	10 of 10	1353
		Sodium	6,930 to 2,820,000	9 of 10	20,000
		Vanadium	3.1 to 36.7	6 of 10	3
		Cyanide	3,100 to 27,500	0 of 10	200
		Lead	6.1 to 59.8	2 of 10	25
	Conventional	Ammonia	1,037 to 488,000	8 of 10	2,000

Note:
SB: Site Background.

Table 9
Extent of Contamination
Landfill Gas Sampling Analysis Results
Sampled from 05/94 to 05/97

Compound	Sample LW-2S	Sample LW-3S	Sample LW-4S	Sample LW-5S
Test Method NIOSH 6010 (1)				
HYDROGEN CYANIDE (ug)	<1	<1	<1	<1
Test Method ASTM D>3416				
METHANE	65%	8.4%	50%	49%
CARBON DIOXIDE	16%	20%	11%	13%
Test Method ASTM D-5504				
HYDROGEN SULFIDE	280	5,000	<5.2	<10
METHYL MERCAPTAN	<5.6	<26	16	<10
ETHYL MERCAPTAN	<5.6	<26	<5.2	<10
ISOPROPYL MERCAPTAN	<5.6	<26	<5.2	<10
tert-BUTYL MERCAPTAN	<5.6	<26	<5.2	<10
N-PROPYL MERCAPTAN	<5.6	<26	<5.2	<10
ISOBUTYL MERCAPTAN	<5.6	<26	<5.2	<10
n-BUTYL MERCAPTAN	<5.6	<26	<5.2	<10
Test Method EPA TO-14				
DICHLORODIFLUOROMETHANE	<9.3	71	<8.7	<22
FREON 114	220	140	200	110
CHLOROMETHANE	<9.3	<13	<8.7	<22
VINYL CHLORIDE	21	14	24	<22
BROMOMETHANE	<9.3	<13	<8.7	<22
CHLOROETHANE	<9.3	<13	290	<22
TRICHLOROFLUOROMETHANE	<9.3	<13	<8.7	<22
1,1-DICHLOROETHYLENE	<9.3	<13	<8.7	<22
FREON 113	<9.3	<13	<8.7	<22
METHYLENE CHLORIDE	<9.3	<13	<8.7	<22
1,1-DICHLOROETHANE	<9.3	<13	21	<22
Cis-1,2-DICHLOROETHYLENE	<9.3	<13	27	<22
CHLOROFORM	<9.3	<13	<8.7	<22

NOTES: U - Quantity undetected, E - Quantity estimated, Concentration in ppbv.

Table 9 (cont'd)
Extent of Contamination
Landfill Gas Sampling Analysis Results
Sampled from 05/94 to 05/97

Compound	Sample LW-2S	Sample LW-3S	Sample LW-4S	Sample LW-5S
Test Method NIOSH 6010 (1)				
1,1,1-TRICHLOROETHANE	<9.3	<13	<8.7	<22
CARBON TETRACHLORIDE	<9.3	<13	<8.7	<22
BENZENE	210	54	81	93

Table 10
Extent of Contamination
Landfill Gas Sampling Analysis Results
Sampled from 05/94 to 05/97

Compound	Sample LW-2S	Sample LW-2S	Sample LW-2S	Sample LW-2S
Test Method EPA TO-14 (con't)				
1,2-DICHLOROETHANE	<9.3	<13	<8.7	<22
TRICHLOROETHYLENE	<9.3	<13	<8.7	<22
1,2-DICHLOROPROPANE	<9.3	<13	<8.7	<22
Trans-1,3-DICHLROPROPANE	<9.3	<13	<8.7	<22
TOLUENE	36	36	24	56
Cis-1,3-DICHLOROPROPANE	<9.3	<13	<8.7	<22
1,1,2-TRICHLOROETHANE	<9.3	<13	<8.7	<22
TETRACHLOROETHYLENE	<9.3	<13	<8.7	<22
ETHYLENE DIBROMIDE	<9.3	<13	<8.7	<22
CHLOROBENZENE	140	770	<8.7	140
ETHYLBENZENE	20	71	82	56
m,p-XYLENE	69	710	52	380
o-XYLENE	36	330	24	22
STYRENE	<9.3	<13	<8.7	<22
1,1,2,2-TETRACHLOROETHANE	<9.3	<13	<8.7	<22
1,3,5-TRIMETHYL BENZENE	14	350	<8.7	190
1,2,4-TRIMETHYL BENZENE	58	1200	18	600
1,3-DICHLOROBENZENE	<9.3	<13	<8.7	<22
1,4-DICHLOROBENZENE	48	270	<8.7	<22
CHLOROTOLUENE	<9.3	<13	<8.7	<22
1,2-DICHLOROBENZENE	<9.3	<13	<8.7	<22
1,2,4-TRICHLOROBENZENE	<9.3	<13	<8.7	<22
HEXACHLOROBUTADIENE	<9.3	<1300	<8.7	<22
METHYL ALCOHOL	<930	<52	180,000 E	<2200
ACETONITRILE	<37	<52	<35	<86
ETHYL ETHER	150	<52	120	<86
ACETONE	94	<52	<35	290
ACRYLONITRILE	<37	<52	<35	<86
VINYL ACETATE	<37	<52	<35	<86
2-BUTANOL	<37	<52	<35	<86
1-BUTANOL	<930	<1300	<870	<2200

Table 10 (cont'd)
Extent of Contamination
Landfill Gas Sampling Analysis Results
Sampled from 05/94 to 05/97

Compound	Sample LW-2S	Sample LW-2S	Sample LW-2S	Sample LW-2S
4-METHYL-2-PENTANONE	<37	<52	<35	<86
2-HEXANONE	<37	<52	<35	<86
METHYL-T-BUTYL ETHER	<37	<52	<35	<86
ACROLEIN	<37	<52	<35	<86

NOTES: U - Quantity undetected, E - Quantity estimated, Concentration in ppbv.

Table 11

BROOKFIELD AVENUE LANDFILL CLOSURE
Remedial Alternatives Cost

ITEM	Alternative 1	Alternative 2A	Alternative 2B	Alternative 3	Alternative 4	Alternative 5
Capital Cost	$2,000	$70,681,000	$71,293,000	$71,624,000	$70,288,000	$69,648,000
Annual O & M Cost (year 1)	$414,000	$1,236,000	$1,278,000	$1,320,000	$1,239,000	$1,239,000
Annual O & M Cost (year 2-5)	$413,000	$1,158,000	$1,183,000	$1,242,000	$1,119,000	$1,119,000
Annual O & M Cost (year 6-30)	$278,000	$1,018,000	$1,043,000	$1,102,000	$979,000	$979,000
TOTAL PRESENT WORTH COST	$4,461,000	$85,763,000	$86,745,000	$87,903,000	$84,849,000	$84,209,000

Notes: (1) Total present worth cost is calculated using a 4% discount rate.
(2)The Total Present Worth Cost is not equal to the sum of the preceding numbers of each column.

Table 12

Conceptual End Use Plan Cost Estimate
Brookfield Avenue Landfill Feasibility Study

ITEM	Alternative 1	Alternative 2A	Alternative 2B	Alternative 3	Alternative 4	Alternative 5
Capital Cost	$7,417,000	$7,417,000	$7,417,000	$7,417,000	$7,417,000	$7,417,000
Annual O & M Cost (year 1)	$145,000	$145,000	$145,000	$145,000	$145,000	$145,000
Annual O & M Cost (year 2-5)	$508,000	$508,000	$508,000	$508,000	$508,000	$508,000
Annual O & M Cost (year 6-30)	$1,868,000	$1,868,000	$1,868,000	$1,868,000	$1,868,000	$1,868,000
TOTAL PRESENT WORTH COST	$6,340,000	$6,340,000	$6,340,000	$6,340,000	$6,340,000	$6,340,000

Note: The Total Present Worth Cost is not equal to the sum of the preceding numbers of each column.

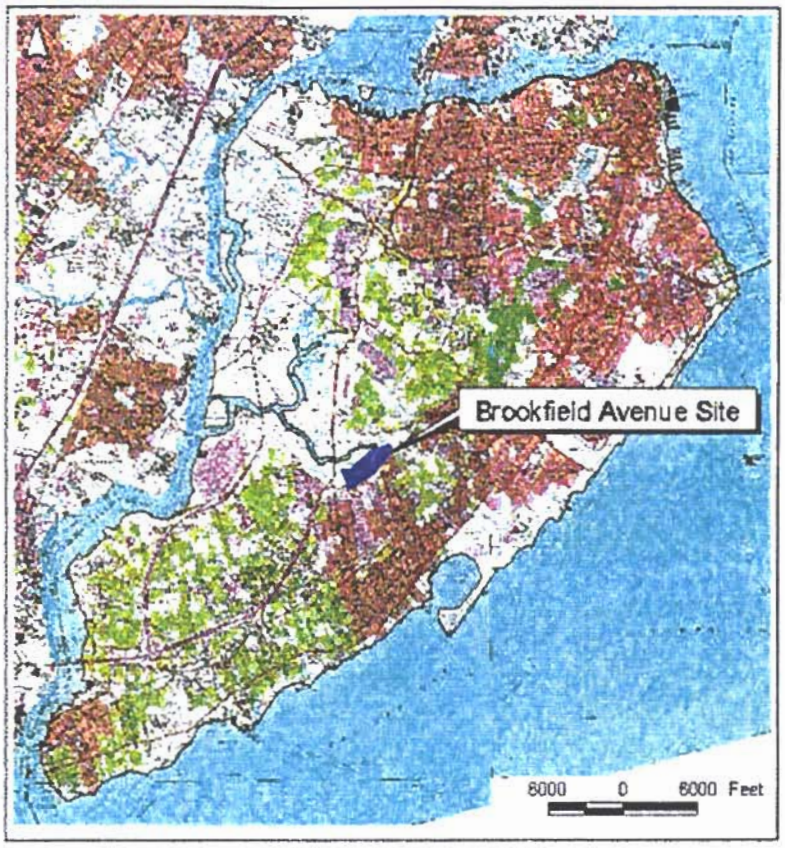

Figure 1 - A
Site Location Map
Brookfield Avenue Landfill Remediation Project

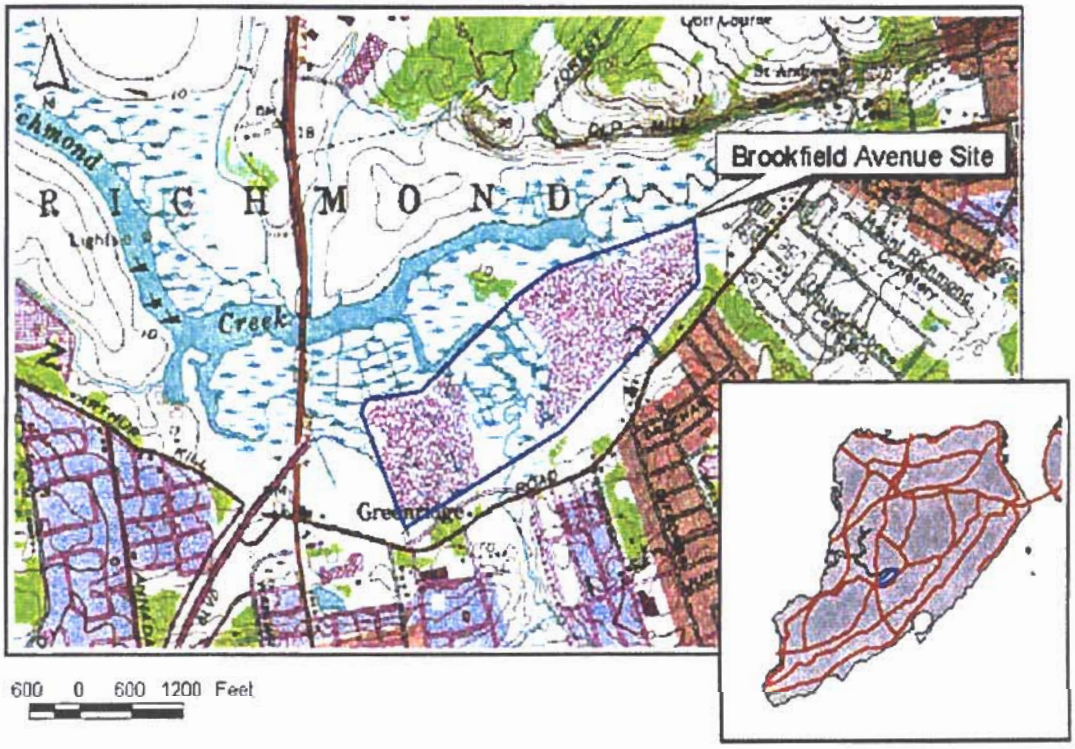

Figure 1 - B
Site Location Map
Brookfield Avenue Landfill Remediation Project

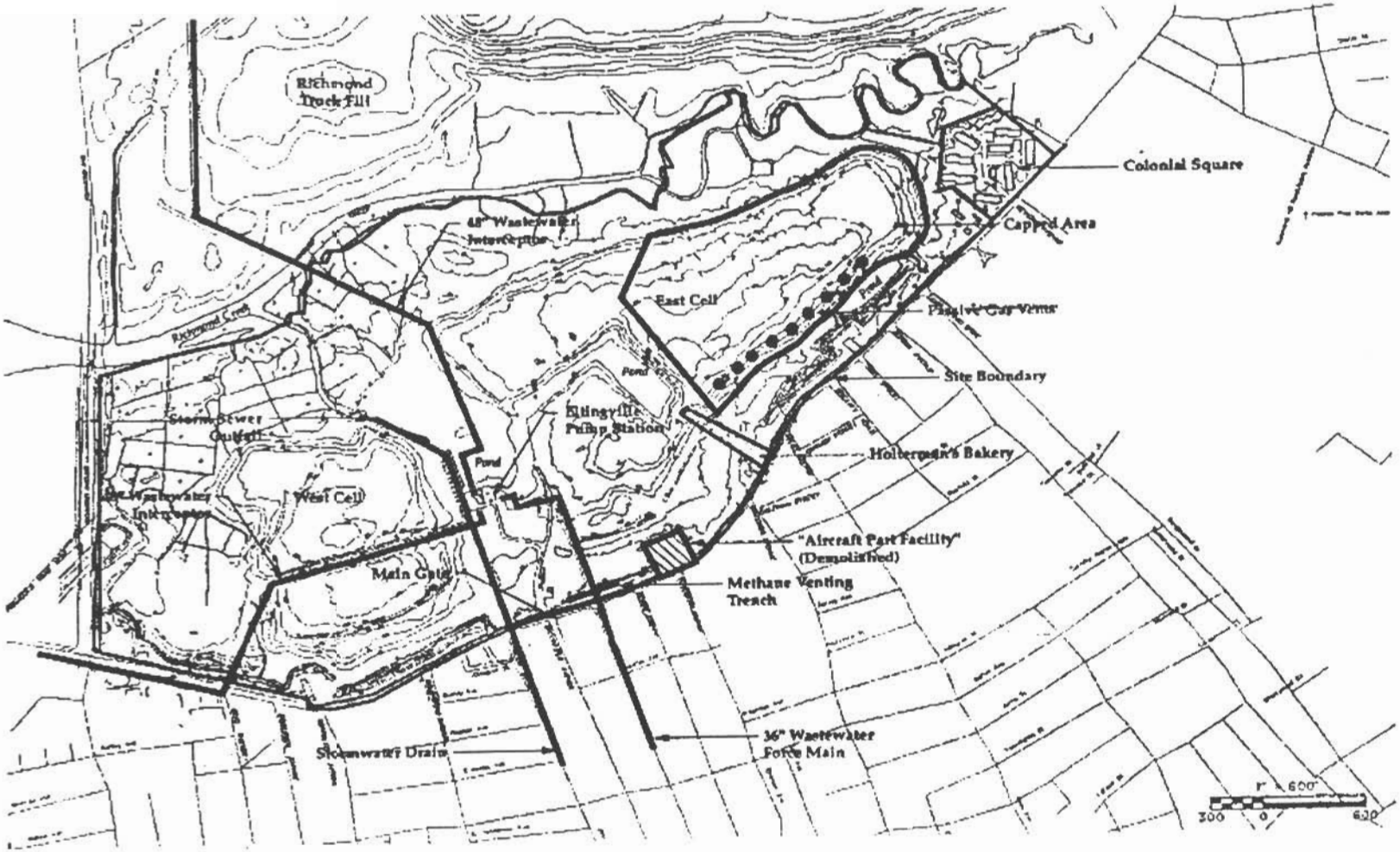

Figure 2
Site Plan
Brookfield Avenue Landfill Remediation Project

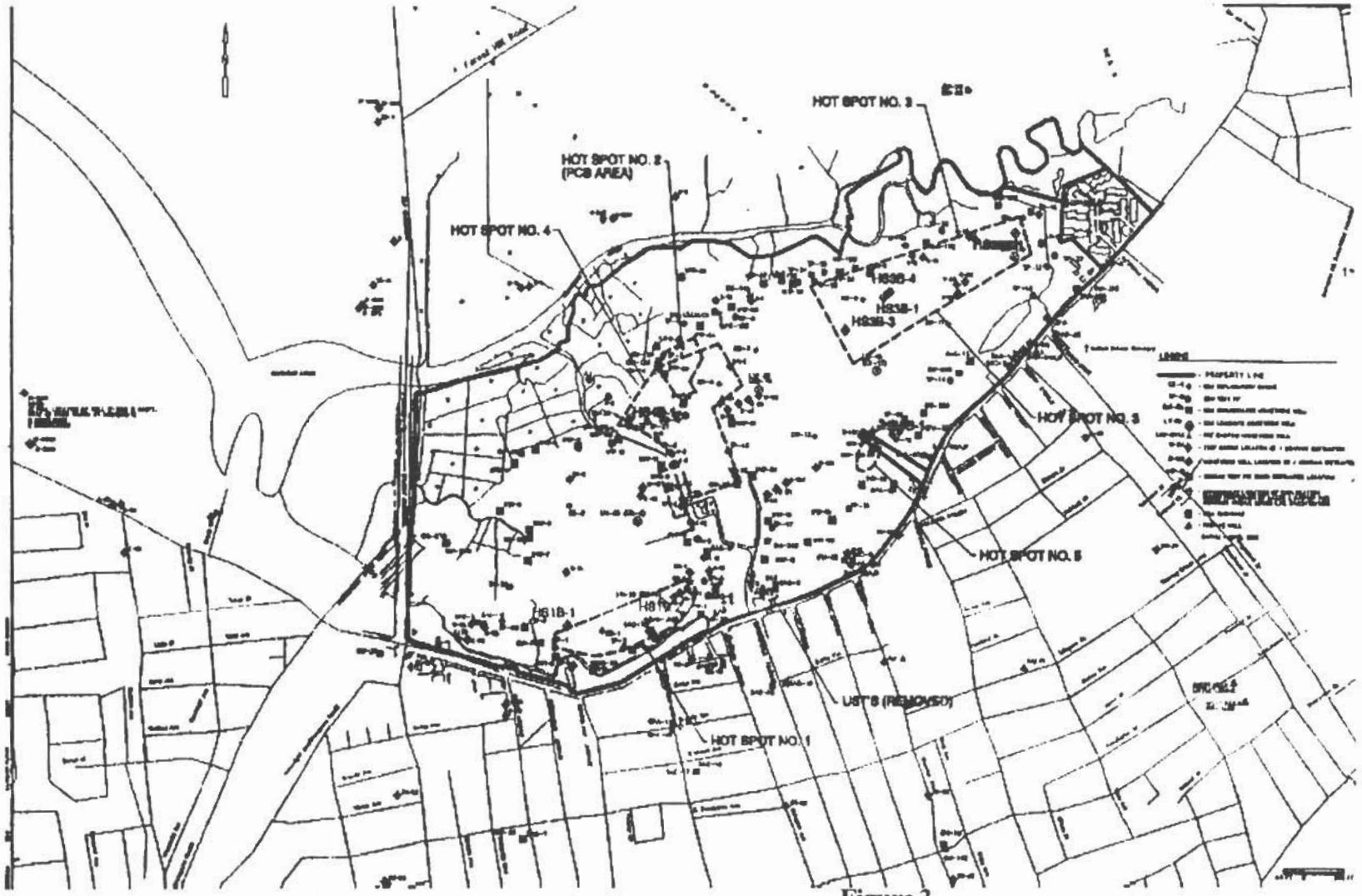

Figure 3
Hot Spot Location Map
Brookfield Avenue landfill Remediation Project

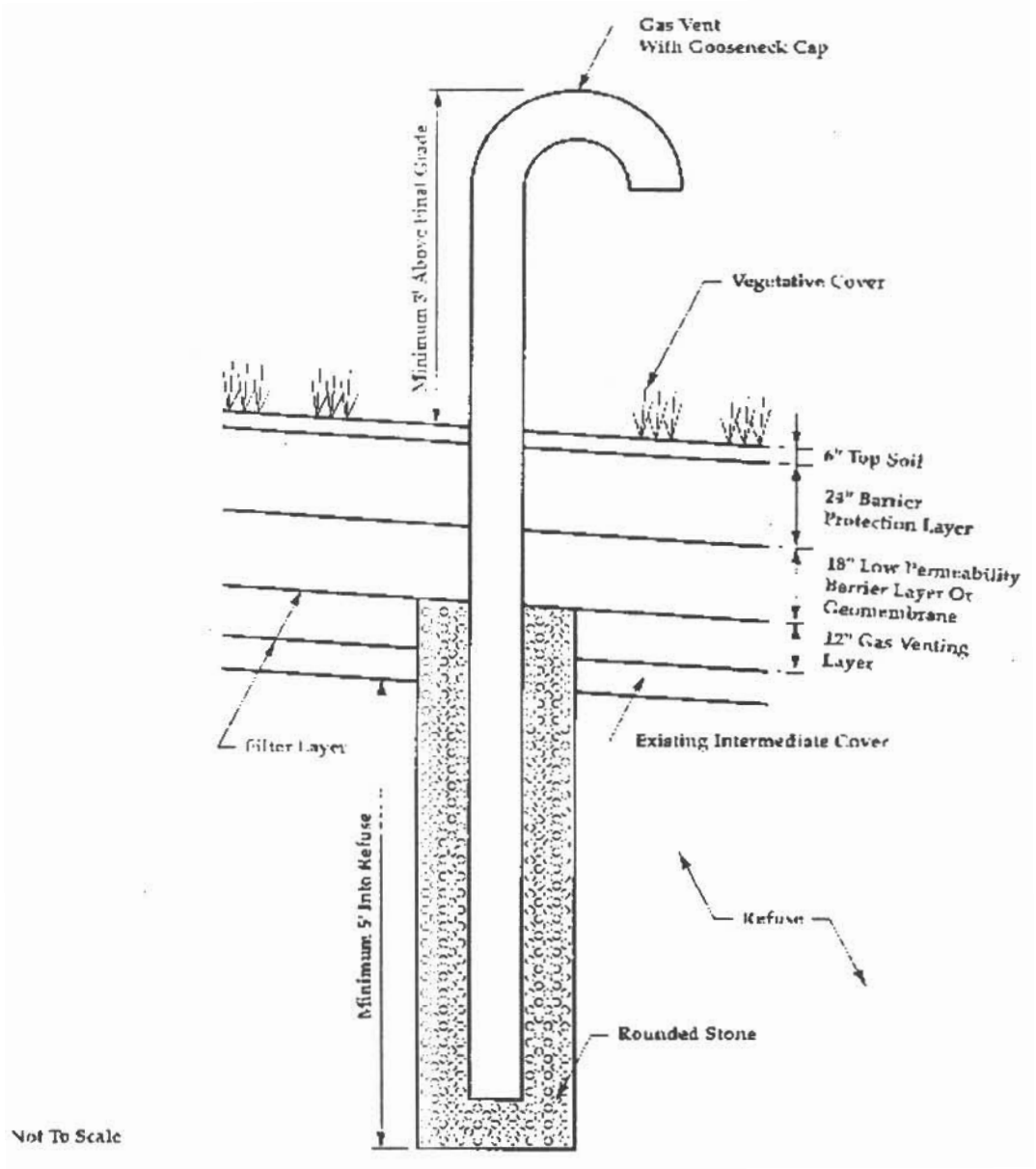

Figure 4
Typical Part 360 Landfill Cap Cross Section With Gas Vent
Brookfield Avenue Landfill Remediation Project

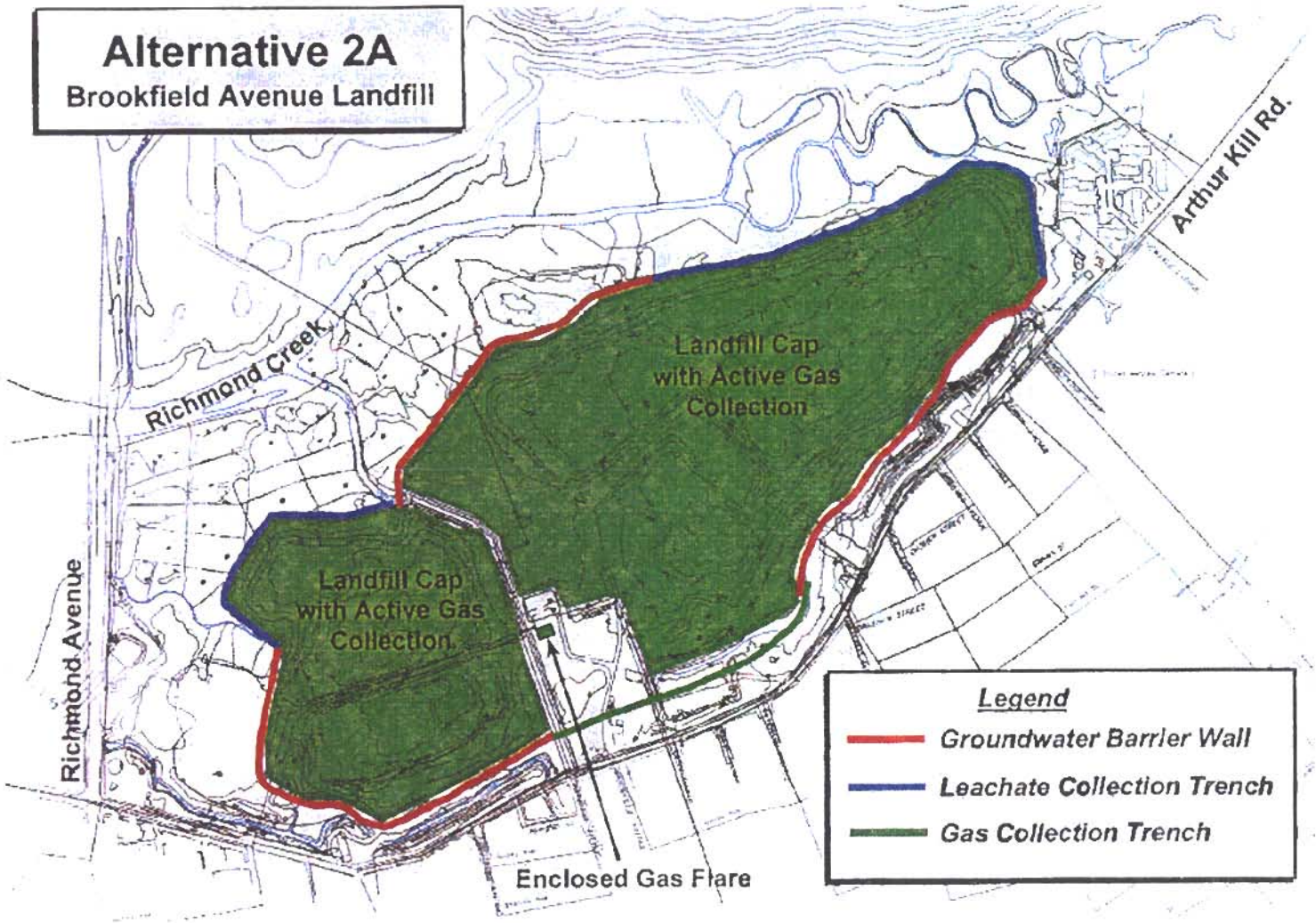
Alternative 2A
Brookfield Avenue Landfill
Arthur Kill Rd.
Richmond Creek
Landfill Cap with Active Gas Collection
Landfill Cap with Active Gas Collection
Richmond Avenue
Enclosed Gas Flare
Legend
Groundwater Barrier Wall
Leachate Collection Trench
Gas Collection Trench

Figure 5

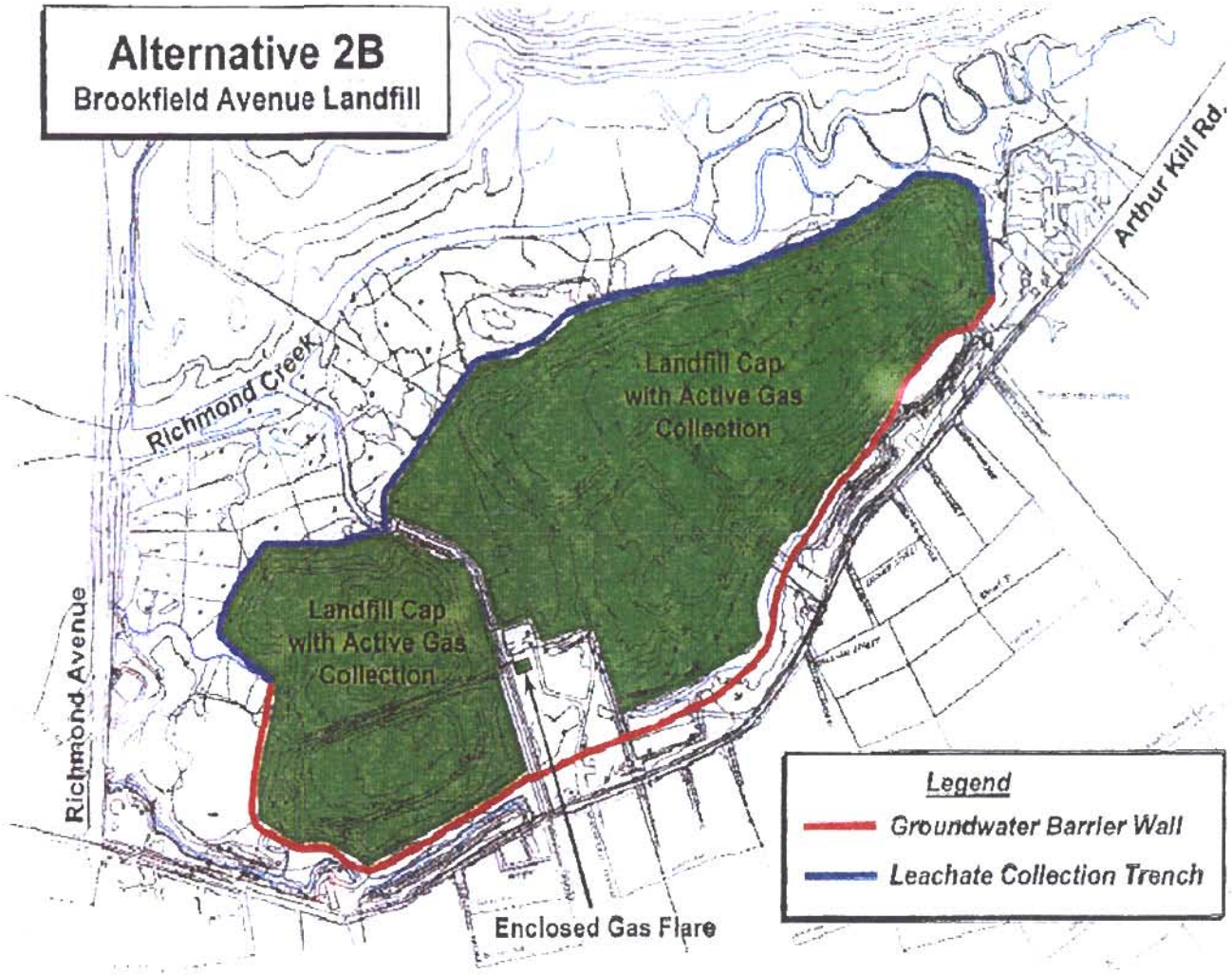
Alternative 2B
Brookfield Avenue Landfill
Arthur Kill Rd.
Richmond Creek
Landfill Cap with Active Gas Collection
Landfill Cap with Active Gas Collection
Richmond Avenue
Enclosed Gas Flare
Legend
Groundwater Barrier Wall
Leachate Collection Trench

Figure 6

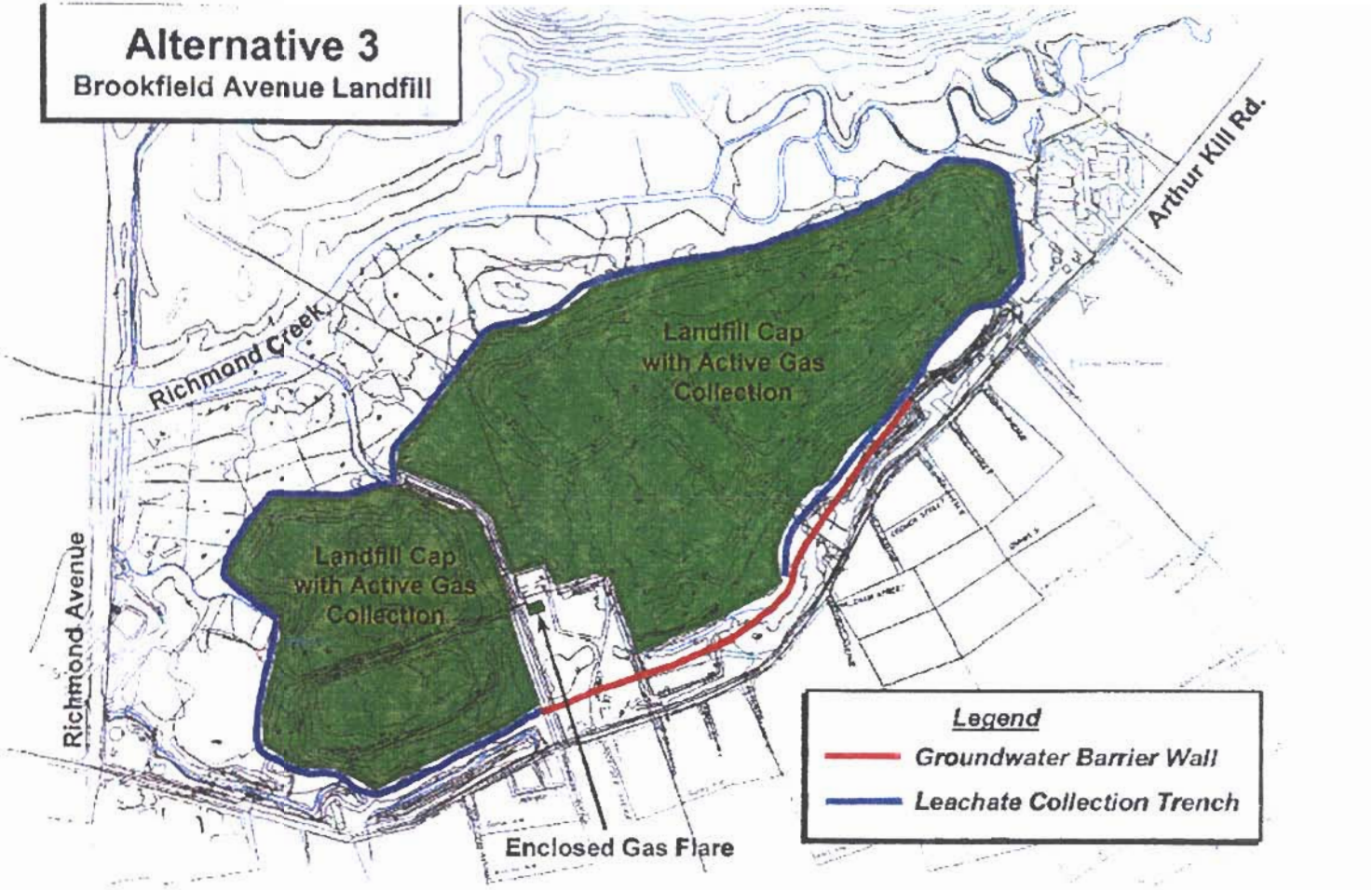
Alternative 3
Brookfield Avenue Landfill
Arthur Kill Rd.
Richmond Creek
Landfill Cap with Active Gas Collection
Landfill Cap with Active Gas Collection
Richmond Avenue
Enclosed Gas Flare
Legend
Groundwater Barrier Wall
Leachate Collection Trench

Figure 7

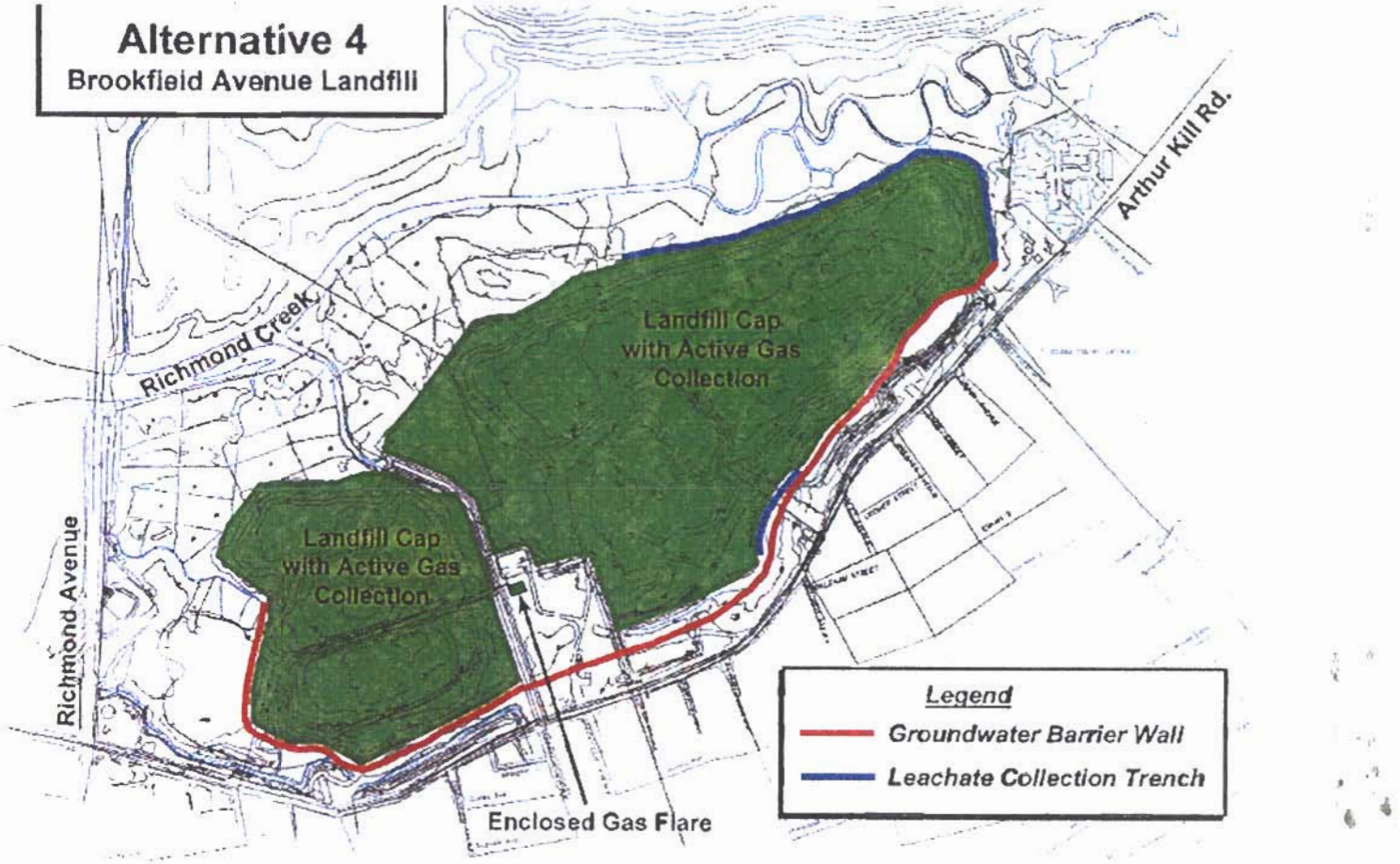
Alternative 4
Brookfield Avenue Landfill
Richmond Creek
Arthur Kill Rd.
Richmond Avenue
Landfill Cap with Active Gas Collection
Landfill Cap with Active Gas Collection
Enclosed Gas Flare
Legend
Groundwater Barrier Wall
Leachate Collection Trench

Figure 8

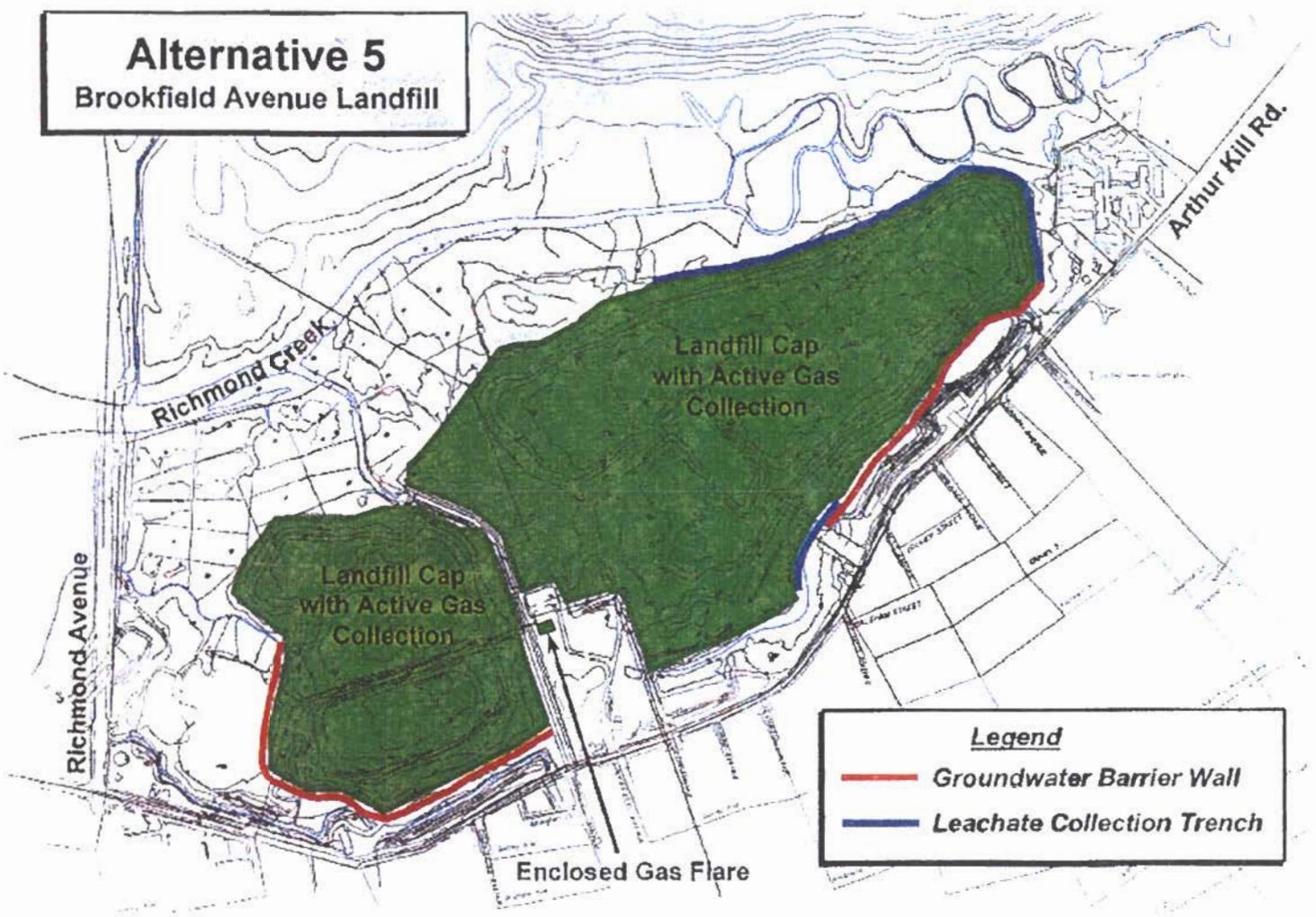
Alternative 5
Brookfield Avenue Landfill
Arthur Kill Rd.
Richmond Creek
Landfill Cap with Active Gas Collection
Landfill Cap with Active Gas Collection
Richmond Avenue
Enclosed Gas Flare
Legend
Groundwater Barrier Wall
Leachate Collection Trench

Figure 9

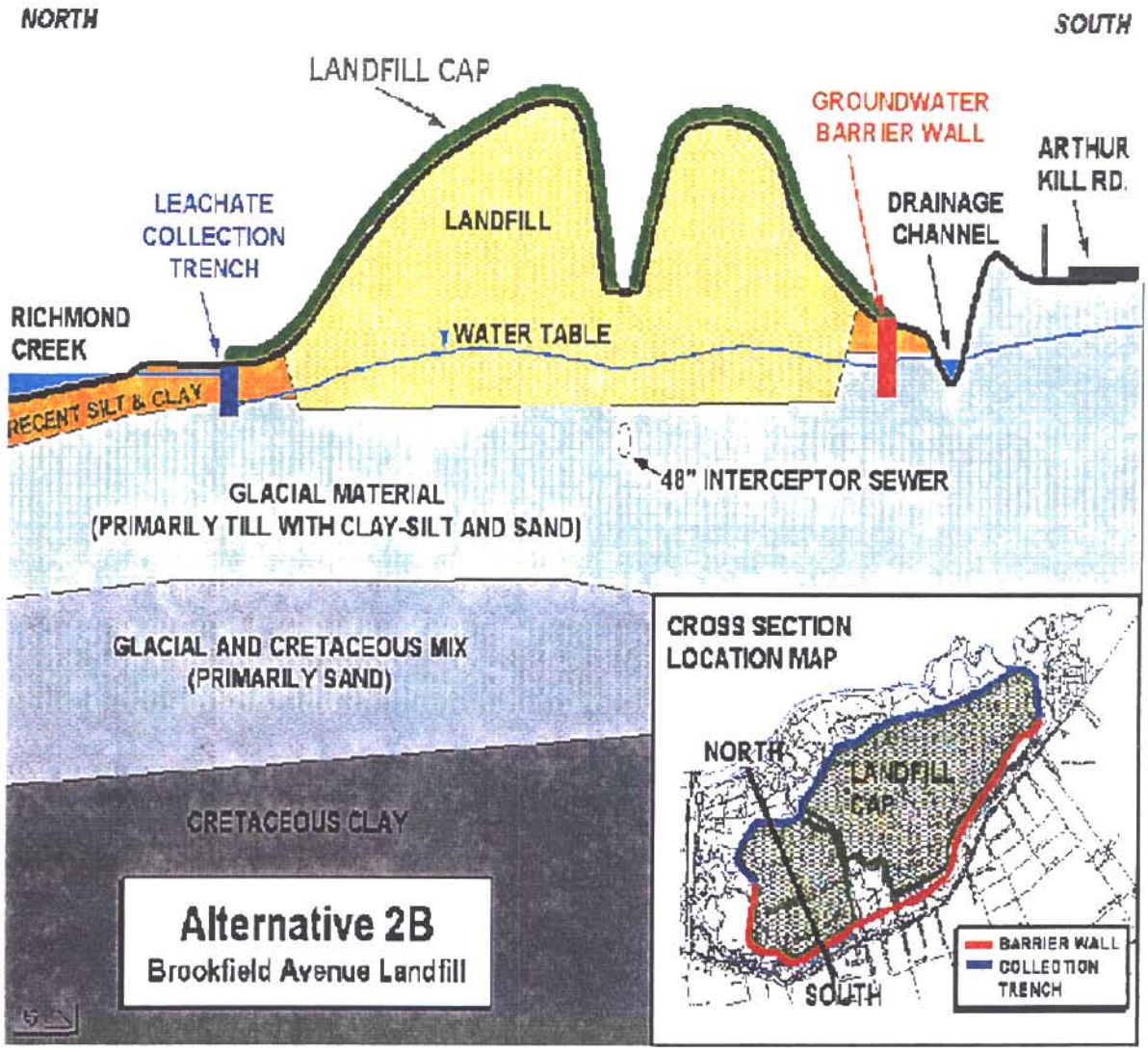

Figure 10
Cross Section of Alternative 2B

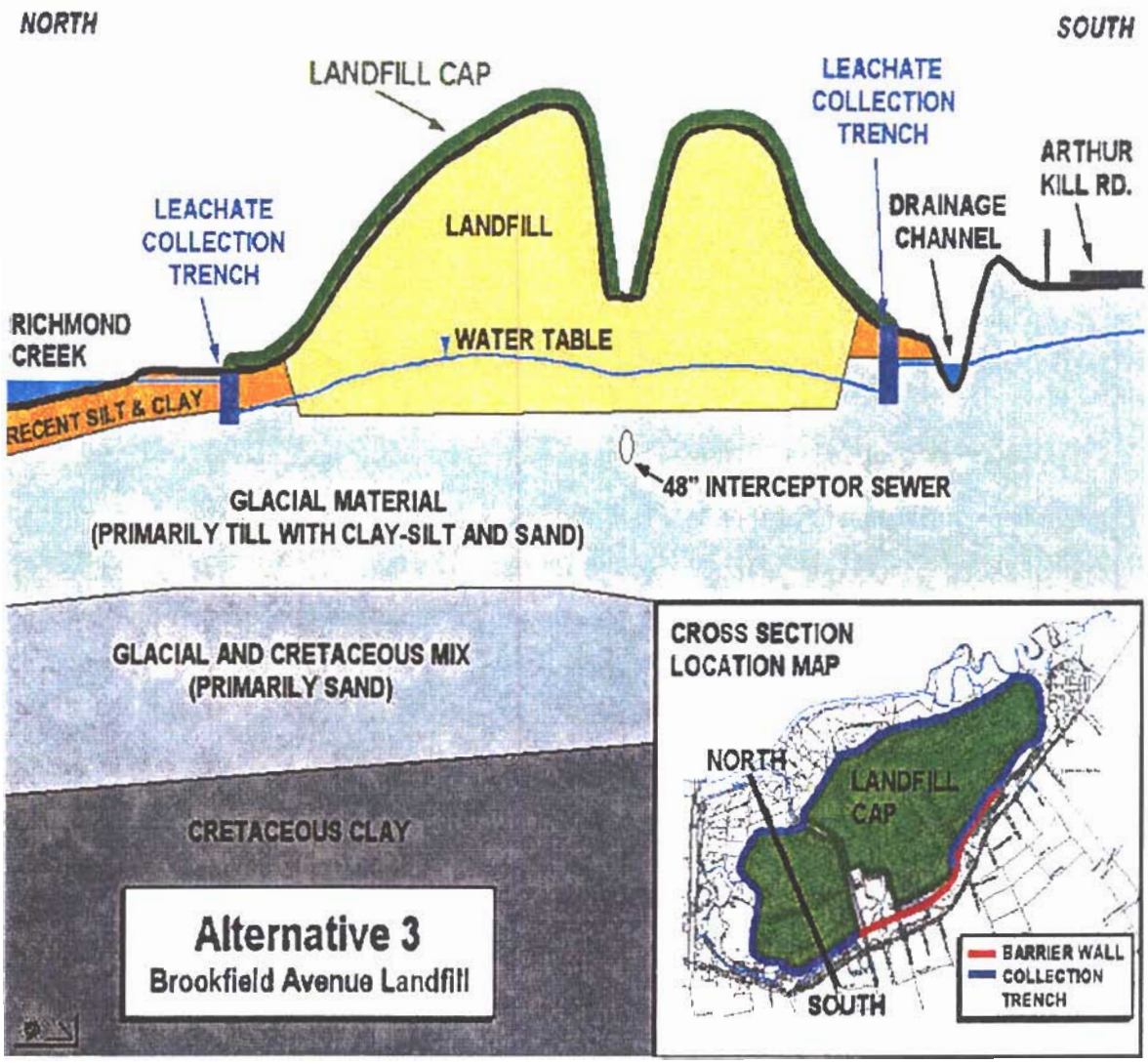

Figure 11
Cross Section of Alternative 3

BROOKFIELD AVENUE LANDFILL

RECORD OF DECISION

APPENDIX A

RESPONSIVENESS SUMMARY

APPENDIX A

RESPONSIVENESS SUMMARY

Brookfield Avenue Landfill
Proposed Remedial Action Plan
New York, Richmond County
Site No. 2-43-006

The Proposed Remedial Action Plan (PRAP) for the Brookfield Avenue Landfill, was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repositories on May 30, 2001. This PRAP outlined the preferred remedial measure for the remediation of the contaminated soil at the Brookfield Avenue Landfill. The preferred remedy includes:

- A Part 360 landfill cap;
- A barrier wall to prevent both groundwater inflow into the landfill and methane migration along Arthur Kill Road;
- Surface water runoff collection;
- Leachate collection and treatment;
- Minimization of encroachment into freshwater and tidal wetlands;
- Active landfill gas collection and treatment;
- Institutional controls including deed restrictions to supplement engineering controls; and
- Initiation of a long term monitoring program to ensure that the contained hazardous waste does not leave the site.

The release of the PRAP was announced via a notice to the mailing list, informing the public of the PRAP's availability.

A public meeting was held on June 12, 2001 at which there was discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. Written comments were received from:

State Senator John Marchi, 24th District
Libby Hikind, Former Candidate for NYC City Council, 50th District
W.F. Van Den Houten, Attorney-at-Law
Ransom Environmental, Engineering Consultants to the Citizens Advisory Committee
Charles Senger
Barbara Blake
Ajanay Feld
F.Ventura
Carol Melian
Josephine Senger
Sally A. Stein
Mr. Tramontano
Theodore A. Mrozinski (TM Environmental Consulting)

The public comment period for the PRAP ended on June 29, 2001.

This Responsiveness Summary responds to all questions and comments raised at the June, 12 2001 public meeting and to the written comments received.

The following are the comments/questions received at the public meeting and through the mail, with the NYSDEC's responses:

SUPERFUND REFINANCING

Written comments recommended that the State Superfund, previously considered to be a major source of funding for the projected $87 million cost, needs urgently to be fully financed by the state legislature and Governor. In their June 27, 2001 letter the Brookfield Avenue Landfill Citizen's Advisory Committee (CAC) expressed concern about the refinancing of the State Superfund program. The concern is whether the Brookfield Avenue Landfill cleanup can receive a portion of these funds. The NYSDEC may view the cleanup as an obligation on the part of New York City. The reality is that when the City budget gets tight there may be delays in the progress of the closure. The CAC requests that the NYSDEC establish a time frame with serious penalties for not meeting deadlines in the Record of Decision and/or Consent order. The CAC also urges the NYSDEC to convey their wishes that Superfund be refinanced to the Governor's Office.

Response

The Governor places a high priority on the environmental vitality of our State and recognizes that strong and effective remedial programs play a critical role in protecting public health and the State's natural resources. For these reasons, the Governor submitted a comprehensive Superfund financing and reform package as part of his Executive Budget for State Fiscal years 2001/2002 and 2002/2003.

The Administrative Consent Order(ACO) and an Environmental Quality Bond Act (EQBA) State Assistance Contract (SAC) are the mechanisms by which dedicated funding can be applied to the remedial construction of the Brookfield Avenue Landfill. The ACO also contains penalties which can be applied to the NYCDEP in instances where there is non-compliance with the terms of the order. The thirty year monitoring program will be the financial responsibility of the City of New York with oversight by the New York State Department of Environmental Conservation (NYSDEC). For answers regarding time-frames please see the **Response** in the section entitled **SCHEDULE.**

As requested, the NYSDEC will convey to the Governor the CAC's wishes that superfund be refinanced.

CONSTRUCTION IMPACTS /COMMUNITY AIR MONITORING PLAN

Written comments were received regarding construction impacts. Concern was raised that "Whenever we start digging something up, there is dust and it is going to land on the communities downwind, such as Richmond, Lighthouse Hill, Oakwood and Great Kills. I would like to ask the panel, what are we going to do to prevent that from happening?"

A letter dated June 27, 2001 was received from the Brookfield Avenue Landfill Citizen's Advisory Committee (CAC) which stated that close attention must be paid to the air monitoring program designed and implemented within and outside the Landfill during closure. They noted that the possibility exists that portions of the Landfill may be exposed during closure operations. The CAC and Ransom requested a review of the proposed air monitoring

program, proposed action levels and mitigation measures prior to acceptance by State and City agencies to ensure adequate precautionary measures are taken to protect public health and safety.

Response

During remedial construction there will be a Community Health and Safety Plan (CHASP) in place to address exposure concerns and to protect the surrounding communities. A Community Air Monitoring Plan (CAMP) will be included in the CHASP, the purpose of which is to provide significant protection for the surrounding communities from potential airborne contaminant releases as a direct result of remedial activities. The CHASP will be reviewed by the NYSDEC and NYSDOH and must receive final approval by these agencies prior to the commencement of remedial activities. These plans will monitor air quality in the work zone, to ensure there will be no adverse effects on the surrounding communities as a result of any invasive activity during remedial construction. There will be Community involvement and periodic meetings of a Community Air Monitoring Committee. Such Committees have been established at other remedial construction sites and can be an outgrowth of the Citizens Advisory Committee (CAC). These committees meet on a periodic basis and provide a forum for the community to present their views regarding the work and also provide an opportunity for the NYCDEP to give the community updates regarding the progress of the work and the measures being taken to guarantee their health and safety. During remedial construction, measures are usually taken (e.g. the use of a water truck and other engineering controls) so that the effects of the dust generated can be contained.

AQUIFER CONTAMINATION

Questions and statements were raised regarding aquifer contamination during the June 12, 2001 public meeting. Specific questions regarding how much of the 95,000 gallons of leachate generated per day will be collected and therefore, the percentage that might not be collected.

How does the NYSDEC monitor the volume of leachate generated by the landfill and the percentage of this leachate that migrates into the cretaceous aquifer?

The commenter suggested that all the leachate should be collected and that none of it should leave the landfill.

What is the latest data on possible future flow of deep water contaminants in the deep groundwater aquifer and the effect on the local users"?

What course of action will be taken if contaminant levels increase in the underlying aquifers? What are the action levels and how are these action levels developed?

Response

Preliminary hydraulic analyses using a groundwater flow model, as detailed in Appendix C of the Feasibility Study Report, indicated that under the conditions imposed by complete Landfill encapsulation (construction of an impermeable cap, a leachate collection trench downgradient of the east and west cells, and a hydraulic barrier between the east and west cells along the southern perimeter), leachate would no longer migrate to the underlying Cretaceous Aquifer. This analysis simulated an alternative very close to the one proposed in the PRAP(Alternative 2B). Further hydraulic analyses presented in Appendix C simulated less than complete encapsulation systems. For example, the lack of a leachate collection trench or barrier wall along the southwest side of the west cell, and the southeast side of the east cell would result in an estimated 400 gallons per day of leachate migration to the cretaceous aquifer.

The alternative specified in the PRAP calls for complete landfill encapsulation and containment of leachate through downgradient leachate collection and an upgradient hydraulic barrier wall. Effective implementation of the recommended PRAP alternative should prevent further leachate migration to the Cretaceous Aquifer. Once implementation of the recommended alternative is completed, the currently estimated 92,000 gallons per day of leachate discharging to surface waters will be captured by the leachate collection system. Over time, the reduction of infiltration through the landfill due to the encapsulation will lessen leachate generation and, subsequently, reduce the amount of leachate collected.

MANUFACTURED TOPSOIL

What will be the source and composition of the manufactured topsoil?

Response

The specifications regarding manufactured topsoil are usually contained in the construction documents. The composition usually consists of silt, sand and clay in varying percentages depending on the soil conditions needed for growth of a specific vegetation. The topsoil will also contain nutrients such as nitrogen and phosphorus so that plant growth can be sustained. The sources will vary depending on their ability to provide the "topsoil". There will be sampling and analysis of any material brought on site for purity and consistency. This analysis will be based on a plan developed that is specific to this site and will be reflected in the parameters chosen for such. This analysis will also be done on a periodic basis, e.g., every 3,000 cubic yards, on the material being brought on to the site. There are structural, chemical and agricultural specifications to be met.

GREENBELT

Is the Brookfield Avenue Landfill under consideration to become part of the Greenbelt?

A resident made the following statement: I would like to see this piece of land one day go back to the environment since it was taken away from the people of Staten Island. I want to see it go back to nature, the environment, walking trails, hiking trails, and I want to see part of that Greenbelt expand, that further expanse of the hiking trails that already exists".

Response

At this time the New York City Department of Parks and Recreation (NYCDPR) has no plans to include the Brookfield Avenue Landfill (BALF) in the Greenbelt because it is not yet remediated. After remedial construction is complete the end-use plan calls for the inclusion of the BALF in the Greenbelt.

THE SOUTHWEST LA TOURETTE TRUCKFILL

A written comment noted that this area, across the Richmond Creek and the southwest corner of La Tourette Park, at Richmond Avenue and Forest Hill Road, across from the bus Garage, is a former Landfill site, never properly capped and closed. Data from the USDA/Natural Resources Conservation Service-Cornell University NYC Soil Survey indicate that this Area is heavily contaminated. Eighteen (18) heavy metals were found with concentrations above standards. What are NYSDEC, NYCDEP, and NYCDPR going to do about this Site, which contains and abuts a recently established baseball field and a model airplane field? The 1991 Greenbelt Master Plan designated that corner of SW. La Tourette park for active recreation-never did we think it would be used without a full blown hazardous materials remediation and a legally required cap!

Questions were raised about what New York State DEC, New York City DEP and New York City DPR are going to do about this site which contains and abuts a recently established baseball field and a model airplane field. How many years are we going to study whether dredge materials can cap a landfill?

Response

The Southwest La Tourette (or Richmond) Truckfill was operated by the New York City Department of Sanitation (NYCDOS) and was closed prior to the promulgation of 6NYCRR Part 360 Solid Waste Management Facility Regulations. It is not on the Registry of Inactive Hazardous Waste Disposal sites in New York State. Should evidence of a consequential amount of hazardous waste be discovered, appropriate measures will be taken to investigate the site and determine its impact, if any, on public health and the environment.

Regarding the matter of dredge material, please see the response on the following page.

DREDGE MATERIAL

Barbara Warren of Staten Island Citizens for Clean Air (SICCA) commented at the June 12, 2001 public meeting that her organization remains very, very concerned about the use of any dredge material at this site.

Written comments indicated that the use of dredge material to cap this hazardous waste landfill sounds like an attempt to solve the problem of what to do with dredge spoils. Furthermore, this should not be considered at this time without testing and public review".

State Senator John Marchi submitted a letter dated June 28, 2001 in which he stated that safety of using dredged materials as cover has not been fully explored in connection with the Landfill's nearby communities and possible health hazards.

The Brookfield Avenue Landfill Citizen's Advisory Committee (CAC) submitted a letter dated June 27, 2001 which addressed the use of dredge material. In it the CAC and Ransom requested that the use of dredge material be considered as cover material only after extensive public review and comment. They further said that at this time there is no information that assured them that this material would be safe for use in such close proximity to the community. And there are no documents in the public record concerning the use of dredged material as cover for Landfill closures. In addition, the close proximity of the population in the Brookfield Avenue Landfill area may be reason enough not to allow dredged materials for cover. They asked the following questions: "What is the testing protocol for the dredge material? Can the CAC and Ransom review the pilot study information associated with dredge material used at the Penn-Fountain Landfill, and if so, when will we be able to receive this information?" Also, the CAC requested that Ransom participate with the Penn-Fountain Landfill pilot program, to observe this process as it relates to the Brookfield Avenue Landfill closure and that a public hearing be held prior to any decision being formalized regarding the use of dredge material as cover soil for the Brookfield Avenue Landfill.

Response

At this time, the use of dredge material remains a pilot project which got underway in January, 2002 at the Pennsylvania Avenue landfill in Brooklyn. The New York City Economic Development Corporation (NYCEDC) in conjunction with the New York City Department of Environmental Protection (NYCDEP) wants to test the suitability of using dredge material both above and below the synthetic liner during remedial construction at New York City Landfills. The New York State Department of Environmental Conservation believes that material should

not be placed at any of the landfills unless they meet the physical, chemical and agricultural specifications. There is a Technical Advisory Committee (TEAC) set up by the NYCDEP to keep the citizens of surrounding communities involved in the process. There have been and will continue to be public meetings in this regard.

The NYCDEP and the NYCEDC will be able to provide copies of the testing protocol and the pilot study information.

END USE

State Senator John Marchi asked the following question on the end-use plan in a letter dated June 28, 2001 : "Are arrangements in place should the parks department not have the resources to maintain the site"?

One statement made supported an end use plan, including reforestation of the eastern section, and the proposed passive and active recreation in the western section.

Barbara Warren of the Staten Island Citizens for Clean Air (SICCA) expressed the following at the PRAP Public Meeting: "We are concerned that the cleanup be completed and the Site be completed so that it is safe before we start having kids play there".

A written comment expressed the writer's thoughts on using the site for recreation while the other part is being remedied. Although this may be wanted by some members of the community he felt it would be in everybody's best interest to keep the entire area closed while construction is underway. No more residential development should be on the Brookfield side of Arthur Kill Road. As far as the end use for the Landfill, the initial plans which include a walking park, hiking trails, and canoe launching areas are nice. However, he also wanted to suggest a nine-hole golf course and asked that this immense area not be underutilized by the neighborhood. He stated that underutilization may just happen if we just plant trees on it.

Another written statement endorsed the end use plan for the site i.e., the passive recreation areas, hiking trails and canoe area. The writer also wanted a nine-hole golf course, which in his own words "... could easily be placed in this massive space."

The June 27, 2001 letter submitted by the Brookfield Avenue Landfill Citizen's Advisory Committee (CAC) stated:(i) "The CAC is pleased with the work being performed on the end use plan, however there must not be any compromise of the cleanup standards because of this plan. Will the NYSDEC agree not to compromise cleanup standards due to the implementation of the end-use plan?" (ii) "Institutional Controls related to the Landfill closure should prevent any further development adjacent to the Landfill and Arthur Kill Road. The CAC request no further development along the portion of Arthur Kill Road adjacent to the Brookfield Avenue Landfill. Will the NYSDEC agree to no further development along the Arthur Kill Road adjacent to the Brookfield Avenue Landfill?" (iii) "What course of Action will the NYSDEC take if the closure and remediation of the Landfill is not Completed in 30 years? The CAC and Ransom request that 100 percent of the Hazardous Materials, Leachate and Landfill gases be treated during the lifetime of the closure. Is the NYSDEC going to extend the 30-year post closure remedial/monitoring period if there are Hazardous Materials, Leachate and Gas in excess of the standards?" (iv) " The CAC and Ransom do not agree that the public recreation portion of the Brookfield Avenue Landfill should be utilized while other portions of the Landfill are still undergoing closure activities. Public use should be restricted until the closure of the entire Brookfield Avenue Landfill is complete in order to prevent unnecessary potential exposures to the citizens." (v) " In addition, the CAC and Ransom request that only Option 2B shall be utilized as the choice of cleanup at the Brookfield Avenue Landfill. Option 2B is the best choice for closure because the entire Landfill would be isolated by the cover cap and perimeter

barrier wall & leachate collection trench. The barrier wall proposed for the southern side of the Landfill will prevent groundwater from migrating onto the site which will reduce the production of leachate. The presence of the barrier wall will also reduce potential Landfill gas migration off-site to the south. The leachate collection trench proposed for the northern side of the Landfill will prevent migration of leachate off the site. Option 2B with a 6NYCRR Part 360 Landfill cap with an active gas collection and control system will provide maximum control of Landfill gases and provide the identical reduction of toxicity, mobility and volume of Landfill gases as option 2A."

Response

Immediately after remedial construction, and for a period that may extend up to 30 years, there will be long-term monitoring of the site by the New York City Department of Environmental Protection as part of the Operation, Maintenance, and Monitoring (OM&M) of this site. The OM&M Plan, which will be reviewed and must be approved by NYSDEC, is a requirement of the ROD. In addition, the proposed enhanced landscape plan has been designed to minimize the need for substantial maintenance requirements. The plants and plant communities chosen will require lower maintenance each year as they progress and develop. Therefore, costly or intensive maintenance requirements of the natural areas proposed in the plan should not be necessary. In addition, the NYCDEP has already held discussions with the NYC Parks Department so that appropriate fiscal plans can be developed for the maintenance of planned activities at the site. These discussions will be ongoing as the remedial design progresses.

In presentations to Community Boards 2 and 3, there was encouragement expressed toward opening up portions of the park as they are completed. The determination to allow public access to portions of the site during ongoing remediation is dependent on a number of factors, including the nature of the remedial work being performed and the associated health and safety risks posed to those individuals. If a determination is made to allow public access to portions of the Landfill during remediation, appropriate health and safety precautions will need to be taken and the Community Health and Safety Plan must address this potential exposure scenario and include stringent monitoring for airborne contamination. The end-use plan does not envision development on the Brookfield side of Arthur Kill Road with the exception of certain recreational support facilities.

There will be no compromise regarding the cleanup standards at this or any other Landfill due to the implementation of the end use plan.

The NYCDEP has prepared an end-use plan. The remedial design and thereafter remedial construction are done with an eye towards future uses of the site. In other words, the integrity of the cap must be protected in view of the future uses of the site. The design will take into account any future use and make sure that the barrier protection layer and other layers are designed to ensure future activities at the site do not negatively impact the subsurface conditions.

The New York State Department of Health will determine if there is a public health concern for children playing on one portion of the Landfill while another portion is under remedial construction.

Leachate and Landfill gases will be treated during the lifetime of the closure.

Option 2B was selected as the remedy for the Brookfield Avenue Landfill.

SCHEDULE

A written statement was received requesting Town Meetings for the Work Schedule, a timetable of the remediation work, and any additional information be posted at our local Libraries.

What is the schedule for the implementation of the Brookfield Avenue Landfill closure and monitoring? The CAC strongly urges the NYSDEC that there needs to be a firm rigid schedule for closure. The CAC requests that the NYSDEC establish a time frame with serious penalties for not meeting deadlines in the Record of Decision and/or Consent order for Operable unit #1.

Response

Two public libraries, the Staten Island Public Library, Richmondtown Branch at 200 Clarke Avenue, Staten Island , NY 10306 and the Staten Island Public Library, New Dorp Regional at 309 New Dorp Lane, Staten Island, NY 10301 serve as repositories for project documents. There will be a public meeting prior to the end of the remedial design period.

The NYCDEP will submit a proposed schedule to design and implement the remedy. This schedule will be reviewed and must include reasonable time frames in order to be approved by the NYSDEC. The remedial design for a landfill typically takes 14 to 20 months.

According to the Administrative Consent Order , within 180 days of the NYSDEC's approval of the remedial design, the NYCDEP must commence remedial construction.

OPERABLE UNIT #2

Barbara Warren of SICCA requested a definite Schedule for the completion of work on Richmond Creek.

A submitted letter requested that the work on Richmond Creek should be completed as soon as possible, and that a timetable be published so that the neighborhood can stay informed.

The June 27, 2001 letter submitted by the Brookfield Avenue Landfill Citizen's Advisory Committee (CAC) stated: "What is the schedule for the investigation of Richmond Creek that has been labeled Operable Unit #2? The CAC only agreed to the separation of the Units (OU#1 and OU#2) if there was firm commitment from the NYSDEC to a reasonable schedule for conducting and completing investigative and remedial activities for the Richmond Creek. The CAC requests that the NYSDEC establish a time frame with serious penalties for not meeting deadlines in the Record of Decision and/or Consent Order for Operable Unit # 2. To date, the CAC and the Citizens have received no commitments and no significant work has been conducted."

Response

The NYCDEP will be submitting the Scope of Work for Operational Unit #2 (OU#2) in the Spring of 2002, which will include a schedule for implementation of the Remedial Investigation and Feasibility Study activities. The Department will review this scope and schedule, then provide comments to the City so that a work plan will be generated. This workplan will then be sent to the Citizens Advisory Committee, the Borough President, and other elected officials for comments. A public meeting will then be held, probably in the late Fall of 2002.

Citizen participation is important in this portion of the project. Therefore, there will be regular public meetings to keep the residents informed regarding the progress of OU#2. Preliminary work on this project has already

started. The delineation of the current boundaries of freshwater and tidal wetlands is complete. The delineation of the wetlands will be helpful regarding both the completion of design and construction of OU#1 and the Remedial construction for OU # 2. It should be noted that there is more than one source of contamination of Richmond Creek. There must be a coordinated approach regarding the investigation and particularly the remediation of Richmond Creek.

INTERIM REMEDIAL MEASURES (IRM)/HOT SPOTS

A letter dated June 27, 2001 was received from the Brookfield Avenue Landfill Citizen's Advisory Committee (CAC) which included the following comment(s)/question(s): "The CAC and Ransom request the status of interim remedial measure on Hot Spot #3. When will testing of the influent and effluent gas begin and what testing will be done? What is the influence of the extraction points?"

Why did we not excavate and dispose off-site the contaminated material from Hot spots 3 and 5 particularly when section 4.2.5.1 stated that this alternative is considered to be effective for both hot spot areas?

Another written comment presented the writer's belief that the Proposed Remedial Action Plan (PRAP) for Operable Unit #1 was flawed due to the assumptions made, prior to its promulgation, which dismissed the excavation and offsite disposal of contaminated soils and groundwater at Hot Spot areas No.3 and 5 due to a higher cost than other more effective technologies".

Response

NYCDEP has already procured a contractor to do the stack testing on the flare at the Landfill which is part of the IRM. The stack testing protocol was received by the NYSDEC. It was reviewed and comments were provided to the NYCDEP. The stack test will determine whether the flare is working as designed i.e. destruction through thermal oxidation of the gases emanating from the Landfill especially in the neighborhood of Hot spot #3.

The NYSDEC approved a study to better define the gas production and assess extraction well influence. This study will begin in the first quarter of 2002.

As documented in Section 4 of the Feasibility Study Report, Screening of Remedial Technologies, Excavation and Offsite Disposal of contaminated soils at Hot spots 3 and 5 was considered in addition to the other IRMs already implemented. Effectiveness is only one of three criteria that are used to evaluate and compare remedial technology alternatives. The other two are implementability and relative cost. While this option was considered to be effective, it did not meet the requirements for the other two criteria. This option was eliminated from further consideration because (i) its implementability was considered to be less than the other alternatives based upon the lack of data defining the Hot Spots, large volumes of soil requiring excavation, and/or significant exposure risks to workers during excavation., and (ii) the relative cost is also considered to be higher than other more effective technologies. Therefore, excavation was eliminated from further consideration in the Feasibility Study (FS) phase of the Remedial Process. The Interim Remedial Measures (IRMs) will only be in place until the selected remedy is constructed.

LEACHATE TREATMENT

Questions regarding leachate management included: (i) I was wondering if you could tell me where the facility to treat leachate is going to be located and what happens to the stuff that doesn't get processed and goes to the City sewer? (ii) Where does that stuff get separated? (iii) Does it get trucked away? (iv) What happens to it?"

The June 27, 2001 letter submitted by the Brookfield Avenue Landfill Citizen's Advisory Committee (CAC) stated: "How will the leachate collected from the Landfill be treated? What will be the final destination point of the treated leachate?

Response

An oil-water separator will be constructed on site to pretreat the leachate. At this time it hasn't been determined whether the water portion of the leachate will be trucked or piped through a force-main to a Publicly Owned Treatment Works (POTW). Pretreated leachate will not go to the City combined sewer system. A decision has not been made regarding which POTW will receive the water portion of the leachate. The oil portion will be disposed of off site in compliance with all applicable laws and regulations.

HEALTH STUDY /SWEETBROOK CREEK/ABINGDON AVENUE

Is there any information whether previous flooding brought any contaminants into the neighborhood adjacent to the landfill? (ii) Was there any information on people's health risks? (iii) What would explain the high concentration of cancer and Down Syndrome in the area, maybe along Arthur Kill Road and Abingdon Avenue?

The June 27, 2001 letter from the Brookfield Avenue Landfill Citizen's Advisory Committee (CAC) stated: "Citizens within this area have indicated that a creek, the Sweetbrook Creek, currently contained in two 12 feet wide by 6.5 feet high storm sewers beneath Abingdon Avenue, has flooded many times in the past and may have spread contaminants from the Brookfield Avenue Landfill into the neighborhood. Adequate testing of this area has not been initiated. Citizens have indicated there is an apparent high rate of health problems, including cancer and Down's Syndrome, in the area. The CAC requests an investigation along Abingdon Avenue (former location of the Sweetbrook Creek and Flood Plain) and vicinity. Will the NYSDEC agree to an investigation in this area? Will there be any health studies of this area"?

Another statement made at the meeting noted that:" We heard from a woman, Camille from Columbia, at the Landfill hearing, and she showed us data that we did have more cancer in Staten Island than other neighborhoods within the City of New York. And, she showed it to us. She did a whole charting of it. We were close to New Jersey in the same kind of numbers but we were different than the other boroughs. So we do have a greater risk here. And the other health point that I want to bring up is the asthma since I've been in Staten Island teaching in one of the Staten Island Public Schools. I see every year I have three or four children in my class and one or two of them will be on nebulizer treatments, which I never saw when I was teaching before. So I know it is more here and then I see it among my friend's children. It is here and you may not want to say it is here because the City did this to us and you don't want to lay the blame and open up yourselves to lawsuits of a great deal of money, but it is here and it is time that we all said it is here. She went on to ask the following questions: What about the infant mortality rate in Staten Island? Has it gone up?

Another written comment stressed the importance of neighborhood monitoring for any toxics that may escape from the site and additional personal health testing.

Response

Infant mortality rates for the years 1986 through 1999 were obtained from the New York City Department of Health, Office of Vital Statistics. Rates for Staten Island were compared with rates for New York City as a whole (NYC). This comparison shows that except for the year 1998 rates in Staten Island were always lower than rates in New York City. In 1998, the infant mortality rate per 1000 live births was 7.6 for Staten Island and 6.8 for NYC . While rates in both areas have overall shown a downward trend, rates in Staten Island have fluctuated up and down within that trend. Such fluctuations are to be expected in areas with smaller populations. Infant mortality rates in Staten Island are not indicative of environmental problems.

In March 1996, the New York City Department of Health (NYCDOH) issued a report about cancer incidence in Staten Island. The study evaluated cancer incidence for the ten year period from 1979 to 1988 in a study area comprised of the census tracts adjacent to the Fresh Kills and Brookfield Avenue Landfills and also in the Borough of Staten Island as a whole. The study found that among people living in the study area, cancer incidence was generally lower than among residents of the rest of Staten Island. In addition, for most cancer sites, cancer incidence in a demographically similar comparison community was similar to that in the study area. On Staten Island, the incidence of most types of cancer was similar to that of the rest of NYC and to the comparison community. These findings provide some reassurance that there was no increase in cancer incidence in the study area during the 1980s. While certain cancers were slightly to moderately elevated, the data do not suggest a common underlying cause.

In March 2000, the NYCDOH issued an addendum to the March 1996 Cancer Incidence Study to evaluate more recent cancer incidence data(1989 to 1992) for the study area and for Staten Island as a whole. Another objective of this update was to determine if there are overall trends of increasing or decreasing cancer incidence rates in Staten Island and the study area over the 15 year period from 1978 to 1992 and if trends in these areas are significantly different from trends elsewhere. This update did not indicate consistent evidence of elevated cancer rates specific to the study area. Cancer rates in the study area were lower than, or equivalent to, rates in the rest of Staten Island. The additional analyses also indicate that cancer incidence for most cancers in Staten Island, as a whole, was not significantly different than elsewhere in the City.

In 1998, the Federal Agency for Toxic Substances and Disease Registry (ATSDR) was petitioned to evaluate health concerns of residents living near the Brookfield Avenue Landfill. Residents expressed concerns about children's health problems, miscarriages, infertility, and cancer being associated with exposure to Landfill-related contamination. To address the health concerns, ATSDR evaluated data collected during the remedial investigation of the Landfill. ATSDR also evaluated a limited amount of historic environmental data and health outcome studies. Their findings are presented in a November 17, 1999 Petitioned Public Health assessment, and include the following conclusions:

1. Based on available sampling data, breathing the levels of contaminants detected in ambient air at and around the Brookfield Avenue Landfill is not expected to result in adverse health effects. Current air emissions from the Landfill pose no apparent health hazards.

2. Subsurface migration of methane from the Landfill currently represents no apparent physical health hazard.

3. No apparent public health hazards are associated with leachate seeps or contamination of groundwater, surface water, sediment, or biota resulting from migration of leachate from the Landfill. Levels of

contamination to which people are likely to be or were likely to have been exposed are below levels expected to cause adverse health effects.

4. The soil data collected from areas where children and adults might come in contact indicated the concentrations of contaminants are comparable to background levels and exposures to detected levels were unlikely to result in adverse health effects.

5. Five areas of the Landfill where hazardous waste may have been illegally disposed of were identified using historical information. These areas were the subject of focused "hot spot" investigations. The hot spots, due to inaccessibility to the public, pose no apparent public health hazards under existing exposure scenarios.

In June 1999, staff from the NYSDOH Congenital Malformation Registry (CMR) responded to a similar inquiry from Dr. Susan Sklower Brooks, Institute for Basic Research in Developmental Disabilities. An evaluation of the number of live births reported in Richmond County from 1983 to 1996 showed that, other than some fluctuations due to small numbers, the prevalence of liveborn Down cases in Staten Island was not markedly different than the rest of the state or New York City. The CMR does not currently have a complete count of liveborn and terminated cases of Down and therefore could not calculate a population prevalence for comparison. Consequently, the CMR evaluated data presented in a publication by Caroline Olsen (Prenatal Diagnosis 1996; 16: 991-1002). Ms. Olsen estimated, using various data sets, the total prevalence of Down in New York State including estimates for women under 35 years of age and for women who were 35 years of age and older. Using these data, the CMR calculated an expected number of Down cases for Staten Island, approximately 4.7 cases per year to women under 35 and 4.8 cases per year to women 35 and older. The findings resulting from a comparison of observed versus expected Down cases were not statistically significant.

The NYSDOH has no current plans to conduct any additional health studies for the communities surrounding the Brookfield Avenue Landfill.

REMEDIAL DESIGN

The Brookfield Avenue Landfill Citizen's Advisory Committee (CAC) submitted the following questions in a letter dated June 27, 2001: "The CAC requests an opportunity to review and comment on the Remedial Design for the Brookfield Avenue Landfill closure followed by public comment prior to implementation. This portion of the closure process is critical and must have input from the citizens. Will the NYSDEC agree to the CAC and Ransom request that the remedial design be reviewed and the public be allowed to comment? Will this decision be part of the Record of Decision or Consent Order?"

One written comment suggested the use of Alternative 3, which provides more collection and processing of the toxic leachate and would keep more of it from seeping into the neighborhood.

Another written comment recommended the complete removal of toxic substances and the use of Alternative 3 because it includes more leachate collection trenches which will prevent the seeping of the leachate from the landfill into the surrounding soil.

Another written comment stated that none of the five plans (Alternatives) are appropriate as they fail to include a leachate containment wall around the entire perimeter of the site.

At the June 12, 2001 PRAP Public Meeting, Barbara Warren of the Brookfield Avenue Landfill CAC stated: "Strict cleanup standards for Brookfield, nothing less than Option 2B, which is the recommended Alternative."

One question on the Landfill cap. A person asked during the public meeting whether closure will have the same procedure they are doing in Freshkills.

Response

As stated above, there will be a public meeting prior to the end of the remedial design period at which the CAC and other members of the public will have an opportunity to comment on the remedial design. The NYSDEC, NYCDEP, CAC, SAC, political leaders and other members of the public have all agreed that the Alternative 2B, the recommended alternative in the Proposed Remedial Action Plan (PRAP) is the best choice from a scientific, engineering and health standpoint. Please see the previous response regarding "Aquifer Contamination". This response addresses issues relating to the collection and processing of leachate and the prevention of it seeping into the neighborhood.

As stated in the Feasibility Study Section 4.2.5, excavation and removal of the contaminated material from the site is not a feasible option. It is financially prohibitive and operationally unsound.

There are similarities in the closure requirements for the Freshkills Landfill and the remediation requirements for the Brookfield Avenue Landfill, but there are also site-specific differences, such as the extent of the barrier walls and leachate collection systems. The engineering solutions generated at each site are based on the results obtained from thorough investigations. Therefore the remedial construction that took place at the Freshkills Landfill is applicable to that site and that site alone. The components of the landfill cap used at both of these sites is the same (see Figure 4 which shows a cross-section of a typical Part 360 landfill cap) although the actual thicknesses of the soil components may vary to support different types of plantings or end-uses.

MISCELLANEOUS

The June 27, 2001 letter submitted by the Brookfield Avenue Landfill Citizen's Advisory Committee (CAC) stated: "(i) The CAC would like to see NYSDEC and NYCDEP's support for a pilot study of state of the art composting technology, which would enable food and yard waste composting and generate wonderful planting material for the plantings to be done on the site. It should also be noted that beds of compost have successfully been used as odor control media, which may also have applicability when digging is done at this site. (ii) The CAC requests the continued guidance of their consultants. Will the NYSDEC require the NYCDEP to continue to fund the CAC consultants during the entire Brookfield Avenue Landfill closure process? Will this funding also be part of the Record of Decision or Consent Order?"

A statement made during the public meeting addressed zoning. The speaker noted that there are 140 acres of the 272-acre Brookfield site that were not used for the disposal of waste. The most critical is the need to immediately eliminate the residential zoning and create a Uniform Land Use Review Procedure (ULURP) application to change the City Map to "Park" for the entire Brookfield Property, bounded by Richmond Creek /La Tourette Park, Richmond Avenue, Arthur Kill Road, Colonial Square and Historic RichmondTown. Staten Island does not have and will not receive the infrastructure to support significant additional development. New development, especially residential, should be directed to areas of the city that already have the infrastructure. New development should occur where there are subways."

The June 28, 2001 letter submitted by State Senator John Marchi stated: "The favored option of Alternative Plan 2B, when fully implemented, would appear to address most of the concerns of our community. Can the planting of trees, shrubs, hedges, etc. in capped landfills lead to eventual exposures in the capping material which could lead to emissions? If the 10000 sq. ft. behind Holtermann's Bakery is not included in this remedial plan when will a revised plan be issued and will this impact on the Brookfield (P)RAP as a whole?"

Response

The NYCDEP maintains a Natural Resources Office that has proposed the conceptual end-use plan. The proposed plantings have been chosen with great care. One of the responsibilities of the office will be to insure that the plantings receive the appropriate planting media for growth. They continuously evaluate potential planting media and adjust to advances in this science accordingly. NYC Parks Department currently has a successful compost program throughout the city and continuously evaluates potential improvements. NYCDEP will coordinate with the Parks Department regarding requirements to maintain the plantings through the O&M period. Compost is expected to be integrated into the maintenance activities, since virtually any soil source requires some amendment to meet the agricultural specifications required for successful plant growth. Accordingly, the essence of the comment letter is already incorporated into the overall end-use plan. In addition, NYCDEP will consult with the Parks Department to see if there is a need for an additional composting site at the Landfill. However, a pilot project at this site regarding the use of compost for odor control during invasive activities in the remedial construction portion of the project will be impractical because of the complexity of the construction activities.

After the completion of remediation of the Brookfield Avenue Landfill, the end-use plan calls for the NYC Parks Department to oversee and Maintain the Brookfield Avenue Landfill as a park and as part of the Staten Island Greenbelt. The end-use plan, including any ULURP applications necessary to effectuate such an arrangement will move forward once the final design has been endorsed by the community. In addition, any issues relating to ULURP applications must be addressed by the New York City Department of City Planning.

Research by Rutgers University and other scientific studies have clearly shown that tree and shrub roots will not penetrate the impermeable liner system. All data shows that the roots will change direction and continue to run laterally over the liner. This lateral re-direction of the roots leads to a greater stability of the plant. Also, the planting of trees, shrubs and native warm season grasses provides greater soil erosion control than conventional cool season lawn grasses. In addition, the size of the plants chosen will minimize the formation of deep rooting taproots. To accommodate the trees and shrubs, the depth of the planting layer will be adjusted according to the plant material proposed. In some locations, the depth of the cap may be as much as 5 feet thick. In addition, there will be on-going maintenance after the closure during which the cap will be monitored and repaired as necessary. In closing, we reiterate that to the best of our knowledge, the planting of trees, shrubs, hedges etc. in capped Landfills will not lead to eventual exposures in the capping material which could lead to emissions.

The NYCDEP Legal Office is coordinating with the NYC Law Department and representatives for the Holtermann's Bakery regarding a solution to the disposition of the land behind Holtermann's Bakery. The preferred solution at this time is a land swap, which would not require an amendment to the PRAP/ROD. If this solution does not materialize, a modification to the remedial design may be necessary, but it would likely be minor and is not expected to impact the current closure plans or schedules.

Although there is no legal requirement, the NYCDEP has indicated its total support for the continued funding of the CAC consultants for as long as there is a valid need during the entire Brookfield Avenue Landfill Closure

process. Neither this document nor the Administrative Consent order mandates the NYSDEC to require the NYCDEP to continue to fund the CAC Consultants during the entire Brookfield Avenue Landfill closure process.

BROOKFIELD AVENUE LANDFILL

RECORD OF DECISION

APPENDIX B

ADMINISTRATIVE RECORD

APPENDIX B

Administrative Record

1. Consent Order, Index #2-43-006 dated May 4,1992

2. Brookfield Avenue Landfill Drinking Water Quality Report prepared by the New York City Department of Environmental Protection dated August 13,1993

3. Final Work Plan Remedial Investigation/Feasibility Study Brookfield Avenue Landfill Remediation, Richmond County, Staten Island, New York prepared for the City of New York Department of Environmental Protection (NYCDEP) by Camp Dresser & McKee August 30, 1993.

4. Report on the Immediate Investigation Work Assignment (IIWA) Remedial Investigation/Feasibility Study Brookfield Avenue Landfill prepared by the New York State Department of Environmental Conservation (NYSDEC) dated December 1993

5. Aqua Survey Inc. (technical report for sampling and testing of material from Brookfield Avenue Landfill) prepared for Camp Dresser & McKee dated June 30,1994

6. Draft Interim Report Hot Spot Issue, Remedial Investigation/Feasibility Study Brookfield Avenue Landfill Remediation Project Richmond County, Staten Island, New York prepared for the City of New York (NYCDEP) by Camp Dresser & McKee dated July 13, 1994.

7. Staten Island Cancer Incidence Study prepared by the New York City Department of Health dated March 1996.

8. (Step 1- Summary), Supplemental RI Services Brookfield Avenue Landfill prepared for the NYCDEP by Camp Dresser & McKee dated June 1996

9. Final Field Plan Addenda, Remedial Investigation, Brookfield Avenue Landfill Remediation Project, Richmond County, Staten Island, New York prepared for the City of New York (NYCDEP) by Camp Dresser & McKee dated March 1997

10. Draft Landfill Gas Emission and Ambient Air Characterization Brookfield Avenue Landfill Remediation Project dated November 21,1997 prepared by Camp Dresser &McKee.

11. Draft Brookfield Avenue Landfill Hot Spot Investigation prepared for the City of New York (NYCDEP) by Camp Dresser & McKee dated January 27,1998 (Hotspot # 3 Flare & Hotspot # 5)

12. Transcript Brookfield Avenue Landfill Remediation Project Public Information meeting held April 20, 1998.

13. Transcript Brookfield Avenue Landfill Remediation Project Public Information meeting held May 20, 1998, as a follow up to the April 20, 1998 meeting.

14. Brookfield Avenue Landfill Remediation Project Final Remedial Investigation Report prepared by the New York City Department of Environmental Protection (NYCDEP) with the assistance of CDM

Camp Dresser & McKee dated September 1998, Volume I, Volume II (Appendices B-G), Volume III (Appendices H-U).

15. Project Manual Brookfield Avenue Landfill Remediation, Hotspot #3, Interim remedial Measure prepared for the City of New York Department of Environmental Protection (NYCDEP) by Camp Dresser & McKee dated March 1999. IRM at location #3 (Plans & Specs for Flare)

16. Brookfield Avenue Landfill Remediation Project Operable Unit 1 Feasibility Study Report prepared by the New York City Department of Environmental Protection (NYCDEP) with the Assistance of CDM Camp, Dresser & McKee dated March 2001

17. Proposed Remedial Action Plan (PRAP) prepared by the New York State Department of Environmental Conservation (NYSDEC) dated May 2001.

18. The PRAP Public Meeting Transcript June 12, 2001.

19. The following correspondence related to the PRAP:
A letter from Libby Hikind, dated June 12, 2001
A letter from Charles Senger dated June 22, 2001
A letter from Theodore A. Mrozinski dated June 29, 2001
A letter from Barbara Blake dated June 22,2001
A letter from Ajanay Feld dated June 22, 2001
A letter from F. Ventura dated June 22, 2001
A letter from Carol Melian dated June 22, 2001
A letter from Josephine Senger dated June 22, 2001
A letter from Sally Stein dated June 22, 2001
A letter from P. Tramontano dated June 22, 2001
A letter from Ransom Environmental, the consultants to the Brookfield Avenue landfill Citizens Advisory Committee(CAC) dated June 27, 2001
A letter from State Senator John Marchi dated June 28, 2001
A letter from W.F. van den Houten dated June 29, 2001

New York City Environmental Protection

Brookfield Avenue Landfill Remediation
Operable Unit 2
Staten Island, New York

October 2011

Remedial Action Plan

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Attachments

***Attachment A* Health and Safety Plan (HASP)**

[Because the monitoring portion of the OU2 remedy will not begin until approximately 2018, a HASP has not been included at this time.]

***Attachment B* Quality Assurance Project Plan (QAPP)**

[Because the monitoring portion of the OU2 remedy will not begin until approximately 2018, a QAPP has not been included at this time.]

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Section 1
Introduction

Camp Dresser & McKee, Inc. (CDM) has prepared this Remedial Action Plan for the Brookfield Avenue Landfill Operable Unit 2 (OU2) on behalf of the New York City Department of Environmental Protection (NYCDEP). The plan is based on the selected remedy specified in the March 2007 Record of Decision (ROD) for OU2 of the Brookfield Avenue Landfill. The monitoring components of the selected remedy include the collection and chemical analysis of surface water and sediment samples from Richmond Creek and its tributaries in the 5th year, 10th year, and 20th year after the OU1 remedy is complete. Monitoring specified in this plan will augment the monitoring conducted as part of the OU1 Site Management Plan. The formal Site management phase for OU2 will begin with approval of this plan. An additional remedial requirement specified in the ROD covers the inclusion of portions of OU2 in the easements established for OU1. The portions of OU2 that will be included in the OU1 easements will be determined following a survey, remapping, and relisting of the site conducted after the constructed elements of the OU1 remedy are in place. In addition, following public comment on the PRAP and FS, the NYCDEP agreed to install a visual demarcation fence between what is currently recognized as OU1 and OU2 and install signage along the demarcation line that provide notification of the current fish consumption advisory that has been placed by the New York State Department of Health (NYSDOH) for waters in New York Harbor. These controls are not a mandated component of the ROD; however, they have been agreed to by the NYCDEP in order to address community concerns and interests.

This plan was prepared to be consistent with the guidelines contained in the New York State Department of Environmental Conservation's (NYSDEC*) DER-10 Technical Guidance for Site Investigation and Remediation* dated May, 2010. Approval of this plan will allow for completion of the remedy and the initiation of the site management phase for OU2. This plan constitutes the Site Management Plan for OU2.

Section 2
Site Background

2.1 Site Location and Description

The Brookfield Avenue Landfill is located at 40°33'44" latitude and 74°09'38" longitude in Richmond County, Borough of Staten Island, City of New York, in the State of New York. The entire Site is approximately 272 acres in size and is bounded on the north by Richmond Creek, on the east by the Colonial Square Condominium properties, on the south by Arthur Kill Road, and on the west by Richmond Avenue as shown on Figure 2-1. The main entrance to the Site is on Arthur Kill Road.

The Site has been divided into two operable units, OU1 and OU2. An operable unit represents a portion of the site remedy that for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination. OU2 includes Richmond Creek, from the Richmond Avenue overpass to the eastern limit of the landfill; several small tributaries that empty into the creek from the south; and tidal wetlands between the creek and the landfill (Figure 2-1). The landfill portion of the Site (OU1) encompasses approximately 132 acres and is divided into two cells, the eastern and western cells, which represent former solid waste disposal areas. The site is currently inactive with a well-established vegetative cover. A paved road bisects the west cell and lies above the 48-inch wastewater interceptor that leads to the Eltingville Pump Station. This wastewater pump station is onsite and lies between the east and west landfill mounds. A three-barrel, 16-foot by 6.5-foot storm sewer originates at Arthur Kill Road and Abingdon Avenue and traverses underground between the east and west cells with a terminus into Richmond Creek.

The Site is enclosed by fencing with the exception of the boundary along Richmond Creek, which is currently unfenced. The site is guarded full time by a security guard stationed in a trailer near the front entrance to the landfill on Arthur Kill Road. For public safety purposes, signs have been placed on the perimeter fence identifying the area as an inactive hazardous waste site. A portion of the east cell of the landfill (approximately 38 acres) was covered with a clay cap in 1983. Along the southern perimeter of the landfill, a 525-foot-long passive methane collection trench was installed to halt the migration of methane gas toward the residences south of the landfill.

The Remedial Investigation (RI) and Feasibility Study (FS) for OU1 were completed in 1998 and 2001 respectively. The OU1 Record of Decision is dated March 2002. The design report for the remedy for OU1 was approved by the NYSDEC on May 29, 2006. Remedial construction on OU1 started in 2009.

The RI and FS for OU2 were completed in 2004 and 2006 respectively. The OU2 ROD is dated March 2007.

2.2 OU1 Remedy

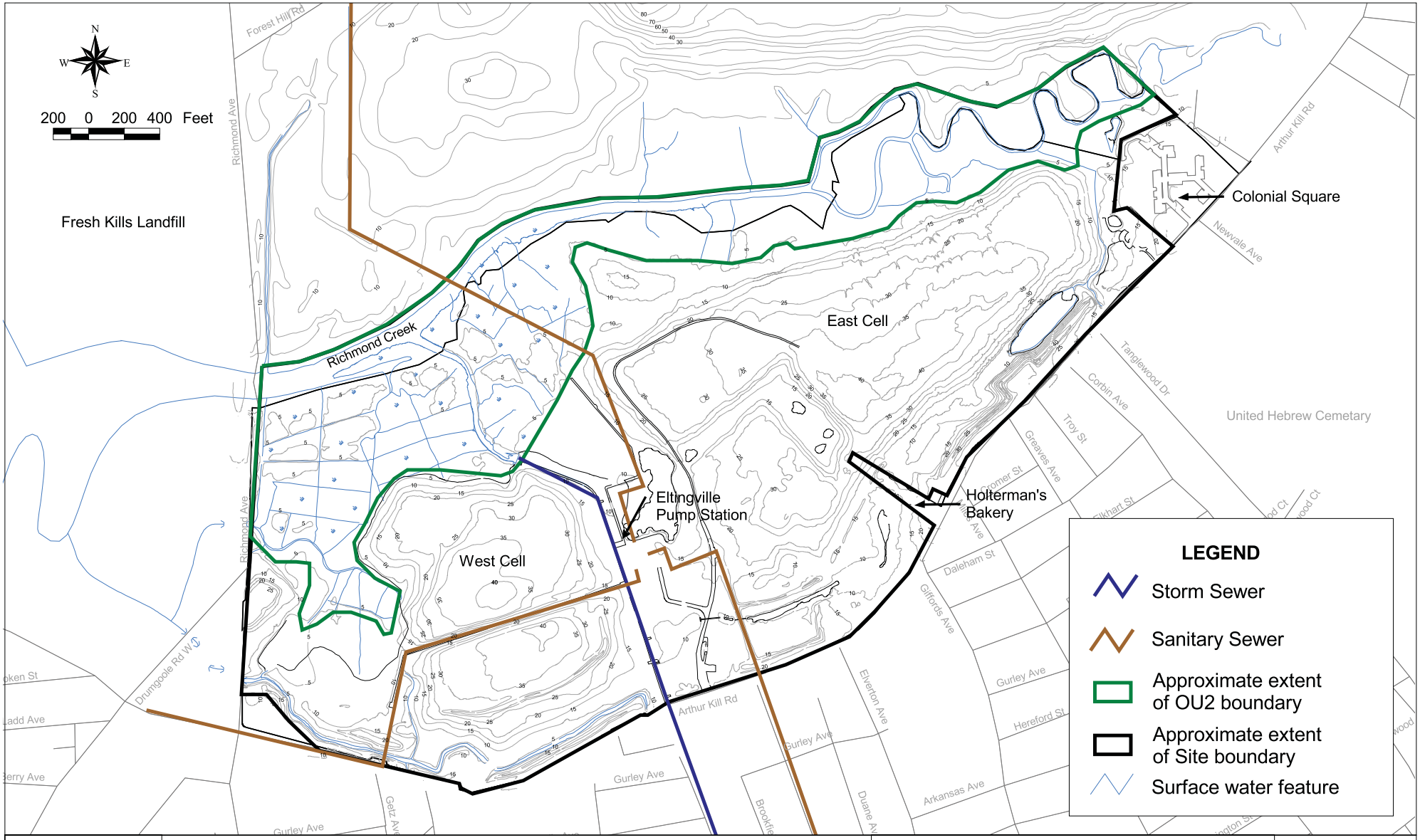
The major elements of the OU1 remedy are as follows:

- A Part 360 landfill cap, featuring a gas venting layer, synthetic membrane barrier layer, soil barrier protection layer and vegetated topsoil layer.
- An active gas collection system consisting of a series of perforated pipes set in gravel wells beneath the landfill cap. Landfill gas will be extracted from these wells via blowers to an enclosed flare for combustion.
- A barrier wall along Arthur Kill Road to prevent the discharge of leachate to the southeast and landfill gas migration along Arthur Kill Road.
- A surface water collection system.
- A leachate collection trench along Richmond Creek and pretreatment system.
- Minimization of encroachment into freshwater and tidal wetlands. Wetland restoration and/or mitigation will be provided for any wetland disturbance along the northern edge of the landfill, and along the Richmond Creek edge between the east and west landfill cells.
- Institutional controls consisting of deed restrictions to ensure that groundwater beneath the site is not extracted for potable use and to ensure that any future site construction or other invasive activity is pre-approved by NYSDEC and NYSDOH.
- Initiation of a long term monitoring program to ensure that the contained hazardous waste does not leave the site. This program will allow the effectiveness of the remedy to be monitored. The OU1 long term monitoring program will be a component of the overall Site Management Plan (SMP).

2.3 OU2 Remedy

The selected remedy for OU2 is based on the results of the OU2 RI, the evaluation of alternatives presented in the FS, and the public's input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. The OU2 remedy calls for monitoring of the chemical characteristics of surface water and sediment to augment monitoring conducted as part of the OU1 Site Management Plan. This will include monitoring the chemical characteristics of surface waters and sediment in the 5th year, 10th year and 20th years after the OU1 remedy is complete.

Under the remedy required for OU1, institutional controls will be applied to the entire listed site including portions of OU2. Following completion of the constructed remedial elements of OU1, the entire site will be surveyed and remapped to redefine the portion of the site that is listed on the New York State Registry of Inactive Hazardous Waste Disposal Sites. The controls that will apply to the listed portion of the site will include: prohibition from use of groundwater for potable purposes; prohibition from vegetable gardening; performance of site inspections and filing of a periodic certification that the remedy remains in place and continues to perform as designed; and management of residual contamination under a Site Management Plan. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the NYSDEC.



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Brookfield Avenue Landfill Operable Unit 2

DEP

OU2 Remedial Action Plan
Site Map

Figure 2-1

Section 3
Project Objectives and Schedule

3.1 Monitoring Objectives

This OU2 Remedial Action Plan details the sampling locations, collection and sample handling procedures, analytical methods, and data reporting required by the OU2 remedy. It also addresses the non-monitoring elements of the remedy. The objectives include:

- The collection and analysis of samples to monitor surface water and sediment quality in the OU2 portion if the Site;
- The collection and analysis of surface water and sediment to supplement data collected as part of on-going and long-term monitoring in the Fresh Kills Estuary system (i.e., The Fresh Kills Monitoring Program). This data is used to understand long-term changes in surface water and sediment quality, considering remediation efforts at this and other contaminant sites in the region.

3.2 Surveying

The limits of the hazardous waste site and remapping the listed portion based on all data available from previous investigations will be surveyed. This survey will be performed during the development of the Site Management plan for OU-1 and consultation with NYSDEC and NYSDOH. This process will also take place in conjunction with establishment of the easements for OU1.

3.3 Data Quality Objectives

Field data collection will consist of surface water and sediment sampling in the creek, and sediment sampling in the marsh/wetlands located between the creek and the landfill. Every reasonable attempt will be made to obtain a complete set of usable field measurements and analytical data. If a measurement cannot be obtained or is unusable for any reason, the effect of the missing data will be evaluated by the project manager and Quality Assurance (QA) staff implementing the field data collection event at the time.

3.3.1 Surface Water Sampling

Surface water samples will be used to monitor water quality in Richmond Creek. It must be noted that surface water in Richmond Creek is also impacted by sources of contaminants outside of OU1/OU2 (e.g., urban stormwater runoff and Fresh Kills Landfill). Although sample collection has been designed to minimize influence from other sources, the data analysis must consider the impacts from all sources.

Samples will be collected during a period where baseflow represents the greatest percentage of streamflow, such as during the summer months when rainfall is generally low. Samples will be collected during low-tide to minimize the impact of downstream sources (e.g. Fresh Kills Landfill) on water quality at the Site. High-tide samples will also be collected and compared to the low-tide samples. Surface water analysis will target the contaminants historically detected in OU2 surface water above established standards, criteria, or guidance values (SCGs). These contaminants include metals, pesticides, and volatile organic compounds (VOCs).

Surface water quality data will be compared to SCGs. Laboratory calibration and detection limits will be consistent with appropriate regulatory limits. In New York State, certain regulatory limits for surface water are based on the total hardness of the stream water. Accordingly, each surface water sample will be analyzed for total hardness.

Samplers should avoid collecting water at the surface of the body where volatilization or UV radiation may reduce concentrations. As samples will be collected at both high tide and low tide periods, sampling personnel should limit the suspension of stream sediments during the first event that may impact water quality during the subsequent event.

3.3.2 Sediment Sampling

Sediment samples will be used to monitor sediments in Richmond Creek and in the marsh/wetlands between the landfill and the creek. There must be sufficient quantity of data to characterize changes to lateral and vertical sediment quality over time. Sediment analysis will target the contaminants historically detected in OU2 sediment above SCGs. These contaminants include metals, pesticides, and semi-volatile organic compounds (SVOCs). Target SVOCs include polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs).

Sediment quality data will be compared to SCGs that are in place at the time of sample collection (see project schedule). Laboratory calibration and detection limits will target appropriate regulatory limits; however, the quantification levels for samples with low percent solids may not attain these limits. Consequently, the samplers will be advised to collect sediment samples with as high percent solids as possible. In New York State, regulatory limits for sediment quality are based on the total organic carbon (TOC) content of the material. Accordingly, each sediment sample will be analyzed for TOC.

3.4 Project Schedule

Surface water and sediment monitoring will be performed in the 5th year, 10th year, and 20th year after the OU1 remedy is complete. Based on the current schedule, the constructed elements of the OU1 remedy are expected to be completed by 2013. Therefore, OU2 monitoring is anticipated to occur in 2018, 2023 and 2033. A site survey will be performed following completion of the constructed remedial elements in OU1. Once the survey is completed, the listed portion of the site will be remapped and the easements specified in the OU1 ROD will be established.

Section 4
Sample Location and Frequency

4.1 Surface Water Sampling

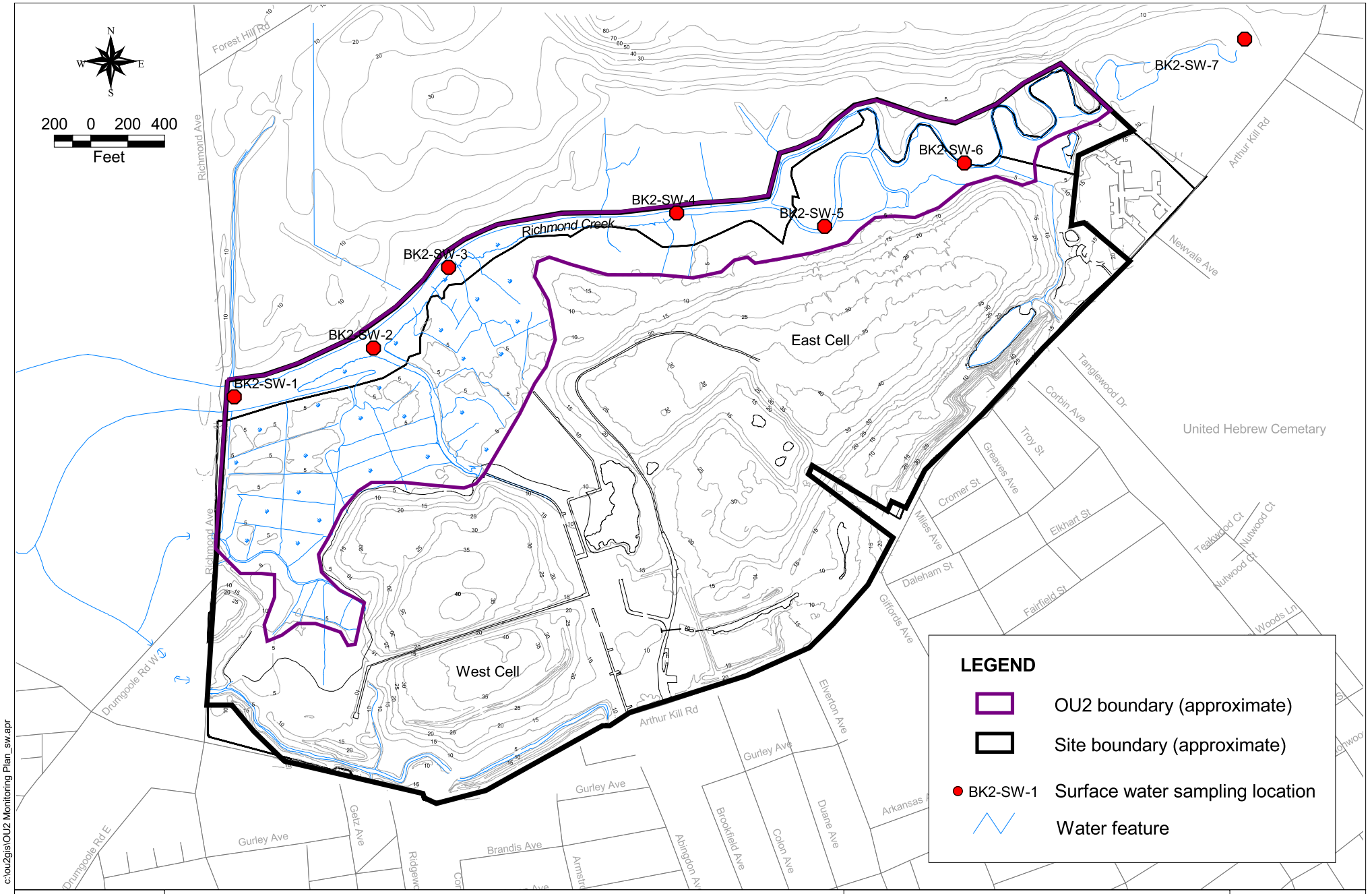
Surface water samples will be collected at seven locations from Richmond Creek, including the background sampling location, as shown in Figure 4-1. Samples will be collected within two hours of mean high tide and within two hours of mean low tide. The total number samples collected per event (not including QA/QC samples) will be 14. Surface water sampling locations in the marsh area of OU2 targeting stormwater discharge points from OU1 will be specified and sampled as part of the OU1 SMP.

Samples will be collected for laboratory analysis of TCL volatiles, semi-volatiles, pesticide/herbicide/PCB parameters, TAL metals, TOC, and total hardness. The field crew will measure the physical/chemical parameters pH, temperature, specific conductance, dissolved oxygen, salinity, and turbidity using direct-reading instruments at the time of sample collection.

4.2 Sediment Sampling

Sediment samples will be collected at 12 locations within Richmond Creek, its tributaries, and the adjacent marsh/wetlands between the creek and the Brookfield Avenue Landfill as shown on Figure 4-2. Where possible, continuous core samples will be collected at each location using a Vibracore® sampling device or other appropriate means. Three discrete samples will be collected from each boring at intervals of 0 to 6 inches, 6 to 12 inches, and 24 to 30 inches. The results of sediment sampling conducted during the OU1 RI and OU2 RI indicated contaminants were most commonly found at these intervals. Contaminant concentrations in excess of SCGs were less frequently found at intervals deeper than 30 inches; therefore, the OU2 monitoring will focus on changes in sediment contaminant concentrations up to 30 inches. The total number samples collected per event (not including QA/QC samples) will be 36.

Samples will undergo laboratory analysis for semi-volatiles, pesticide/herbicide/PCB parameters, TAL metals, and TOC.



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Brookfield Avenue Landfill Operable Unit 2

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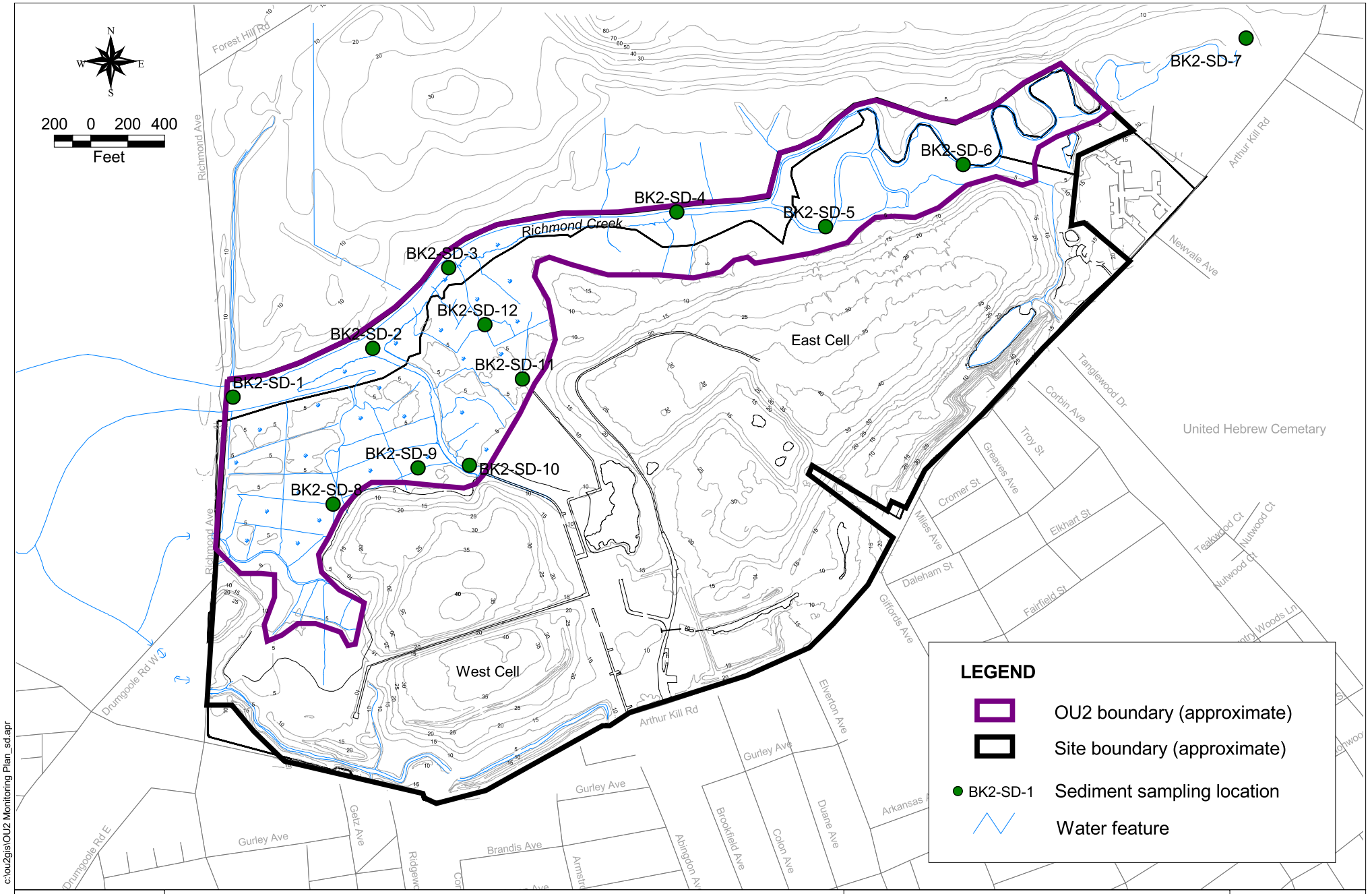
OU2 Remedial Action Plan
Surface Water Sampling Locations

Figure 4-1



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New York City Department of Environmental Protection
Brookfield Avenue Landfill Operable Unit 2

DEP

OU2 Remedial Action Plan
Sediment Sampling Locations

Figure 4-2

Section 5
Sample Designation and Labeling

5.1 Sample Designation

Unique sample codes will identify each surface water and sediment sample. The codes are made up of series of alphanumeric designations that identify the site, sample type, sample location, and sample depth (if appropriate). A two-letter designation “BL” and the numeral “2” are used to identify the Brookfield Avenue Landfill Site Operable Unit 2. The site code is followed by a two-letter designation that is used to identify the specific type of sample being collected; SW for surface water samples, SD for sediment samples, FB for field blanks, and TB for trip blanks. A two-digit numerical station-specific designation is used to identify the location where the sample was collected. A letter indicates the depth of the sample. For example, the sample code BK2-SD-1-A indicates Brookfield Avenue Landfill Site, Operable Unit 2, sediment sample, collected at location number 1, from depth interval A. Field duplicate samples will be prepared as “blind duplicates” and given a sample number in sequence with the type of sample being collected. Samples for matrix spike/matrix spike duplicate analysis will be labeled with a "MS/MSD" following the station code. Table 5-1 provides a list of the samples that will be collected during the three planned OU2 monitoring events. Note that one field duplicate, one trip blank, one field rinsate blank, and one MS/MSD sample will be associated with surface water samples. For sediment samples, two field duplicates, two field rinsate blanks, and two MS/MSD samples are specified for most parameter groups.

5.2 Sample Labeling

All samples will be identified with a waterproof, self-adhesive sample label, which will be attached directly to the sample container. The sample label will be completely covered with clear Mylar tape prior to sampling. This sample label will include the following information:

- Date of sample collection
- Time of sample collection
- Sample number code/location (BKL2-SD-01-A)
- Sampler signature
- Type of analysis to be performed
- Preservatives added to the sample (if applicable).

Sample Type	*Parameter*	*Analytical Method*	*Environmental Samples*	*Field Duplicate*	*Field/Rinsate Blank*	*Trip Blank*	*MS/MSD*
			14	1	1	1	1
			14	1	1		1
			14	1	1		1
			14	1	1		
			14				
			36	2	2		2
			36	2	2		2
			36	2	2		
			36				

Section 6
Field Equipment and Procedures

6.1 Decontamination Procedures

Decontamination of field equipment and sampling apparatus will be performed to avert cross-contamination of samples between sampling depths and sampling locations. The decontamination procedures for different types of equipment are discussed below. Decontamination rinse water will be containerized in a 55-gallon drum or similar vessel and transported to the landfill to be released to the leachate collection system upstream of the planned oil/water separator.

6.1.1 Personal Protective Equipment

Personal protective equipment will undergo a wash with low phosphate detergent followed by a tap water rinse. Dedicated equipment, such as surgical gloves worn when collecting samples, are disposed of after each use and do not require decontamination. Personal protective equipment required for each task is specified in the Health and Safety Plan (HASP) that will be prepared prior to the first sampling event.

6.1.2 Field Monitoring Equipment

Instruments that will be used to monitor health and safety, and physical/chemical parameters during sample collection should be cleaned per the manufacturer's instructions. The pH meter and conductivity probes cannot be rinsed with solvents. These instruments will be rinsed after each use with deionized/distilled water only.

6.1.3 Sampling Apparatus

Sampling apparatus must be properly decontaminated prior to their use in the field. Dedicated equipment will be used to the extent possible. The equipment will be pre-cleaned in a laboratory situation whenever possible using the following procedures. If the duration of the sampling event prohibits pre-cleaning in a laboratory, then equipment may be decontaminated in the field using the same procedures.

a. Wash thoroughly with low phosphate detergent

b. Tap water rinse

c. A methanol rinse (pesticide grade or better)

d. Deionized, distilled water rinse

e. Air dry, and

f. Wrap in aluminum foil (shiny side out) for transport.

Tap water must be from a source with verifiable quality, such as a municipal water system. The use of an untreated potable water supply is not an acceptable substitute.

6.2 Sampling and Measurement Procedures

6.2.1 Surface Water Sampling

Surface water samples will be collected at seven locations within Richmond Creek adjacent to the Brookfield Avenue Landfill. Samples will be collected at both high and low tide at each of the locations for a total of 14 samples. Samples will be collected for laboratory analysis of TCL volatile, semi-volatile, pesticide/herbicide/PCB parameters, TAL metals, TOC, total hardness, and salinity. The field crew will measure the physical/chemical parameters pH, temperature, specific conductance, dissolved oxygen, and turbidity using direct-reading instruments at the time of sample collection.

6.2.1.1 Field Equipment

1. Sample containers
2. Sample shipping container with ice packs
3. Paper work and packaging
4. Sample preservatives
5. Horiba U-10 Multiparameter Water Quality Checker (or similar)
6. Organic Vapor Monitor (PID)
7. Stainless steel tape measure and measuring rod
8. Wheaton Dip Sampler
9. Kemmerer Sampler
10. Field notebook
11. Camera and film
12. Deionized, distilled water
13. Global Positioning System

6.2.1.2 Procedures

1. Prior to initiating any field activities, review applicable sections of the Health and Safety Plan, and thoroughly check monitoring and protective equipment.
2. Surface water samples will be collected from the seven locations in or adjacent to Richmond Creek within two hours of mean high tide and again within two hours of mean low tide. This provides a four hour sampling window for each tidal event. Samples will be collected beginning with the furthest upstream or "background" sample location and ending with the furthest downstream (east to west).

3. At each location, screen with the PID as required by the Health and Safety Plan. Note any odors or visual evidence of landfill leachate, and evidence of dead vegetation or animals. Record results in the field logbook.

4. Measure the horizontal coordinates (State planar) of each sample station using GPS. Record the locations in the field logbook, and on a scaled Site drawing (preferably Site topographic map).

5. The sampling location should be approached from the downstream direction, depending on tidal currents, being careful not to disturb the sediments.

6. Measure the depth of water at each location using a surveyor's rod or graduated sounding tape. Record the depth in the field logbook.

7. Thoroughly rinse temperature, pH, specific conductance, dissolved oxygen probes, and the turbidity meter with distilled/deionized water. Measure these parameters by immersing the probes in the stream just downstream of the sample location. Measure the dissolved oxygen within the upper one foot of the water column, and at a level midway between the water surface and the streambed. Duplicate samples and measurements will be taken at one sampling station to check on the instrument precision.

8. The surface water samples shall be grab samples collected by submerging the sample containers below the surface of the water and allowing water to flow smoothly into the container. Only unpreserved containers will be used. Chemical preservatives will be added after the sample has been collected.

9. A wooden stake with colored flagging will be driven into the ground to the side of the sample location to mark each location.

10. Sampling locations and activities will be photographed.

11. One matrix spike/matrix spike duplicate water sample will be appropriately identified in the notebook and will be labeled as such on the sample bottle labels and the chain-of-custody forms. Enough sample (triple the volume) should be collected for the laboratory to perform matrix spike and matrix spike duplicates.

12. For each sample collected, attach sample labels and tags to each sample container. Completely fill out the chain-of-custody form for each group of samples shipped to the laboratory. Make sure the appropriate analyses for each sample is clearly labeled on the chain-of-custody form.

Sample Bottle Filling Procedures for Volatile Organics

1. Remove the cap from a 40-ml septum vial. Avoid contact with the inner surface.

2. Immerse the entire vial into the water just below the water surface if possible without disturbing the sediments and completely fill the container. Replace the cap on the sample bottle making sure no air bubbles are present.

3. Invert bottle and inspect bottle for air bubbles. If air bubbles are present, refill the bottle again. Adjust the pH of the sample to <2 by carefully adding 1:1 HCl drop by drop to the required 2 (40 ml) VOA sample vials. The number of drops of 1:1 HCl required should be determined on a third portion of sample water of equal volume. If acidification of the sample causes effervescence, do not preserve sample except for cooling to 4°C. This must be noted on the chain of custody. This sample

should be appropriately noted when present. Clean nitrile gloves must be worn when preservatives are used.

Sample Bottle Filling Procedures for Extractable Organics and PCBs

1. Remove the Teflon-lined cap from a 1-liter amber bottle. Avoid contact with the inner surface of the cap.
2. Immerse the container in the stream so that the mouth of the bottle is just below the water surface.
3. Replace the cap on the sample bottle and place the sample in a cooler, on ice.
4. Fill the rest of the bottles by repeating steps 1 through 3.
5. Record all appropriate data in a field notebook.

Sample Bottle Filling Procedures for Inorganics

1. One sample for metals analysis will be collected from each location. This sample will provide data on total metals; this sample will not be filtered.
2. Fill the bottle approximately 7/8 full and preserve to a pH of less than 2 with HNO3. Mix sample thoroughly by shaking, then test pH using pH paper by pouring excess sample into a separate container.
3. Replace the cap on the sample bottle and place the sample in the cooler.
4. Record all appropriate data in field notebook.

Sampling for Total Organic Carbon:

1. Remove caps from two 40 ml vials.
2. Fill to the top.
3. Add H2SO4 or HCl to pH <2.
4. Replace cap on sample bottle.
5. Record all appropriate data in field logbook.

6.2.2 Sediment Sampling

Sediment samples will be collected at 12 locations within Richmond Creek and the adjacent marsh/wetlands inclusive of the background sample. Where conditions allow, up to three-foot continuous core samples will be collected at each location using a Vibracore® sampling device or similar means. Vibracore® collection of sediment core will be performed by a firm with specialized expertise in this area. After the core has been retrieved and opened field personnel will describe the core and collect samples for laboratory analysis. Three discrete samples will be collected from each boring. Samples will undergo laboratory analysis of semi-volatile, pesticide/herbicide/PCB parameters, TAL metals, and TOC. For all of these sediment cores collected, where physically possible, sediment from the 0 to 6 inch, 6 to 12 inch, and 24 to 30 inch intervals will be submitted for laboratory analysis.

6.2.2.1 Field Equipment

1. Sample containers
2. Sample shipping container with ice packs
3. Paper work and packaging
4. Vibracore® unit
5. Stainless Steel tubing
6. Generator
7. HPDE liner
8. Polyethylene sheeting
9. Stainless steel trowels and bowls
10. Tape measure and measuring rod
11. Organic Vapor Monitor (PID)
12. Global Positioning System
13. Camera and film
14. Field notebook
15. Deionized, distilled water

6.2.2.2 Procedures for Collecting Sediment Samples

1. At each sample location, calculate the length of the core sample. This should include the depth of any standing water, the depth of investigation, and an additional 2 foot to allow for sample loss when retrieving the core tube.
2. Insert a section of new HDPE liner into a decontaminated core tube, and attach the drive shoe and core retainer.
3. Set the core tube at the designated sample location and attach it to the Vibracore® device.
4. Turn on the Vibracore® device and drive the core tube to a point approximately two feet past the designated sample depth, or until refusal is encountered, whichever comes first. Refusal is defined as the point at which there is no further penetration of the core tube for a period of 1 minute.
5. Turn the Vibracore® device off and attempt to retrieve the core tube using cable and a hydraulic winch.
6. If the core tube cannot be retrieved in this manner, restart the Vibracore® device until the tube comes loose, and then remove it the rest of the way using the hydraulic winch.
7. Detach the drive shoe and core retainer, and extrude the liner and core from the core tube.
8. Drain excess water by making a small hole in the liner above the sediment/water interface.

9. Cut the liner and core sample lengthwise.

10. Scan the core with the PID.

11. Measure the length of core recovery. Describe the lithology, color and saturation level with depth. Note any visual evidence of contamination or odors.

12. Photograph the core sample using a sampling trowel or ruler for scale.

13. Using a dedicated sampling trowel(s) and a clean pair of surgical gloves, collect sample(s) for volatile organic analysis at the designated depth(s) or at intervals where PID readings indicate the presence of elevated levels of non-methane organic vapors.

14. Label the containers and place in a cooler with ice as soon as possible.

15. Using the dedicated trowels, collect sample for SVOC, pesticide/PCB, TOC, and metals analysis from the designated depth(s) and place in a dedicated stainless steel bowl.

16. Homogenize the sample and remove any gravel or vegetative material.

17. Transfer sample to appropriate sample containers using dedicated trowel.

18. Attach custody seals and place samples in a polyethylene bag.

19. Record the coordinates of the sample location (in State plane coordinates) using a global positioning system.

20. Identify, package, and ice samples for shipment.

21. Maintain chain-of-custody.

22. Discard the remaining core in a 55-gallon steel drum.

23. Document the entire sampling process in the field logbook.

24. Transport drum(s) of excess core material for storage at the landfill, pending receipt of analytical results that would prevent regular disposal.

Section 7
Sample Handling and Analysis

7.1 Sample Handling

Surface water and sediment samples that will be collected in Richmond Creek are anticipated to fall into the DOT shipping category of low-level environmental samples. Environmental samples will be shipped by overnight delivery service in "cargo only" aircraft.

Packaging

- Check to ensure that the sample is properly filled; tighten cap securely.
- Enclose and seal sample containers in a clear plastic bag or bubble pack bag if provided by the analytical laboratory.
- Place freezer packages or ice in large ziplock plastic bags and place the bags in a sample cooler so that ice is not in direct contact with sample bottles. Sufficient ice will be added to cool the samples to 4°C.
- Pack noncombustible, absorbent packing material around bottles and ice to avoid sample breakage during transport.
- Complete Chain-of-Custody Records and other shipping/sample documentation including air bill numbers for each shipment of samples using a ballpoint pen. Seal documentation in a waterproof plastic bag and tape the bag inside the shipping container under the container lid. Include a return address for the cooler.
- Close the container and seal it with fiber tape and custody seals in such a manner that the custody seals would be broken if the cooler were opened.
- Cover any sharp edges (e.g. tears in the plastic housing of the cooler) and the cooler drain with duct tape.

Marking/Labeling

- Attach return address labels to the inside of the cooler in a clearly visible location.
- The outside of the cooler must be marked "Environmental Samples" if the samples are designated "Low-Level." No DOT marking or labeling is required for low-level samples.
- The appropriate side of the container must be marked "This End Up" and arrows placed accordingly.

7.2 Sample Analysis

Laboratory analysis of surface water and sediment samples will be performed by a NYSDEC CLP-certified laboratory. Table 7-1 presents a summary of the analytical methods for surface water and sediment samples. Samples will undergo analysis on the standard 28-day laboratory turnaround schedule. The laboratory will use analytical methods as outlined in the most recent release of the NYSDEC Analytical Services Protocol (ASP) for their contract laboratory program.

If an SW-846 method or other method is modified during sample analysis, then the laboratory will also be required to perform the following protocol to demonstrate their ability to analyze for the non-standard parameters or methods.

A. A method detection limit (MDL) study following the description given in 40 CFR Part 136, Appendix B.

B. A calibration of no less than four standards including the blank. The standards preparation method and calculations, from neat or original standard to working standards, must be provided with the first submission of data for the new analyte.

C. Verification of standard calibration with a second source, if feasible, or at a minimum an independently prepared standard at the mid-range of concentration.

D. Accuracy and precision studies using blank spikes/blank spike duplicates, matrix spike/matrix spike duplicates and matrix spike/duplicates.

E. A run sequence comparable to those normally described in EPA methodologies, i.e., calibration, initial calibration verification, instrument blank, method blank, ten samples (including QC), continuing calibration verification, instrument/method blank, and so on.

F. All QC requirements in the method cited for the analysis, whether suggested, recommended, or required must be implemented.

A summation of the MDL study will be included with the data package. All laboratory data deliverables shall conform to Category B as defined in the most recent ASP. The laboratory will supply a detailed example calculation that clearly demonstrates the manner in which the final result was derived. Where applicable, each component of the calculation will be explained (i.e., if the calculation includes a dilution factor, it must be clear where, why, and how each dilution occurred). The laboratory will supply any and all information required to reproduce, during an independent data review, all reported results.

In addition, a Data Usability Summary Report should be prepared by a party independent from the laboratory performing the analysis.

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□ □□□R□□ □d□□□□□ □□□□□□□□□□□□

Sample Type	*Parameter*	*Analytical Method*	*Preservative*	*Holding Time*	*Container*	*Volume*
□□r□□□□□□□ □□□r	□□□□□□□□ □	M□□□□d□□26□□624	□□□□□□□□□□□□□□2□□ □□□□□□□□4□□	1□□d□□□□	□□□□□□□□□□□□□□□□□

Section 8
Reporting

8.1 Electronic Data Deliverables

The analytical laboratory performing sample analysis is required to submit sample results in both a hardcopy and an electronic format. The information submitted in electronic format must correspond exactly to information submitted in the hardcopy data package and on the hardcopy data package forms. For all conventional analyses, the laboratory must submit the documentation specified in the NYSDEC ASP protocol.

MS Excel and ASCII (comma delimited) are both acceptable formats for the electronic data deliverables (Given that the first sampling event is years into the future, additional formats may be considered at that time). MS Excel is preferred. One row should be used for each parameter analyzed. Separate columns must be used for parameter name, sample ID, sample date, result, and data qualifier. Additional columns may be necessary for other data including lab ID, analysis date, etc. Column headings must be provided in the first row in each column.

8.2 Report Format and Content

OU2 Monitoring Reports will be submitted within 90 days of sample collection. Each report will include the following information:

1) The valid Department site identification number, plus the municipality and county, in the title of the report;

2) A location map;

3) A site map;

4) A map showing sampling locations, and significant analytical values at sampling locations (e.g. analytical values above current SCGs);

5) A brief description of the applicable standard test methods run;

6) Summary tables include detected compounds, along with the applicable SCGs and with any exceedences of SCGs highlighted;

7) Cumulative data summary tables;

8) Comments, conclusions and recommendations based on an evaluation of the analytical results;

9) Comments, conclusions and recommendations based on an engineering evaluation of the information included in the report, which must be prepared by a professional engineer in accordance with section 1.5 (a) 9, of DER-10; and

10) Reports prepared summarizing conditions in OU2 after the 5th, 10th and 20th year following OU1 closure will be submitted in an electronic format acceptable to the NYSDEC and a bound (paper) format.

Section 9
Implementation of Other Remedial Elements

9.1 Environmental Easements

Under the remedy required for OU1, institutional controls will be applied to the entire listed site including portions of what is now recognized as OU2. Following completion of the constructed remedial elements of OU1, the entire site will be surveyed and remapped to redefine the portion of the site that is listed on the New York State Registry of Inactive Hazardous Waste Disposal Sites. This activity will be performed in close consultation with the NYSDEC and NYSDOH and take into account the results of all previous remedial investigations performed at the site.

The controls that will apply to the listed portion of the site will include: prohibition from use of groundwater for potable purposes; prohibition from vegetable gardening; performance of site inspections and filing of a periodic certification that the remedy remains in place and continues to perform as designed; and management of residual contamination under a SMP. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the NYSDEC.

9.2 Fencing and Signage

Following public comment on the PRAP and FS, the NYCDEP agreed to install a visual demarcation fence between what is currently recognized as OU1 and OU2 and install signage along the demarcation line that provide notification of the current fish consumption advisory that has been placed by the New York State Department of Health (NYSDOH) for waters in New York Harbor. These controls are not a mandated component of the ROD; however, they have been agreed to by the NYCDEP in order to address community concerns and interests. These controls will be implemented following completion of the major constructed elements of the OU1 remedy, and prior to opening of the site for public use.

APPENDIX D

SITE MONITORING AND MAINTENANCE CHECKLIST FORMS AND ADDITIONAL DOCUMENTS

Checklists

- Form LFG -- Landfill Gas Management System
- Form SWM-1-- Stormwater Management System – Subsurface and Surface Drainage Systems
- Form SWM-2 -- Stormwater Management System – Outlets and Culverts Protection and Rock Buttress Area
- Form SWM-3 -- Stormwater Management System – Downdrains, Flared-End Sections, Pipe Trenches and Energy Dissipators
- Form FCS -- Final Cover System
- Form ANS -- Ancillary Systems
- Form DP Description of Deficiencies and Problems

Additional Documents

- Instructions for the Site Inspection Checklists
- Instructions For Inspection Checklist, Form SWM-1
- Instructions For Inspection Checklist, Form SWM-2
- Instructions For Inspection Checklist, Form SWM-3
- Instructions For Inspection Checklist, Form FCS

FORM LFG
MONTHLY INSPECTION CHECKLIST
LANDFILL GAS MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

Inspector_____ Date_____

LOCATION	CONCENTRATION BY VOLUME			TEMP (°F)	VACUUM @ WELL HEAD (IN W.C.)	REMARKS
	Methane	CO_2	Oxygen			
Flare Inlet						
GW-A1						
GW-A2						
GW-A3						
GW-A4						
GW-A5						
GW-A6						
GW-A7						
GW-A8						
GW-A9						
GW-A10						
GW-A11						
GW-A12						
GW-A13						
GW-A14						
GW-A15						
GW-A16						
GW-A17						
GW-B1						
GW-B2						
GW-B3						
GW-B4						
GW-B5						
GW-B6						
GW-B7						
GW-B8						
GW-B9						
GW-B10						
GW-B11						
GW-B12						
GW-B13						
GW-C1						
GW-C2						
GW-C3						
GW-C4						
GW-C5						
GW-C6						
GW-C7						

LOCATION	CONCENTRATION BY VOLUME			TEMP (°F)	VACUUM @ WELL HEAD (IN W.C.)	REMARKS
	Methane	CO_2	Oxygen			
GW-C8						
GW-C9						
GW-C10						
GW-C11						
GW-C12						
GW-C13						
GW-C14						
GW-C15						
GW-C16						
GW-C17						
GW-C18						
GW-C19						
GW-C20						
GW-C21						
GW-C22						
GW-C23						
GW-C24						
GW-C25						
GW-C26						
GW-C27						
GW-C28						
GW-C29						
GW-C30						
GW-C31						
GW-32	NOT INCLUDED IN DESIGN	NOT INSTALLED	MIS-NUMBERED			
GW-C33						
GW-D1						
GW-D2						
GW-D3						
GW-D4						
GW-D5						
GW-D6						
GW-D7						
GW-D8						
GW-D9						
GW-D10						
GW-D11						
GW-D12						
GW-D13						
GW-D14						
GW-D15						
GW-D16						

LOCATION	CONCENTRATION BY VOLUME			TEMP (°F)	VACUUM @ WELL HEAD (IN W.C.)	REMARKS
	Methane	CO_2	Oxygen			
GW-D17						
GW-E1						
GW-E2						
GW-E3						
GW-E4						
GW-E5						
GW-E6						
GW-E7						
GW-E8						
GW-E9						
GW-E10						
GW-E11						
GW-E12						
GW-E13						
GW-E14						
GW-E15						
GW-E16						
GW-E17						
GW-E18						
GW-E19						
GW-E20						
GW-E21						

FORM SWM-1
INSPECTION CHECKLIST
SUBSURFACE AND SURFACE DRAINAGE SYSTEMS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

INSPECTION TASK	CHANNEL NUMBER						Remarks
1. Geocomposite Drainage Flaps							
Standing Water							
Sediments and Debris							
Erosion/Washouts							
Sinkholes							
Flow at Toe of Slope							
Damage to Drainage Flap							
Damage to Surge Stone Section							
2. Subsurface Drainage Systems							
Standing Water							
Clogging of Rain Gutter Stone							
Erosion/Washouts							
Sinkholes							
Sediment and Debris at Pipe Outlet							
Flow at Pipe Outlets							
Flow at Outlets							
Damage at Drains/Outlets							
3. Surface Water Channels							
Overgrown Vegetation							
Loss of Rip Rap							
Standing Water							
Sediments and Debris restricting flow							
Erosion/Washouts along the edges of channels							
Settlement and Sinkholes							

FORM SWM-2
INSPECTION CHECKLIST
OUTLET AND CULVERT PROTECTION AND ROCK BUTTRESS AREA
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

INSPECTION TASK	STRUCTURE NUMBER						REMARKS
1. Outlet & Culvert							
Pipe Damage							
Erosion Around Pipe and Flared end Section (FES)							
Settlement Along Pipe and FES							
Standing Water							
Sediments/Debris in Pipe and FES							
Rip-Rap Outlet Protection Displacement and Settlement							
Sediments and Debris							
Vegetative Growth							
2. Stone Outlet Protection & Rock Buttress Areas							
Stone/Riprap Displacement							
Sediment/Debris Accumulation							
Vegetative Growth							
Standing Water							
Washouts & Exposed/Damaged Geotextile							
Settlement/Sinkholes							
3. Drop Inlet/Box							
Structural Damage							
Debris/Sediment Blockage of the Structure							
Erosion Around Structure							
Pipe Settlement							
Damage to the Frame and Grate							

FORM SWM-3
INSPECTION CHECKLIST
DOWNDRAINS, FLARED-END SECTIONS, PIPE TRENCHES AND ENERGY DISSIPATORS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

INSPECTION TASK	STRUCTURE NUMBER						REMARKS
1. Downdrains							
Pipe/Fitting Damage (Cracking, etc.)							
Debris/Sediment Blockage in Pipe							
Erosion Around Pipe							
Pipe Settlement							
Damaged Pipe Trench Connections							
2. Downdrain Flared-End Sections (FES)							
Structural Damage							
Separation of the FES from Pipe							
Sediment Accumulation in FES							
Damaged Pipe Connections							
Erosion Around FES							
Settlement under FES							
3. Downdrain Pipe Trenches							
Damaged Pipe Trench							
Standing Water							
Sediment Accumulation							
Pipe Trench Settlement							
Erosion Around Pipe Trench							
Damaged Downdrain Connections							
4. Downdrain Outlet Protection							
Riprap Displacement							
Vegetative Growth							
Standing Water							
Sediment Accumulation and Debris							
Erosion Around Structure							
Structure Settlement							

FORM FCS
INSPECTION CHECKLIST
FINAL COVER SYSTEM
BROOKFIELD AVENUE LANDFILL

INSPECTION TASK	INSPECTION/ZONE NUMBER						REMARKS
Surface Cracks							
Vegetative Growth							
Vector Penetration							
Settlement							
Erosion							
Slope Stability							
Seepage							
Vandalism							

FORM ANS
INSPECTION CHECKLIST
ANCILLARY SYSTEMS
BROOKFIELD AVENUE LANDFILL

INSPECTION TASK	STRUCTURE NUMBER						REMARKS
1. Road							
Rutting							
Depressions/Settlement							
Washout							
Roadway Stone Condition							
2. Walking Trails							
Rutting							
Depressions/Settlement							
Washout							
Roadway Stone Condition							
3. Fencing, Locks, Gates							
Damage							
Vegetation							
4. Site Lighting							
Damage							
Outage							
5. Signage							
Damage							
6. Litter/Illegal Dumping							

FORM DP
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
BROOKFIELD AVENUE LANDFILL

FORM NUMBER	LOCATION	DESCRIPTION	CORRECTIVE ACTION TAKEN

Date:_____ **Inspected by:**_____

Signature:_____

INSTRUCTIONS FOR THE INSPECTION CHECKLISTS
BROOKFIELD AVENUE LANDFILL

1. Everyone working or visiting the site, for whatever reason, shall sign the Log Book. The Operator shall check in with the guards and review the Log Book to see who may be on site.

2. The trailer shall be checked for cleanliness. No debris shall be lying around, the floors shall be clean, garbage pails shall be emptied, the lavatory shall be clean, etc.

3. The oil/water separator shall be checked twice weekly for alarm or system malfunction. Any alarms that are indicated shall also be recorded on the sheet, investigated, and the appropriate action taken.

   Notes:

   a. If any pump is not working properly or is giving an alarm or indicator reading at the local control panel, that pump shall be shut off and the NYCDEP shall be notified immediately.

   b. If any leaks are detected in the pumping and treatment system, the treatment system shall be shut off at the motor control center. The "system" includes sump pumps, pumping Station, and Lift Station.

INSTRUCTIONS FOR INSPECTION CHECKLIST, FORM SWM-1
SUBSURFACE AND SURFACE DRAINAGE SYSTEMS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

This form is to be used by the inspector on a **monthly basis and after 5-year storm events**. The inspectors shall perform the work in an orderly fashion completing all of the items on the checklist in each zone for a particular drainage system component prior to proceeding to the next zone.

If no problems or deficiencies are observed, the item shall be noted as satisfactory by inserting a "checkmark" in the appropriate box. If adverse conditions are observed or if other conditions exist which deviate from the normal and could be deleterious to the stormwater management system, in the opinion of the inspector, the appropriate checkbox should be marked as not satisfactory (NS) and the location and problem noted on the form.

SYSTEM	INSPECTION ITEM	INSPECTION AND MAINTENANCE REQUIREMENTS/PROCEDURES
Geocomposite Drainage Flaps, Subsurface Drainage, and Surface Water Channels	**1. Vegetation**	Inspect surface water channels, rain gutters, and outlet pipe areas for vegetative growth or overgrown vegetation. At the direction of the NYCDEP, vegetative growth shall only be removed where it impedes the functioning of drains or channels.
	2. Standing Water	Standing water may indicate settlement has occurred which impedes flow in the subsurface drainage systems, channels, or that there is a blockage in the drainage system. Remove blockage if present. Repair channels with standing water greater than 6 inches deep or 50 feet in length. Re-grade channels for positive drainage.
	3. Sediments and Debris	Blockages may cause the drainage flaps, rain gutters and other subsurface drains, and channels to back up and overtop in the event of a storm resulting in erosion and potential cover failures. Inspect drainage flaps, outlet pipes, outlet pipe protection (rip-rap, stone and soils) and channels for sediments and debris which ponds water or impedes positive flow. Check particularly where flow from drain pipes and channels enter the transition to other drainage features. Remove any sediments/blockages, repair and re-grade as necessary to establish positive drainage.
	4. Erosion / Washout	Inspect subsurface drainage piping alignments and adjacent areas and channels for erosion or washouts. If observed, inspect associated stormwater management features and run-off areas for cause of erosion or washout. Check local rainfall data for recent rainfall events. Record the date of rainfall and significant amounts in inches on form. If washout is observed, inspect underlying materials for damage and replace if necessary. Repair erosion or washout to the relative grades to establish positive drainage.
	5. Settlement and Sink Holes	Sinkholes may indicate damage in the underlying cover system. Investigate sinkholes for their origin by hand excavating taking extreme care not to damage geosynthetics during the repair operation. Replace damaged items, backfill and re-grade for positive drainage.
	6. Loss of Rip Rap	Inspect rip rap surface water channels for loss of rip rap material that has resulted in unprotected areas of the channel. Identify these damaged areas and replace the rip rap material with the appropriate size and depth of material.

INSTRUCTIONS FOR INSPECTION CHECKLIST, FORM SWM-2
OUTLET ANDCULVERT PROTECTION AND ROCK BUTTRESS AREA
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

This form is to be used by the inspector on a **monthly basis and after 5-year storm events**. The inspectors shall perform the work in an orderly fashion completing all of the items on the checklist in each zone for a particular drainage system component prior to proceeding to the next zone.

The inspector is required to open each drop inlet and use a flashlight, and appropriate hand tools to complete his inspection. DO NOT enter drop inlets during the inspection. Note any problems on Form DP and perform maintenance separately following appropriate Health and Safety guidelines for Confined Space Entry, when applicable.

For all pipe outlets and culverts, check for flow of water especially after rain events. Check inlet for ice buildup and remove if present. Non-flow conditions during typical seasonal conditions may indicate blockage in the surface or subsurface drainage system. If the condition persists over two consecutive inspection periods, further detailed inspection of the pipes will be required to identify any potential blockages. Clean any blockages with high pressure pipe cleaning equipment.

If no problems or deficiencies are observed, the item shall be noted as satisfactory by inserting a "checkmark" in the appropriate box. If adverse conditions are observed or if other conditions exist which deviate from the normal and could be deleterious to the stormwater management system, in the opinion of the inspector, the appropriate checkbox should be marked as not satisfactory (NS) and the location and problem noted on the form.

SYSTEM	INSPECTION ITEM	INSPECTION AND MAINTENANCE REQUIREMENTS/PROCEDURES
Outlets and Culverts, Stone Outlet Protection, Rock Buttress area, and Drop Inlet/Box	**1. Damage**	Inspect culverts, outlet pipes, flared-end sections, and drop inlets (including frame and grate) for structural damage. Remove any damage or blockages and repair as necessary.
	2. Vegetation	Inspect culverts, outlets, stone outlet protection areas, and the rock buttress area for vegetative growth that is impeding the function of system components. Remove impeding vegetation from pipe flared-end sections, outlets, around the "open throat area" of drop inlets, and the rock buttress area.
	3. Standing Water	Standing water may indicate settlement has occurred which impedes flow. Repair culverts, outlets, stone outlet protection areas, and the rock buttress area to remove standing water, correct settlement and establish positive drainage.
	4. Sediments and Debris	Sediment and debris blockages impede positive drainage and function of culverts, outlets and drop inlets. Inspect culvert and outlet pipes and drop inlets for sediments and debris which causes ponding water or impede positive drainage. Check particularly at flow inlet and outlet areas. Remove any debris and sediments to established structure and grade of culverts, outlets and drop inlets.

	5. Erosion / Washout	Inspect culvert, outlet, flared-end sections, and drop inlet structures and the rock buttress area for erosion, washouts and displacement of materials including damage or clogging of underlying geosynthetic materials. Inspect for causes of erosion, washout and displacement in associated drainage features. Check local rainfall data for recent rainfall events. Record date of rainfall and significant amounts in inches on form. If soil, stone, or riprapis washed out, inspect geotextile and underlying materials for damage and replace if necessary. Repair erosion, washout and displacement to relative grades to establish positive drainage.
	6. Settlement	Settlement may indicate damage in the underlying outlet, culvert, flared-end section, drop inlet and rock buttress area underlayment. Investigate settlement for its origin. When excavation is required take extreme care not to damage geosynthetics during the repair operation. Replace damaged items and grade to establish positive drainage.

INSTRUCTIONS FOR INSPECTION CHECKLIST, FORM SWM-3
DOWNDRAINS, FLARED-END SECTIONS, PIPE TRENCHES AND ENERGY DISSIPATORS
STORMWATER MANAGEMENT SYSTEM
BROOKFIELD AVENUE LANDFILL

This form is to be used by the inspector on a **monthly basis and after 5-year storm events**. The inspector shall perform the work in an orderly fashion completing all of the items on the checklist.

If no problems or deficiencies are observed, the item shall be noted as satisfactory by inserting a "checkmark" in the appropriate box. If adverse conditions are observed or if other conditions exist which deviate from the normal and could be deleterious to the stormwater management system, in the opinion of the inspector, the appropriate checkbox should be marked as not satisfactory (NS) and the location and problem noted on the form.

SYSTEM	INSPECTION ITEM	INSPECTION AND MAINTENANCE REQUIREMENTS/PROCEDURES
Downdrains, Flared-End Sections, Pipe Trenches and Outlet Protection	**1. Damage**	Inspect downdrain pipes, pipe trenches, flared-end sections, outlet protection and associated fittings and appurtenances for compression, displacement, breaks, cracking, deformities, and any other damage.
	2. Sediments and Debris	Inspect downdrain pipes, pipe trenches, flared-end sections, and outlet protection for sediment accumulation or other debris. Remove sediment or other debris using suitable Health and Safety precautions. Sediment must be removed by hand or by washing it through the pipe, contained and properly disposed.
	3. Pipe Connections	Using a flashlight, inspect pipe connections, downchute pipes and flared-end sections. Record any cracking, separation, or leakage at connection point. Notify NYCDEP immediately of any breakage or leakage.
	4. Flow from CPP Discharge Pipes	Check flow of water. Flow is expected during all but very dry conditions or during long periods of freezing weather. Check inlet for ice buildup and remove if present. Non-flow conditions during typical seasonal conditions may indicate blockage in the subsurface drainage system. If the condition persists over two consecutive inspection periods, inspect the pipes using a video camera apparatus. Clean any blockages with high pressure pipe cleaning equipment.
	5. Debris/Silt Blockage in Pipes	Inspect pipes for blockage by placing a small rubber ball in the pipe and check that it travels through pipe and exits at manhole or outlet. If ball does not exit, visible inspect the pipe using video camera device. Use appropriate Health and Safety Precautions. If blockage is present, remove using high pressure pipe cleaning equipment. If pipe is compressed or contorted due to settlement or surcharge, notify NYCDEP immediately.
	6. Settlement or Erosion Along Pipe	Inspect downdrain pipe alignment between down slope for settlement, erosion, depressions or blow holes. Conditions for this type could indicate a potential pipe failure. Check outlet for gravel deposits. Gravel could indicate a breakage. Notify NYCDEP immediately and repair in accordance with the record drawings and specifications

INSTRUCTIONS FOR INSPECTION CHECKLIST, FORM FCS
FINAL COVER SYSTEM
BROOKFIELD AVENUE LANDFILL

This form is to be used by the inspector on a **quarterly basis and after 5-year storm events**. Prior to the first inspection, readily visible markers shall be placed on the landfill surface to delineate zones. The inspector shall perform the work in an orderly fashion completing all of the items in each zone prior to proceeding to the next zone. The inspector is required to walk up and down the sideslopes at least once in each zone to obtain close inspection of the slope conditions.

Observations shall be recorded at the time they are viewed. If no problems or deficiencies are observed in a given zone, the item shall be noted as satisfactory by inserting a "checkmark" in the appropriate box. If adverse conditions are observed or if other conditions exist which deviate from the normal and could be deleterious to the landfill cover, in the opinion of the inspector the appropriate checkbox should be marked as not satisfactory (NS) and the location and problem noted on the form.

INSPECTION ITEM	INSPECTION AND MAINTENANCE REQUIREMENTS/PROCEDURES
1. Surface Cracks	Check carefully for surface cracking while walking up and down the slopes in each zone. Surface cracks may indicate serious problems such as slope movement (see Item 6, Slope Stability below) or less serious conditions such as desiccation cracking due to dry conditions. Investigate observed cracks for depth and length. Note orientation with respect to the slope and record accurately. Cracks greater than 20 feet long, 9 inches deep and 2 inches wide that are parallel to the slope should be noted on the checklist and immediately reported to the NYCDEP. Repair cracks deeper than 12 inches that are on mild slopes (i.e., slopes of 10% or less), and which appear to be the result of localized settlement or dry conditions. DO NOT fill cracks that are associated with general slope movement as this may aggravate the situation. Repair minor cracks by filling with like material, compacting and reseeding area in accordance with the specifications.
2. Vegetative Growth	Check for areas of vegetative stress on landfill surface and height of vegetative stand by zone. Report areas of vegetative stress on checklist and determine possible causes. Grasses should be of consistent quality without trees or shrubs with a stem diameter greater than about 2 inches diameter except on vegetation islands. Trim grasses along fence with suitable grass trimmers which will not damage fencing. Environmentally safe grass inhibitor may be used along fence lines with approval of the NYCDEP. Areas of vegetations stress shall be analyzed for the cause. Note any gas odors and check for insect infestation or other parasites which could be the cause. Take sample soil of topsoil in affected areas and test for organic content, phosphous, nitrogen, potassium, and pH.

3. Vector Penetration	Record indications of burrowing animals in each zone. Check area for damage to geosynthetics by carefully hand excavating a test pit near burrow holes. Note and repair any damage to geosynthetics in accordance with specifications. Replace original soil materials and hand compact. Reseed if necessary. If significant damage is observed, notify NYCDEP and contract with exterminator to remove burrowing animals subject to NYCDEP approval.
4. Settlement	Record, by zone, areas of localized differential settlement. These are areas which begin to pond water on the landfill surface. Mark locations on the record drawings and repair according to the repair protocol. Large depressions may require regarding of subsoils beneath the geomembrane and replacement if geosynthetics.
5. Erosion	Record erosion by zone as not satisfactory (NS) whenever rills or gullies exceed 4 inches deep. Inspect closely at top and base of sideslopes, around vegetation islands, around structures and at the outlets of all piping. Repair erosion immediately to match the surrounding grades. Use like materials for each layer of the cover eroded or damaged. For erosion approaching the depth of the top of the geocomposite drainage layer (approximately 30 inches), inspect geosynthetics for damage. Erosion may indicate that some portion of the stormwater management system is not functioning correctly. Examples of this could be sediment impeding water flow through culverts, debris clogging water inflow through the openings of grates or trashshacks, or differential settlement along drainage systems. When erosion is identified, investigate these or other possible causes. Repair with like materials and reseed and replace top soil, crushed base course or rip rap in accordance with the specifications.
6. Slope Stability	Check for indications of slope movement in each zone. Slope movement may be identified by large displacements or cracks in the soil mass. Early signs of slope movement can also appear as bulging of the soil materials near the base of the potential failure. Mark the checkbox NS when any of the the conditions described are observed. For cracks oriented parallel to the slope with a minimum length of 20feet, depth of 9 inches and width of 2 inches, install 1 foot long steel bars on either side of the cracks for future reference measurements. Check and record the distance between the steel bars with a tape measure initially and on a frequent basis for the next 2 weeks (i.e., possibly daily, depending on the extent of the cracking) or as instructed by NYCDEP. Any observable slope movement is serious in nature. The area in question should be noted on the checklist as NS and noted on the record drawings. Notify the NYCDEP immediately. Refer to the Contingency Plan for further instructions.

7. Seepage	Check the sideslopes in each zone carefully for seepage. Mark the checkbox (NS) for each zone where seepage is observed. Note the location on the slope. Note if there is odor or other indications that the seepage could be leachate. Provide this information in the description of the deficiency of the problem. Clean seepage water may indicate that there is a problem with the cover drainage system. The drainage system may be clogged in an area or is not functioning correctly for some other reason. Seepage of Leachate may indicate that the geomembrane liner has ruptured and that liquids may have accumulated beneath the landfill geomembrane. Hand excavate materials to level of the geosynthetics by following the seepage path and check the integrity of the membrane liner at the point of seepage origin. Take care not to damage geosynthetics during uncovering operations. Any accumulation of Leachate behind the geomembrane could indicate a serious condition. Notify the NYCDEP and refer to the Contingency Plan for repair of this condition.
8. Vandalism	Check for indications of vandalism, illegal dumping, or other damage to the cover system from sources not related to the elements (i.e., high winds, heavy rainfall, etc.). Report any such damage or dumping to the local police authorities immediately. Concurrently, inform on-site security personnel of each occurrence. Repair damage from vandals to original condition. Refer to specifications for materials and methods of construction.

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	August, 2021	Updates as per NYSDEC Comments	
	October, 2021	Updates as per NYSDEC Comments	

Brookfield Avenue Landfill

Post-Closure Monitoring and Maintenance Operations Manual
Addendum No. 1
August 2021

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Appendix	Title	Replacement
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Brookfield Avenue Landfill
Post-Closure Monitoring and Maintenance Operations Manual
Addendum No. 1
August 2021

Purpose

Addendum No. 1 has been prepared by Lockwood, Kessler & Bartlett, Inc. for the New York City Department of Parks and Recreation (NYCDPR). The purpose of this addendum is to update the Brookfield Avenue Landfill (BAL) Post-Closure Monitoring and Maintenance Operations Manual (O&M Manual) prepared by CDM Smith dated April 2013 which had also been accepted by the New York State Department of Environmental Conservation (NYSDEC) as the BAL Site Management Plan (SMP). Specifically, this addendum addresses the additional information requested by the New York State Department of Environmental Conservation (NYSDEC) as agreed to by the NYCDPR.

New O&M Manual Sections

The following sections either replace the existing O&M Manual Sections in their entirety (i.e., Section 1.1) or are new Sections added to the O&M Manual (i.e., Sections 1.3 through 1.6).

1.1 Objective

The objective of this O&M Manual is to provide detailed guidance regarding required monitoring and maintenance activities for the BAL to ensure the integrity of the final remedial system, while detecting and preventing adverse impacts on public health, safety, and the environment during the 30-year post closure-monitoring period. The O&M Manual may be updated from time to time as deemed necessary and approved by NYSDEC. Updates are in the form of Addenda.

Following completion of the BAL First Operable Unit (OU1) remediation, the Final Engineering Report (FER) was submitted to the NYSDEC and was approved on April 6, 2015, marking the official start of the BAL post-closure period and commencement of the O&M Manual requirements. In August 2017, the NYSDEC reclassified the BAL to a Class 4 site on its Registry of Inactive Hazardous Waste Disposal Sites as it was properly remediated but requires continued site management. On December 12, 2017, the NYCDPR opened the site to the public as Brookfield Park as per the approved BAL End Use Plan. Post-closure O&M work was initially performed under the oversight of the New York City Department of Environmental Protection (NYCDEP) until June 30, 2018, when this responsibility was transferred to the NYCDPR. As such, references to the NYCDEP as the responsible party for the BAL O&M work throughout this O&M Manual are to be replaced with NYCDPR.

1.3 Summary of Previous Investigations and Remedial Actions

1.3.1 Site Location and Description

The BAL site is located to the north of Arthur Kill Road and to the east of Richmond Ave in Richmond County, Staten Island, New York. The 272 acre site boundaries are described in more detail in the Environmental Easement (2016) contained in Appendix H.

1.3.2 Physical Setting

1) Geology

An in-depth description of the site's geology can be found in the Final Remedial Investigation Report Volume I, dated September 1998 (RI Report). According to the RI Report, underneath the BAL is weathered bedrock comprised of dry highly micaceous white to gray silt containing remnant mineral and bedrock structures. Overlying the weathered bedrock are 40 to 100 feet of unconsolidated clay, silt and sand of the Coastal Plain known as the Upper Cretaceous Raritan Formation. A cross section showing the stratigraphy of the BAL can be found in Figure 3-5 in the RI Report.

2) Hydrogeology

Available groundwater monitoring well boring and construction logs are provided in Appendix G. According to the RI Report, the hydrogeology of the BAL can be broken down into three distinct groundwater flow regimes: Shallow Recent/Glacial, Deep Glacial/reworked, and the deeper Cretaceous aquifers. A schematic groundwater flow system can be found in Figure 3-11 in the RI Report. Regional groundwater flow south of the BAL dominates the minor flow from the landfill because it is of much greater head. The radial flow from the landfill which starts in a southerly direction is intercepted by drainage channels, which discharges to Richmond Creek.

According to NYCDOH records, 111 permitted non-potable wells are in the vicinity of the BAL, however only 4 wells are located within one mile of the landfill. The closest well is at a private residence more than 1,800 feet east-southeast from the landfill. The next closest well is more than 3,500 feet from the landfill at the Great Kills Swim Club.

1.3.3 Investigation and Remedial History

1.3.3.1 Remedial History

From 1982 to 1999, activities were undertaken to address off-site migration of methane, to remove on-site fuel tanks, and to prevent unauthorized access to the site. Methane is a combustible gas and a component of landfill gas which is generated as garbage decomposes. In 1982, an improvement program was initiated for the 38-acre east cell at the BAL. The area was regraded, a final soil and clay cover applied, and the cover was seeded. Methane vents were installed along the southern border and fencing was erected. In 1984, a passive gas trench system was installed at the site in the vicinity of Brookfield and Colonial Avenues in response to high methane concentrations found off-site. In 1986, this trench was extended to further inhibit gas migration. In 1995, two 550- gallon diesel

fuel tanks were removed from the area of the site entrance. In 1998, a sorbent boom was placed to contain an observed oil seep in the center of the southern portion of the east cell. In 1998 and 1999, additional fencing was placed to further limit access via the southern and western site borders.

1.3.3.2 Summary of Remedial Investigation

A Final RI Report prepared by the NYCDEP was issued in September 1998. The purpose of the RI was to define the nature and extent of the contamination resulting from previous activities at the site. The RI was conducted in three phases from December 1993 to May 1998. The RI included the following activities:

- Installation of soil borings and monitoring wells for analysis of soils, wastes, groundwater and leachate as well as physical properties of soil and hydrogeologic conditions;
- Excavation of test pits to determine the limits of solid waste disposal, to provide visual analysis of disposed wastes, and to allow for the sampling of the disposed wastes for chemical analysis;
- Collection of surface water samples from Richmond Creek and on-site ponds and drainage ditches to assess the potential impacts from landfill leachate;
- Collection of sediment samples from Richmond Creek and its tributaries for chemical analysis and biota toxicity assessment and bioaccumulation;
- Collection of ambient air samples to determine the potential impact of landfill gas emissions;
- Collection of soil gas samples to find potential hot spots and assess the migration of soil gas; and
- Measurement of surface flux emissions to evaluate landfill gas quality.

Section 7 of the RI Report provides a detailed summary of the findings and conclusions of the RI. A brief summary of the RI findings is provided below:

- Waste Characterization – The BAL consists of approximately 132 acres of solid waste with approximately 5.11 million cubic yards of waste. The RI Report identified five “hot spot” areas where concentrated industrial/hazardous waste may have been co-disposed with the municipal solid waste. These hot spots are characterized primarily as waste oil, which contain PCBs and pesticides. Hot spot locations are provided in Figure 11.
- Hydrogeologic Characterization – Regional groundwater flow in the Upper Glacial aquifer is to the north and regional flow in the Cretaceous aquifer is to the south. Data from the RI Report suggests that leachate has impacted groundwater in localized areas just south of the site boundary, the regional northward flow limits the extent of impact to potentially only several hundred feet south of the site. Trace concentrations of ammonia and VOCs indicate that leakage to the Cretaceous aquifer is minimal.
- Leachate Characterization – The BAL generates approximately 95,000 gallons of leachate per day. Approximately 92,000 gallons of leachate discharges to local surface water and approximately 3,500 gallons of leachate leak into the

Cretaceous aquifer. Leachate is now discharged per NYCDEP Industrial Wastewater Discharge Permit No. 10-P3149-2

- Groundwater Quality – At the BAL, shallow groundwater in the Upper Glacial aquifer is contaminated with VOCs, SVOCs, pesticides, PCBs, and metals. No VOC, SVOC or pesticide contamination was detected offsite in the Upper Glacial aquifer.
- Air Characterization – The RI Report shows that the landfill is emitting VOCs, but the magnitude of the emissions is not large enough to be registered as a significant change between upwind and downwind concentrations.
- Soil Gas Characterization – Testing of 25 nearby home basements found no evidence of landfill gas. The 6 NYCRR Part 360 criteria for soil gases from landfills has been periodically exceeded at four on-Site and perimeter probes.
- Surface Water and Sediment Characterization – Richmond Creek is contaminated with tetrachloroethene, copper, lead, zinc, total cyanide, nickel, mercury, and pesticides. With the exception of tetrachloroethene, all of these compounds are found in BAL leachate. The sediments in Richmond Creek contain SVOCs, pesticides, PCBs, iron, nickel, lead, copper, zinc, and mercury exceeding the applicable sediment screening criteria.
- Ecological Assessment – The vegetation on the capped portion of the landfill is distinctively different from that on the uncapped portion. Capped areas contain grasses and weeds that appear highly stressed. Stunted and sporadic vegetation on the capped portion may be a result of the pyritic clays used in the capping system rather than from landfill related contamination.

1.3.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the site are designated in the Remediation Goals identified in the Record of Decision dated March 4, 2002 as follows:

1) Groundwater

- Eliminate, to the extent practicable, ingestion of groundwater affected by the site that does not attain NYSDOH Drinking Water Standards.
- Eliminate, to the extent practicable, off-site migration of groundwater that does not attain NYSDEC Class GA Ambient Water Quality Criteria.
- Eliminate to the extent practicable, infiltration of water into the landfill to prevent the generation of leachate.

2) Soil

- Eliminate, to the extent practicable, exposures to the contamination present in surface soils and waste disposal areas on site;

3) Surface Water

- Eliminate, to the extent practicable, the migration of leachate into the adjacent freshwater wetlands, tidal wetlands, and to minimize impact to the wetlands during implementation of the remedial measures.

- Eliminate, to the extent practicable, exceedances of applicable environmental quality standards related to releases of contaminants to the waters of the State.

4) Sediment

- Eliminate, to the extent practicable, exposures to the contamination present in surface soils and waste disposal areas on site
- Eliminate, to the extent practicable, exceedances of applicable environmental quality standards related to releases of contaminants to the waters of the State.

5) Soil Vapor

- Eliminate, to the extent practicable, air emissions from the landfill and prevent the release of contaminants above annual air guideline concentrations (AGC), or risk-based levels.

1.3.5 Remaining Contamination

While the selected remedy identified in the BAL OU1 ROD attained the remediation goals selected for the site in conformity with applicable standards, criteria and guidance (SGCs), the remedy included capping the site and leaving the landfill waste in place. The engineering controls included the installation of a 6NYCRR Part 360 cap, a below grade slurry wall around each of the landfill cells, a leachate management system, a landfill gas control system, a stormwater management system, ancillary systems and environmental monitoring systems.

The extent of contamination found at the site during the RI is summarized in the tables below and can also be found on Page 21 of the ROD. All soils are capped as such there are no surface soils with exceedances. All remaining soils are in the subsurface

Extent of Contamination in Surface Soil

Class	Contaminants of Concern	Concentration Range (ppm)	Frequency of exceeding TAGM	SCG (PPM)
SVOC	Benzo(a)anthracene	ND-5.3	6 of 17	0.2
	Chrysene	ND-4.1	4 of 17	0.4
	Benzo(b) fluoranthene	ND-5.1	2 of 17	1.1
	Benzo(k) fluoranthene	ND-2.8	2 of 17	1.1
	Benzo(a)pyrene	ND-3.8	11 of 17	0.61
	Dibenzo (a,h) anthracene	ND-0.56	8 of 17	0.14
Inorganics	Arsenic	2.6-25	2 of 17	7.5
	Barium	29.5-337	0 of 17	300
	Beryllium	ND-1.2	0 or 17	0.16
	Cadmium	ND-5.6	13 of 17	1
	Chromium	10.1-40.4	1 of 17	10
	Copper	10.5-171	4 of 17	25

	Iron	8,750-21,300	0 of 17	2000
	Lead	0.64-578	1 of 17	200-500
	Mercury	0.16-0.73	14 of 17	0.1
	Nickel	5.6-96.4	9 of 17	13
	Zinc	8.3-1,100	10 of 17	20

Extent of Contamination in Subsurface Soil

Class	Contaminant of Concern	Concentration Range (ppm)	Frequency of exceeding TAGM	SCG (ppm)
VOC	2-Butanone	ND to 1,500	2 of 89	0.3
	Acetone	ND to 21	3 of 89	0.2
	Chlorobenzene	ND to 0.11	0 of 89	1.7
	Methylene Chloride	ND to 8.2	10 of 89	0.1
	Ethyl benzene	ND to 54	13 of 89	5.5
	Tetrachloroethene	ND to 0.024	0 of 89	1.4
	Toluene	ND to 150	1 of 89	1.5
	Xylenes (total)	ND to 190	17 of 89	1.2
SVOC	Phenol	ND to 1.3	12 of 46	0.03
	Chrysene	ND to 2.5	2 of 46	0.4
	Benzo(b)fluoranthene	ND to 1.9	2 of 46	1.1
	Benzo(k) Fluoranthene	ND to 2.7	1 of 46	1.1
	Benzo(a)pyrene	ND to 2.0	6 of 46	0.061
	Dibenzo(a,h)anthracene	ND to 0.56	5 of 46	0.014
Inorganics	Barium	6.7 to 368	2 of 43	300
	Berylium	ND to 4.5	36 of 43	0.16
	Cadmium	ND to 3.3	7 of 43	1
	Chromium	2.7 to 95	37 of 43	10
	Iron	3,190 to 72,600	43 of 43	2,000
	Nickel	2.4 to 191	37 of 43	13
	Zinc	1.2 to 461	24 of 43	20
	Copper	1.2 to 161	24 of 43	25
	Mercury	ND to 0.91	24 of 43	25
Pesticides/PCB	Aroclor 1254	0.47 to 22	3 of 46	10
	Heptochlor epoxide	ND	0 of 68	0.02

1) Sediment

Sediment analytical data can be found in Section 4.7 on Page 4-79 of the RI Report. The sediment quality in Richmond Creek is generally low. PAHs, pesticides, PCBs, and metals were frequently found to exceed criteria in samples from the creek as well as the drainage channels. According to the RI Report, sediment quality in Richmond Creek has been impacted by the BAL. The initial set of toxicity tests showed no measurable toxicity

to the fish, sandworm, and grass shrimp under 96 hour and 10-day exposures. Testing did indicate sediments were acutely toxic to the amphipod.

Extent of Contamination in Sediment

Class	Contaminants of Concern	Concentration Range (ppb)	Sediment Screening Criteria[1] (ppb)
VOC	1,1-dichloroethylene	ND	1.21
	Trichloroethylene	ND to 10	121.2
	Benzene	ND	36.36
	Tetrachloroethylene	ND to 44	48.48
	Chlorobenzene	ND to 8	212.1
SVOC	Acenaphthene	ND to 69	8455.6
	Phenanthrene	ND to 380	2605.8
	Fluoranthene	ND to 1600	42.42
	Benzo(a)pyrene	ND to 730	42.42
	Benzo(a)anthracene	ND to 320	42.42
	Benzo(b)fluoranthene	ND to 1800	42.42
	Benzo(k)fluoranthene	ND to 680	42.42
	Indeno(1,2,3-cd) pyrene	ND to 310	42.42
	Bis (2-ethylhexyl) Phthalate	ND to 10000	12089.7
Pesticides	Heptachlor Epoxide	ND	0.05
	4,4'-DDE	ND to150	0.61
	Endrin	ND to 130	44.24
	4,4'-DDD	ND to 140	0.61
	4,4'-DDT	ND to 13	0.61
	Methoxychlor	ND to 5.8	36.36
	Alpha-Chlordane	ND to 28	0.06
	Gamma-Chlordane	ND to 13	0.06
	PCBS	ND to 430	0.05
Metals	Antimony	ND to 3.2	25
	Arsenic	ND to 1210	70
	Cadmium	ND to 130	9.6
	Chromium	14.7 to 185	370
	Copper	25 to 504	270
	Iron	ND to 50400	40000
	Lead	69.2-387	218
	Manganese	326-802	1100
	Mercury	0.82-4.4	0.71
	Nickel	119-202	51.6
	Silver	ND to 3.9	3.7
	Zinc	ND to 910	410

[1] Lowest of Human Health Bioaccumulation, Benthic Acute Toxicity, Benthic Chronic Toxicity, Wildlife Bioaccumulation

2) Groundwater

Groundwater samples were collected from 18 designated on-site wells and 11 designated off-site wells installed in deep/shallow clusters. Shallow groundwater at the perimeter of the solid waste mound has been contaminated by the landfill and the contamination extends to Richmond Creek. Contaminant exceedances of Standards, Criteria, or Guidance (SCG) in the Upper Glacial aquifer and leachate mound include: 13 VOCs, 17 SVOCs, 8 pesticides, 2 PCBs and 13 metals. No VOC, SVOC or pesticide contamination was detected offsite in the Upper Glacial aquifer. The extent of groundwater contamination is summarized in Section 4.5 on Page 4-59 of the RI report.

Table 4-12 in the RI Report shows the screening criteria exceedances for leachate well groundwater samples for the parameters that exceed NYSDEC's screening criteria guidance values for the protection of class GA drinking water. The main exceedances were for the following VOCs: methylene chloride, trichloroethylene, 2-butanone, acetone, benzene, 4-methyl-2-pentanone, toluene, ethylbenzene, and chlorobenzene. The highest concentration of VOCs were found in leachate in Hot Spot No. 1 (in the southwest portion of the BAL). The groundwater data summarized below can be found in Tables 3, 4 and 5 in the ROD.

Extent of Contamination in Groundwater Sampled from 05/94 to 05/97 (Shallow Upper Glacial Aquifer)

Class	Contaminant of Concern	Concentration Range (ppb)	Frequency of exceeding SCGs	SCG (ppb)
Pesticides	Aldrin	ND to 0.023	0 to 53	0.05
	Dieldrin	ND to 0.021	2 of 53	0.004
	4,4'-DDE	ND to 0.062	0 of 53	0.2
	4,4'-DDD	ND to 0.11	0 of 53	0.3
Pesticides	Endrin	ND to 0.017	0 of 53	ND
	Alpha-Chlordane	ND to 0.12	1 of 53	0.05
	Aroclor 1232	ND to 4.5	1 of 53	0.09
	Aroclor 1254	ND to 1.9	1 of 53	0.09
	Alpha-BHC	ND to 0.0085	0 of 53	0.01
	Beta-BBC	ND to 0.014	0 of 53	0.04
Inorganics	Aluminum	ND to 4,010	10 of 53	1,318
	Arsenic	ND to 27.1	1 of 53	25
	Calcium	3,510 to 261,000	50 of 53	8,745
	Iron	120 to 67,600	43 of 53	300
	Magnesium	5,670 to 570,000	34 of 53	35,000
	Manganese	16.1 to 14,200	29 of 53	300
	Nickel	ND to 101	2 of 53	100
	Potassium	1,170 to 218,000	50 of 53	1,353

Class	Contaminant of Concern	Concentration Range (ppb)	Frequency of exceeding SCGs	SCG (ppb)
	Sodium	17,000 to 4,840,000	41 of 53	20,000
	Vanadium	ND to 15.6	9 of 53	3
	Zinc	18.3 to 45.6	0 of 53	2,000
Conventional	Ammonia	ND to 155,000	30 of 53	2,000
VOCs	Benzene	ND to 12	18 of 53	1
	Chlorobenzene	ND to 48	22 of 53	5
	Toluene	ND to 49	2 of 53	5
	O-Xylenes	ND to 3.8		5
SVOCs	1,4 Dichlorobenzene	ND to 6	8 of 53	3
	4-Methylphenol	ND to 22	4 of 53	1
	4-Chloro-3-Methylphenol	ND to 10	9 of 53	1

Extent of Contamination in Groundwater Sampled from 5/94 to 5/97

(Deep Upper Glacial Aquifer)

Class	Contamination of Concern	Concentration Range (ppb)	Frequency of exceeding SCGs	SCG (ppb)
VOCs	Chloroform	ND to 21	3 of 30	7
	Methylene Chloride	ND to 53	1 of 30	5
	Toluene	ND to 24	1 of 30	5
SVOCs	Bis(2-Ethylhexyl) Phthalate	ND to 7	1 of 30	5
Inorganics	Aluminum	90.6 to 8,590	10 of 30	1,318
	Calcium	1,523 to 605,000	19 of 30	8,745
	Barium	86.7 to 1370	1 of 30	1,000
	Iron	46.2 to 59,200	20 of 30	300
	Magnesium	2,080 to 367,000	14 of 30	35,000
	Manganese	37.6 to 34,80	17 of 30	300
	Nickel	ND to 149	3 of 30	100
	Potassium	660 to 114,000	20 of 30	1353
	Sodium	8,800 to 3,100,000	13 of 30	20,000
	Vanadium	ND to 25.7	9 of 30	3
	Copper	ND to 368	1 of 30	200
	Cobalt	ND to 35.6	2 of 30	17.7
Conventional	Ammonia	ND to 6.07	6 of 30	2,000

Extent of Contamination in Groundwater Sampled from 05/94 to 05/97 (Cretaceous Aquifer)

Class	Contaminant of Concern	Concentration Range (ppb)	Frequency of exceeding SCGs	SCG(ppb)
VOCs	Acetone	ND to 13	0 of 19	50
	Chloroform	ND to 24	1 of 19	7
	Chlorobenzene	ND to 5.4	1 of 19	5
	Methylene Chloride	ND to 5	1 of 19	5
	Toluene	ND to 12	2 of 19	5
	1,1,1-Trichloroethane	ND to 22	2 of 19	5
Pesticides	Beta-BHC	ND to 0.029	0 to 19	0.04
Inorganics	Calcium	8,600 to 84,000	6 of 19	8,745
	Iron	42.8 to 6,150	6 of 19	300
	Magnesium	18.3 to 36,500	1 of 19	35,000
	Manganese	46.2 to 422	1 of 19	300
	Potassium	1,800 to 42,700	6 of 19	1,353
	Sodium	9,730 to 29,400	4 of 19	20,000
	Lead	3.5 to 42.6	1 of 19	25
	Copper	5.9 to 92.8	0 of 19	200
	Zinc	ND to 5,930	2 of 19	2,000
Conventional	Ammonia	146 to 1,850	0 of 19	2,000

3) Surface Water

Surface water surrounding the BAL has been impacted by contamination originating from the landfill. Surface water contaminants in Richmond Creek include tetrachloroethene, copper, lead, zinc, total cyanide, nickel, mercury and a number of pesticides including DOD, DOE, BHC, heptachlor, aldrin, and endrin. Tidal portions of Richmond Creek are classified "SC," with a best use designation for fishing. Class SC waters are defined as suitable for fish propagation and survival as well as primary and secondary contact recreation. Section 4.6 on Page 4-68 of the RI report offers a detailed analysis of the surface water contamination. Although there is no existing NYSDEC water quality standard for ammonia in Class SC waters to which the ammonia data can be compared, the BAL does contribute significant quantities of ammonia to the creek. Ammonia discharged from the landfill has resulted in exceedances of the EPA established continuous concentration criteria at four of eight surface water sample locations. The EPA continuous concentration criteria for Ammonia range from 970-9400 µg/l. Table 4-18 of the RI report provide all the criteria and the calculations. A summary of the surface water analysis data is shown below. This table can also be found in the ROD on Page 27. Note that with the exception of tetrachloroethylene, all of the parameters listed in the table below are present in the BAL leachate.

Extent of Contamination in Surface Water Sampled from 05/94 to 05/97

Class	Contaminant of Concern	Concentration Range (ppb)	Frequency of Exceeding SCGs	SCG (ppb)
VOCs	Tetrachloroethylene	ND to 2	1 of 20	1
Pesticides	4,4-DDE	ND to 0.0077	1 of 20	0.000011
	4,4-DDD	ND to 0.17	1 of 20	0.000011
	Gamma BHC	ND to 0.016	1 of 20	0.008
	Heptaclor	ND to 0.019	1 of 20	0.0002
	Aldrin	ND to 0.015	1 of 20	0.001
	Dieldrin	ND to 0.029	1 of 20	0.0000006
	Endrin	ND to 0.035	1 of 20	0.002
Inorganics	Lead	ND to 42.1	9 of 20	8
	Mercury	ND to 0.91	6 of 20	0.0007
	Nickel	ND to 17.8	7 of 20	8.2
	Zinc	ND to 108	2 of 20	66
	Cyanide	ND to 4.8	5 of 20	1.0
	Ammonia	ND to 5,179	0 of 20	

4) Soil Vapor

According to the RI Report, on-site gas emission sampling was conducted by means of a flux box sampling train, in which the flux box is placed over the landfill surface providing a sealed enclosure in which gases are collected and measured. The flux box data show that the landfill is emitting VOCs (benzene, 2-hexanone, tetrachloroethene, carbon tetrachloride and trichloroethene), the magnitude of the emissions is not large enough to be registered as a significant change between upwind and downwind concentrations. Acrolein and acrylonitrile were found offsite at estimated concentrations approaching 24% and 45%, respectively, of the AGC. The BAL is not a significant source of inhalable particulates. PM_{10} data for all four rounds were not found to exceed the Federal 24 hour standard for inhalable particulates of 150 ug/m^3. Section 4.8 in the RI Report provides further details on landfill gas emissions.

1.4 Institutional and Engineering Control Plan

1.4.1 General

Since remaining contamination exists at the site, Institutional Controls (ICs) and Engineering Controls (ECs) are required to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of all IC/ECs at the site.

This plan provides:

- A description of all IC/ECs on the site;
- The basic implementation and intended role of each IC/EC;

- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the controls to be evaluated during each required inspection and periodic review; and
- Any other provisions necessary to identify or establish methods for implementing the IC/ECs required by the site remedy, as determined by the NYSDEC project manager.

1.4.2 Institutional Controls

The BAL OU1 ROD required institutional controls be implemented consisting of deed restrictions or a comparable legal mechanism on the site to ensure that groundwater beneath the site is not extracted for potable use and to ensure that any future site construction or other invasive activity is pre-approved by NYSDEC and NYSDOH.

In 2016, the BAL Environmental Easement was established between the City and the NYSDEC pursuant to Title 36 of Article 71 of the Environmental Conservation Law. The property subject to this Environmental Easement comprises approximately 243.58+/- areas as described in the Land Title Survey dated September 19, 2016 prepared by WSP Transportation and Infrastructure. The Controlled Property description is set forth in and attached to the Environmental Easement as Schedule A. Excepting from the Controlled Property and excluded from the easement is the portion of Block 5550 Lot 1 (containing NYC HPD structures), portion of Block 5570 Lot 1 (containing NYC Parks structures), portion of Block 5590 Lot 260 (containing NYCDEP Eltingville Pump Station), and Block 5570 Lots 150 and 101. The 2016 Environmental Easement is included in Appendix H.

The Controlled Property may be used for Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375- 1.8(g)(2)(iv). The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes and the user must first notify and obtain written approval to do so from the Department.

The Controlled Property shall not be used for Residential or Restricted Residential purposes as defined in 6 NYCRR 375-l.8 (g)(2)(i) and (ii), and the engineering controls may not be discontinued without an amendment or extinguishment of the Environmental Easement.

1.4.3 Engineering Controls

1.4.3.1 Final Cover System

Exposure to remaining contamination at the site is prevented by a final cover system cap section placed over the site. A 6NYCRR Part 360 cap was installed in all landfill areas (approximately 132 acres). The final cover system consists of a gas venting layer, a barrier layer containing a 40-mil or 60-mil linear low density polyethylene geomembrane, a drainage layer, a 12-inch barrier protective layer, and a minimum 6-inch vegetated topsoil layer.

A more detailed description of the final cover system, including procedures for maintaining and monitoring the system, are documented in Sections 2.2 and 4.2 of the O&M Manual. A plan of the cover system is shown on as-built drawing AB-C-17, Overall Final Site Plan, included as Figure 1 in Appendix A.

1.4.3.2 Leachate Collection System

The leachate collection system controls leachate produced prior to the construction of the landfill cap and slurry wall via the percolation of water through the waste materials and via the infiltration of groundwater through waste material, and produces a treated effluent acceptable for discharge to the Eltingville Pumping Station, where it is pumped to the Oakwood Beach Water Pollution Control Plant for subsequent treatment. The primary elements and components of the system consist of passive collection pipes located within the landfill cells that direct the flow to the on-site oil/water separator system before discharge to the on-site Eltingville Pumping Station.

The leachate collection system discharge is regulated under the DEP Industrial Wastewater Discharge (IWD) Permit No. 18-P3149-1 (see Appendix J), which requires monthly discharge water quality sampling for permit discharge compliance and the submittal of quarterly self-monitoring reports.

A more detailed description of the leachate collection system, including procedures for operating, maintaining and monitoring the system, are documented in Sections 2.4, 3.3 and 4.3 of the O&M Manual. A plan of the leachate collection system is shown on as-built drawing AB-L-1, Leachate Collection Overall Plan, included as Figure 5 in Appendix A.

1.4.3.3 Landfill Gas Collection System

As part of the closure construction, eighty-four (84) vertical gas collection wells and sixteen (16) horizontal gas collection wells were installed. Each vertical and horizontal well is equipped with a PVC wellhead. In general, the spacing of the vertical gas collection wells provides for a frequency of approximately one per acre. Horizontal collection wells are spaced approximately 100 feet on center.

The landfill gas management system operates in accordance with NYSDEC Air Facility Registration Certificate #2-6403-00207/00005 and a Fire Department of New York (FDNY) permit authorizing the flare operation (see Appendix J).

A more detailed description of the landfill gas management system, including procedures for operating, maintaining, and monitoring the system, are documented in Sections 2.7 and 4.4 of the O&M Manual. A plan of the landfill gas collection system is shown on as-built drawing AB-LFG-1, Landfill Gas Collection Key Plan, included as Figure 7 in Appendix A.

1.4.3.4 Landfill Gas Monitoring Wells

In addition to active landfill gas collection and flaring, a perimeter gas monitoring system was installed to allow for the sampling and analysis of subsurface gases along the property boundary.

The landfill gas monitoring system consists of 32 perimeter landfill gas monitoring wells installed along the western, southern and eastern property boundaries as well as in between the East and West Cells of the landfill. The purpose of the wells located in the vicinity of the property boundary is to detect potential landfill gas migration toward the property line.

As part of Addendum No. 1, the action levels for perimeter gas monitoring identified in O&M Manual Section 2.8 and subsequent corrective actions as approved by NYSDEC to date are hereby revised as follows:

- Per the November 2017 6NYCRR Part 363 regulations, the concentration of subsurface landfill gas should not exceed 25 percent of the lower explosive limit (LEL) of methane (i.e., 1.25 percent gas by volume) at or beyond the property boundary. The action level in structures remains unchanged (i.e., 1.25 percent gas by volume).
- Should exceeding levels of methane be detected in the site's perimeter gas monitoring wells in the vicinity of the property boundary, the NYSDEC-approved action to be taken is to perform confirmatory bar-hole surveying in the subsurface soils between the well and the property line, to determine if methane is detected closer to the property boundary.
- Should exceedances be encountered in these bar-holes, the NYSDEC and NYSDOH will be notified by the NYCDPR via email as soon as possible after the data has been tabulated from the monitoring event.

It should be noted that certain gas monitoring wells located in between the landfill cells (not in the vicinity of the property boundary) are screened in tidal marsh deposits identified in this area in the RI and the existence of methane gas at these locations on occasion has been attributed to these tidal marsh deposits.

A more detailed description of the perimeter gas monitoring system, including procedures for monitoring and maintaining the system, are documented in Sections 2.8 and 4.4 of the O&M Manual. The location of the perimeter gas monitoring wells is shown on as-built drawing AB-LFG-1, Landfill Gas Collection Key Plan, included as Figure 7 in Appendix A.

1.4.3.5 Stormwater Management Systems

The stormwater management system includes measures to protect the landfill cover system from erosion, reduce overall stormwater runoff rates, and improve the quality of stormwater discharging to Richmond Creek. Stormwater will sheet flow over the landfill cover in areas where vegetation and slope gradient provide protection against erosion. In other areas, stormwater is captured by a series of swales which direct flow to wetland planting areas or away from the landfill.

A more detailed description of the stormwater management system, including procedures for operating and maintaining the system, are documented in Sections 2.3 and 4.6 of the O&M Manual. A plan of the stormwater management system is shown on as-built drawings AB-C-31 and AB-C-32, Stormwater Drainage Plan, included as Figures 3 and 4 in Appendix A.

1.4.3.6 Groundwater Monitoring Wells

Section 360-2.11(c) requires a groundwater monitoring well network that, when sampled, can readily detect a site-related contaminant release. Because the BAL is an unlined landfill and contaminant migration from the landfill is well documented, and the shallow groundwater is naturally saline, data from future post-closure sampling events will be compared to historical groundwater quality data and evaluated with respect to the site's coastal setting. The groundwater monitoring network includes a total of 20 shallow (Upper Glacial Aquifer) and four deeper (Cretaceous Aquifer) wells constructed of 2-inch or 4-inch diameter polyvinyl chloride (PVC) pipe with a locking, protective steel casing. Of the 24 wells, four are pre-existing wells that were installed during the RI. One additional well (LTMW-14) was removed from the monitoring well network and abandoned with NYSDEC approval in March 2019 due to a broken casing. The location of the groundwater monitoring wells is shown on as-built drawing AB-G-8, Long-Term Groundwater Monitoring Plan, included as Figure 6 in Appendix A.

A more detailed description of the groundwater monitoring well network, including procedures for inspecting and maintaining the network, are documented in Section 4.7 of the O&M Manual. Information on the groundwater monitoring program is provided in Sections 2.5 and 3.1 of the O&M Manual. Originally post-closure groundwater monitoring was performed quarterly. However, a reduction from quarterly, to the annual monitoring in rotating calendar quarters (i.e., once every fifth quarter), was approved by the NYSDEC in February 2016 (see Appendix L). In addition, the groundwater quality reporting frequency was modified from quarterly to annually in the Annual Post-Closure Operation, Maintenance and Monitoring Report (Annual Report).

In the event that groundwater monitoring data indicates that monitoring may no longer be required, a proposal to discontinue the monitoring will be submitted to the NYSDEC project manager by the NYCDPR. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC project manager.

1.5 Periodic Review Report and Excavation Work Plan Requirements

This section addresses the requirements for Periodic Review Reports and project-specific Excavation Work Plans which were not previously included in the O&M Manual.

1.5.1 Periodic Review Report

A Periodic Review Report (PRR) will be prepared and submitted once every five years, unless otherwise directed by NYSDEC. As previously approved by NYSDEC in their letter of February 12, 2016 (Appendix L), this report will fulfill both the five-year review report requirement under 6 NYCRR Part 363 as well as the PRR requirement under 6 NYCRR Part 375.

The PRR will include:

- An Annual Report for the fifth post-closure year of the five-year review period.
- An overall summary and review of the post-closure O&M activities at the site during the five-year post-closure period.

- A summary of the status and condition of the BAL ICs and ECs during the five-year review period.
- An executed Institutional and Engineering Controls Certification Form (a copy of a blank form is located in Appendix I).

1.5.2 Excavation Work Plan

Exposure to remaining contamination at the site is prevented by the final cover system placed over the site as described in Section 2.2 of the O&M Manual. Should a proposed ground-intrusive activity requiring the penetration or removal of the landfill cap geomembrane be necessary, NYSDEC shall be notified at least 15-days prior to the scheduled activity and concurrent with this notification, a project-specific Excavation Work Plan (EWP) shall be submitted to the NYSDEC.

The project-specific EWP must outline the procedures required to be implemented including:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for site re-grading, estimated volumes of contaminated soil to be excavated, and any work that may impact an engineering control;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern and plans for any pre-construction sampling, if necessary;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A statement that the work will be performed in compliance with the project-specific EWP and 29 CFR 1910.120;
- A copy of the contractor's health and safety plan (HASP) in electronic format;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with the required request to import form and all supporting documentation including, but not limited to, chemical testing results.

Any disturbance of the landfill cap geomembrane must be overseen by a qualified environmental professional as defined in 6 NYCRR Part 375, a Professional Engineer (PE) who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State.In the event of an emergency, similar procedures shall be followed. However, NYSDEC shall be notified within 24-hour of a surface breach.

1.6 Inspection, Maintenance, Monitoring, Reporting and Notification Schedule

The table on the following pages provides a brief summary of the Institutional Controls (ICs) and Engineering Controls (ECs) implemented at the Brookfield Avenue Landfill, as well as the inspection, maintenance, monitoring and reporting activities identified in the O&M Manual as amended by Addendum No. 1. The table is followed by a brief summary of the substantive notifications to NYSDEC identified in this O&M Manual.

BAL Institutional Controls and Engineering Controls

Site Identification No. 2-43-006 – Brookfield Avenue Landfill, Staten Island, New York

Institutional Controls	1. The property may be used for Commercial and Industrial use in accordance with the 2016 Environmental Easement. 2. BAL 2002 OU1 ROD and 2007 OU2 ROD. 3. All ECs must be inspected at a frequency and in a manner defined in the O&M Manual.
Engineering Controls	1. Leachate Collection System 2. Landfill Gas Collection System 3. Final Cover System 4. Stormwater Management Systems 5. Ancillary Systems 6. Environmental Monitoring Systems

BAL Engineering Control Inspections, Maintenance and Monitoring Schedule

EC Inspections & Maintenance (See O&M Manual Section 4)	**Frequency**
• Leachate Collection System	• Monthly Operational Integrity Inspections. • Various Daily, Weekly, Monthly, Quarterly, Semi-Annual and Annual Inspections/ Maintenance
• Landfill Gas Collection System	• Daily, Weekly, Monthly, Quarterly, Semi-Annual and Annual Inspections/ Maintenance
• Final Cover System	• Quarterly (currently performed Monthly) and after major (5 year or greater) rainfall events
• Stormwater Management System	• Monthly and after major (5 year or greater) rainfall events
• Ancillary Systems	• Monthly and after major (5 year or greater) rainfall events. • Weekly for fences, gates, locks and signs
• Environmental Monitoring Systems	• Prior to Monitoring Events
• OU2 Richmond Creek Surface Water and Sediment Monitoring	• 5th, 10th, and 20th Post-Closure Year

Monitoring (See O&M Manual Section 3 and Addendum No. 1)	**Frequency**
• Leachate Collection System	• Monthly
• Landfill Gas Collection System	• Monthly Extraction Well Monitoring
• Environmental Monitoring Systems a. Perimeter Gas Monitoring b. Landfill Surface Emission Monitoring c. Groundwater Monitoring	• Environmental Monitoring Systems a. Quarterly b. Semi-Annually c. Every Fifth Quarter

BAL Post-Closure Reporting Schedule

Reporting (See O&M Manual Section 3 and Addendum No. 1)	**Frequency**
• Leachate Collection System a. IWD Permit Self-Monitoring Report	• Quarterly (to DEP, Section 3.3.2)
• Environmental Monitoring Systems a. Groundwater Monitoring b. Landfill Gas Monitoring (Perimeter Wells)	• Annually a. Section 3.3.1, revised in Addendum No. 1 b. Section 3.4
• Post-Closure Operation, Maintenance and Monitoring Annual Summary Report	• Annually
• Periodic Review Report, Five-Year Review Report	• Every Fifth Year (Addendum No. 1)
• OU2 Richmond Creek Surface Water and Sediment Monitoring	• 5th, 10th, and 20th Post-Closure Year

Notification Schedule

The following provides a brief summary which is intended to include, but may not be limited to, the substantive notifications to NYSDEC discussed in the O&M Manual. The O&M Manual Sections are referenced for clarity.

1. Leachate Collection System:
   a. In response to a leachate spill, coordination of hauling materials and the potential implementation of emergency remediation procedures must be coordinated with NYSDEC (Section 6.4.1).
   b. Notify NYSDEC should a high level alarm in the leachate in pump station wells be activated (Section 6.4.2).
   c. Immediately notify NYSDEC and its authorized representative of any force main break and shut down pumps to the force main (Section 6.4.3).

2. Landfill Gas Collection System:

a. NYSDEC shall be notified with a plan and permission requested to replace a LFG extraction well a minimum of two weeks prior to the well replacement. (Section 6.4.12)

3. Final Cover and Landfill Cap:
   a. For surface cracks that are oriented parallel to the side slope that are greater than about 20 feet long, 9 inches deep and 2 inches wide should be noted and immediately reported to the NYSDEC (Section 4.2.3).
   b. If signs of slope instability are observed, report immediately to the NYSDEC and refer to the Contingency Plan in Section 6 (Section 4.2.7).
   c. If seepage is observed that is identified as leachate, notify the NYSDEC and refer to the Contingency Plan in Section 6 for repair of this condition (Sections 4.2.8 and 6.4.10).
   d. Insecticides shall not be applied until the insecticide contents have been approved by NYSDEC (Section 4.2.1).

4. Groundwater Monitoring System:
   a. NYSDEC will be notified before the investigation derived waste is removed offsite for disposal (Section 3.1.6)
   b. If during the well inspection it is determined that a landfill gas monitoring well will require replacement, the NYSDEC shall be notified of the intent to replace a well a minimum of two weeks prior to installation of the replacement well (Section 4.7). It should be noted that in the second sentence of the second paragraph of this Section, reference to notifying "NYSDEC" is a typographical error and should have been "NYCDEP" (now NYCDPR) similar to the language in Section 4.5 for perimeter gas monitoring well repair/replacement discussed in paragraph 2.b below.

5. Landfill Gas Monitoring System (i.e., Perimeter Gas Monitoring System):
   a. See Section 1.4.3.4 of this Addendum No. 1 for the updated 6NYCRR Part 363 (November 2017) requirements and NYSDEC notifications for perimeter gas monitoring events. For further action and notification requirements for those other further actions, see Sections 3.4.1 and 6.3.2.
   b. If during the well inspection it is determined that a landfill gas monitoring well will require replacement, the NYSDEC shall be notified of the intent to replace a well a minimum of two weeks prior to installation of the replacement well (Section 4.5).

6. Contingency Plan for Engineering Controls:
   a. In accordance with O&M Manual Section 6.1, Emergencies, all HASPs necessary for work activities at the site shall be provided to the NYSDEC and its authorized representative for review a minimum of four weeks prior to the start of these work activities.
   b. Action levels for contingencies identified under O&M Manual Section 6.2 which identified environmental monitoring, environmental control, or maintenance

problems require prompt action by the NYCDPR and notification to the NYSDEC.

c. Note that the term "Environmental Control Systems" utilized in O&M Manual Section 6.4 should be replaced with "Engineering Controls".
d. O&M Manual Section 6.4 identifies potential situations that may require corrective actions to be implemented in an expedited manner (contingencies) at the site. The corrective action process outlined in this section should be followed to resolve contingency problems. The proper authorities should be contacted which may include NYSDEC and/or other appropriate local/state/federal agencies depending on the situation (see Table 6-1). The proper authorities (i.e., NYSDEC, etc.) should be notified of the problem and its severity within 24 hours. Follow the appropriate procedures in Section 6.4.
e. In the event of subterranean smoldering, as evidenced by smoke rising from the gas vents, the NYCDPR and Fire Department will need to prepare an action plan for NYSDEC approval. Measurements of the gas from the gas vents should be taken immediately. Elevated levels of carbon monoxide (generated by the fire) should be reported to NYSDEC. Procedures in Section 6.4.4 should be followed.
f. If a power failure is expected for an extended period of time, the operator shall contact the NYSDEC and its authorized representative for approval to mobilize portable generating units as a source of temporary power and follow the procedures in Section 6.4.5.
g. If the site encounters a natural disaster (i.e., hurricanes, tornadoes, floods, droughts, blizzards, earthquakes or other severe weather events such as intense rain events), the site will be inspected as soon as conditions allow following the event (preferably within 48 hours). A report of any damage shall be submitted to NYSDEC within 24 hours.
h. NYSDEC shall be notified 15-days prior to a proposed ground-intrusive activity that will require the penetration or removal of the landfill cap geomembrane. Concurrent with this notification, a project-specific EWP for the activity must also be submitted to NYSDEC.

BAL Site Related NYSDEC and NYSDOH Notifications*

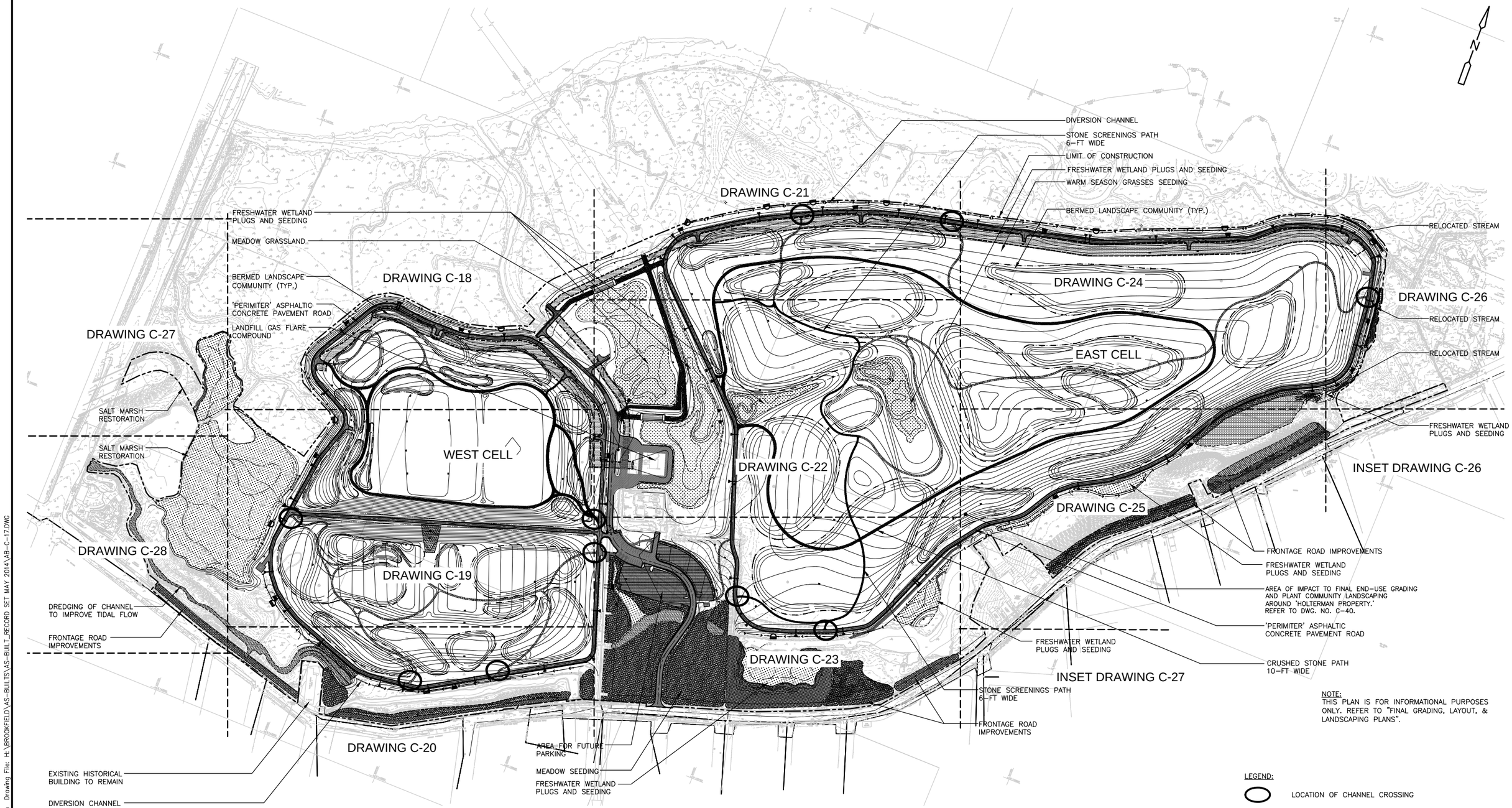
Name	Contact Information	Required Notification**
NYSDEC Division of Environmental Remediation Project Manager	Jenelle Gaylord 518-402-9813 jenelle.gaylord@dec.ny.gov	All Notifications
NYSDEC Division of Environmental Remediation Project Manager's Supervisor	Jeffrey Dyber 518-402-9813 jeffrey.dyber@dec.ny.gov	All Notifications
NYSDOH	Anthony Perretta 518-402-7860 Anthony.perretta@health.ny.gov	All Notifications

* Note: Notifications are subject to change and will be updated as necessary.

Appendix A
Brookfield Avenue Landfill Remediation Drawings

FIGURE 1

Overall Final Site Plan
(Sheet AB-C-17 of Brookfield Avenue Landfill Remediation OU1,
Contract No. LF-BAL-1G, As-Built Drawings, June 2014)



NOTE:
THIS PLAN IS FOR INFORMATIONAL PURPOSES ONLY. REFER TO "FINAL GRADING, LAYOUT, & LANDSCAPING PLANS".

LEGEND:

LOCATION OF CHANNEL CROSSING

PLAN
1"=200'
100 0 200

THESE AS-BUILT DRAWINGS FOR CONTRACT NO. LF-BAL-1G BY URS CORPORATION, HAVE BEEN PREPARED AS RECORD COPY DRAWINGS. THE DRAWINGS REFLECT CHANGES TO THE CONFORMED DRAWINGS (ORIGINAL BID SET OF CONTRACT DRAWINGS WITH CHANGES BY ADDENDA) MADE BY CHANGE ORDERS, REQUESTS FOR CLARIFICATION, REQUESTS FOR INFORMATION, DSDC MEMOS AND THE CONTRACTOR'S OR CM/RE'S (AS APPLICABLE) RED-LINE SET OF DRAWINGS. THE CHANGES MADE HAVE NOT BEEN OR HAVE BEEN (AS APPLICABLE) VERIFIED BY FIELD INVESTIGATION.

WARNING
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NO.	DATE	DESCRIPTION	APPR'D
R	JUNE 2014	AS-BUILT DRAWINGS	

REVISIONS

DESIGNED BY: --
DRAWN BY: OM
SHEET CHK'D BY: RH
CROSS CHK'D BY: --
APPROVED BY:

URS

APPROVED FOR THE CITY OF NEW YORK

P.E.
PROJECT MANAGER

P.E.
ACTING CHIEF, WASTEWATER AND WATER INFRASTUCTURE AND SUPPORT

NYC Environmental Protection

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
BROOKFIELD AVENUE LANDFILL REMEDIATION OPERABLE UNIT 1
CAPITAL PROJECT EP-8

CONTRACT NO. LF-BAL-1G

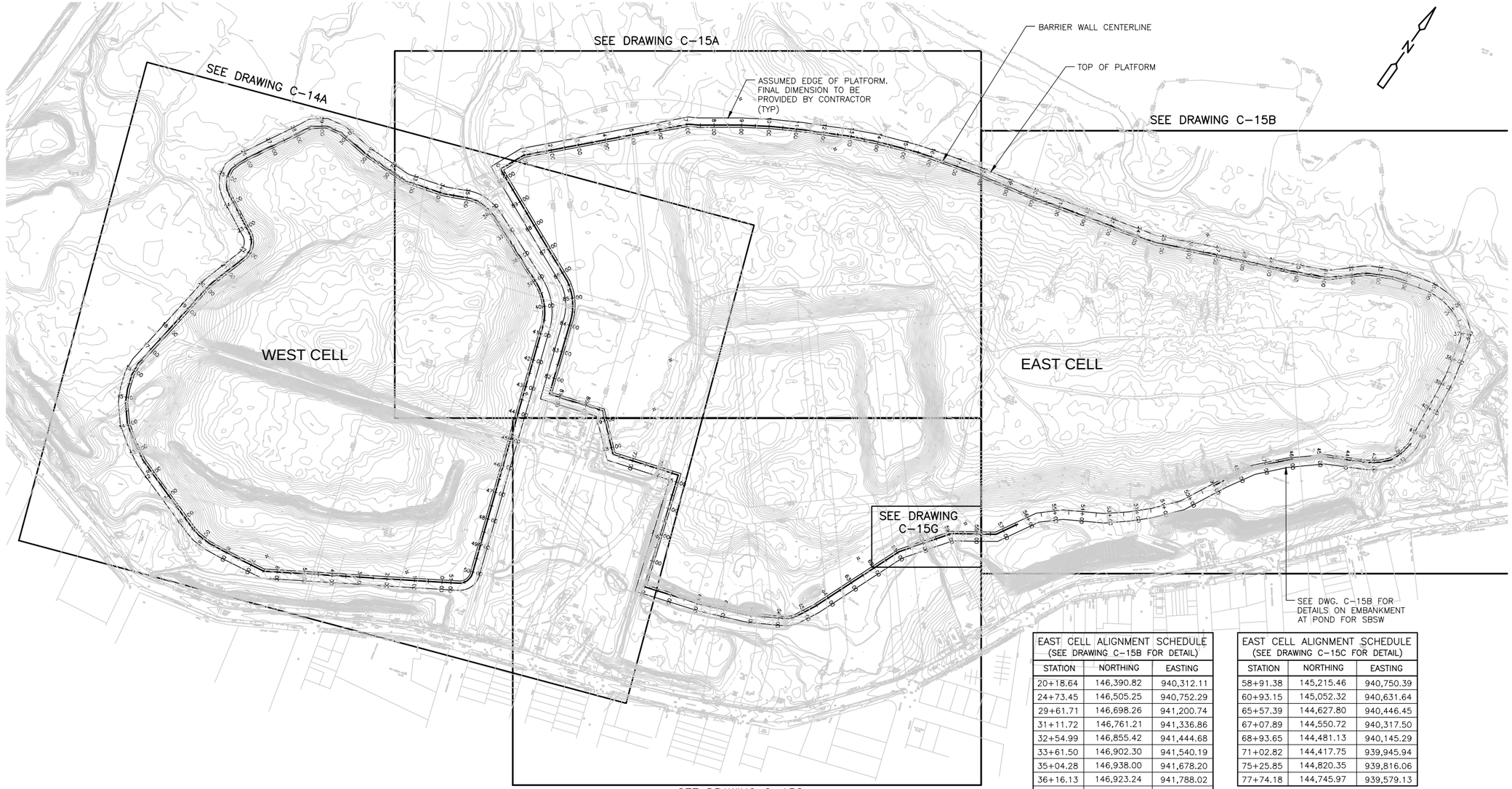
OVERALL FINAL SITE PLAN

DATE: JUNE 2014
FILENAME:
DWG. NO: **AB-C-17** OF
SHEET NO: OF

Time: 8:59 A.M. Date: 6/11/2014 reggie_dorin Drawing File: H:\BROOKFIELD\AS-BUILTS\AS-BUILT_RECORD SET MAY 2014\AB-C-17.DWG

FIGURE 2

Barrier Wall Plan-East and West Cell Key Map
(Sheet AB-C-14 of Brookfield Avenue Landfill Remediation OU1,
Contract No. LF-BAL-1G, As-Built Drawings, June 2014)



WEST CELL ALIGNMENT SCHEDULE (SEE DRAWING C-14A FOR DETAIL)		
STATION	NORTHING	EASTING
0+00	144,009.95	939,336.04
3+00	143,853.33	939,080.15
6+49	143,671.10	938,782.43
8+70.42	143,640.42	938,563.16
9+20.45	143,642.67	938,513.13
12+58.30	143,749.57	938,192.82
14+05.28	143,827.68	938,068.55
14+79.76	143,884.85	938,020.51
15+84.78	143,981.37	937,980.69
16+31	144,027.44	937,976.88
20+20.60	144,413.78	938,026.90
21+72.09	144,558.72	938,070.94
22+24.50	144,610.00	938,068.37
22+76.90	144,647.61	938,033.41
24+42.66	144,724.50	937,886.65
24+95.58	144,764.84	937,853.28
25+32.33	144,801.14	937,847.55
25+72.90	144,839.76	937,859.97
28+60.63	145,092.35	937,997.71
29+15.88	145,125.79	938,041.69
29+77.20	145,137.26	938,101.92
30+90.69	145,124.84	938,214.73
32+66.74	145,126.93	938,390.77
34+13.28	145,168.00	938,531.43
35+00	145,204.50	938,609.49
35+56.79	145,217.87	938,664.72
36+35.45	145,202.27	938,741.31
39+08.27	145,096.65	938,992.85
39+92.34	145,048.99	939,061.36
40+76.42	144,977.52	939,061.36
45+00	144,577.16	939,242.77
50+04.95	144,099.93	939,407.78
50+38.83	144,066.70	939,407.60
50+72.70	144,040.92	939,386.64

EAST CELL ALIGNMENT SCHEDULE (SEE DRAWING C-15A FOR DETAIL)		
STATION	NORTHING	EASTING
0+00	145,359.46	938,650.52
0+97.38	145,448.66	938,689.74
4+50	145,700.79	938,936.16
7+07.43	145,884.95	939,116.14
11+20.16	146,105.22	939,464.64
12+91.08	146,182.78	939,616.95
15+46.42	146,277.84	939,853.79
17+79.45	146,339.38	940,078.52
79+37.76	144,853.66	939,456.00
81+39.70	144,792.52	939,263.53
84+12.53	145,050.78	939,175.60
84+88.46	145,117.11	939,139.52
85+64.39	145,166.07	939,082.05

EAST CELL ALIGNMENT SCHEDULE (SEE DRAWING C-15B FOR DETAIL)		
STATION	NORTHING	EASTING
20+18.64	146,390.82	940,312.11
24+73.45	146,505.25	940,752.29
29+61.71	146,698.26	941,200.74
31+11.72	146,761.21	941,336.86
32+54.99	146,855.42	941,444.68
33+61.50	146,902.30	941,540.19
35+04.28	146,938.00	941,678.20
36+16.13	146,923.24	941,788.02
37+06.19	146,870.56	941,859.66
38+67.59	146,714.44	941,899.44
40+21.14	146,561.77	941,915.51
41+48.74	146,434.94	941,929.31
42+38+78	146,349.28	941,904.03
43+25.47	146,292.87	941,838.76
44+80.52	146,221.81	941,700.95
46+20.64	146,131.02	941,594.22
47+46.04	146,039.34	941,508.66
50+34.35	145,786.02	941,371.35
52+29.82	145,643.65	941,237.76
53+21.59	145,585.81	941,166.51
54+70.50	145,511.66	941,037.37
55+66.12	145,447.89	940,966.13
57+29.69	145,306.37	940,884.09

EAST CELL ALIGNMENT SCHEDULE (SEE DRAWING C-15C FOR DETAIL)		
STATION	NORTHING	EASTING
58+91.38	145,215.46	940,750.39
60+93.15	145,052.32	940,631.64
65+57.39	144,627.80	940,446.45
67+07.89	144,550.72	940,317.50
68+93.65	144,481.13	940,145.29
71+02.82	144,417.75	939,945.94
75+25.85	144,820.35	939,816.06
77+74.18	144,745.97	939,579.13

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SCALE IN FEET
100 0 200

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NO.	DATE	DESCRIPTION	APPR'D
R	JUNE 2014	AS-BUILT DRAWINGS	

REVISIONS

DESIGNED BY: –
DRAWN BY: OM
SHEET CHK'D BY: RH
CROSS CHK'D BY: –
APPROVED BY:

URS

APPROVED FOR THE CITY OF NEW YORK

P.E.
PROJECT MANAGER

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BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
BROOKFIELD AVENUE LANDFILL REMEDIATION
OPERABLE UNIT 1
CAPITAL PROJECT EP-8

CONTRACT NO. LF-BAL-1G

BARRIER WALL PLAN EAST AND WEST CELL KEY MAP

DATE: JUNE 2014
FILENAME:
DWG. NO: AB-C-14
SHEET NO:
OF OF

Time: 8:20 A.M. Date: 6/6/2014 Onsy_Moawad Drawing File: H:\BROOKFIELD\AS-BUILTS\AS-BUILT_RECORD SET MAY 2014\AB-C-14.dwg

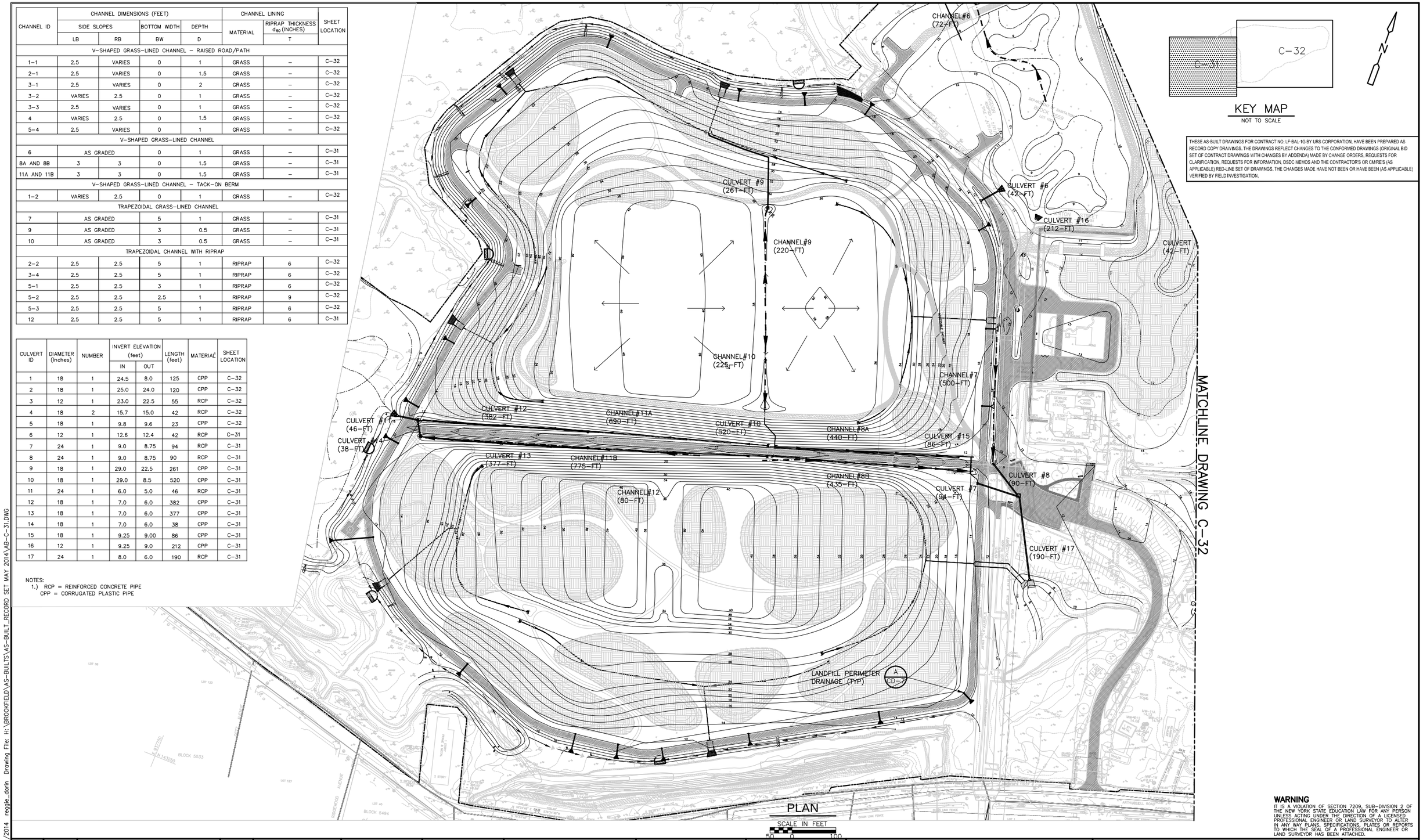
FIGURE 3

Storm water Drainage
(Sheet AB-C-31 of Brookfield Avenue Landfill Remediation OU1,
Contract No. LF-BAL-1G, As-Built Drawings, June 2014)

CHANNEL ID	CHANNEL DIMENSIONS (FEET)				CHANNEL LINING		SHEET LOCATION
	SIDE SLOPES		BOTTOM WIDTH	DEPTH	MATERIAL	RIPRAP THICKNESS d_{50} (INCHES)	
	LB	RB	BW	D		T	
V-SHAPED GRASS-LINED CHANNEL - RAISED ROAD/PATH							
1-1	2.5	VARIES	0	1	GRASS	-	C-32
2-1	2.5	VARIES	0	1.5	GRASS	-	C-32
3-1	2.5	VARIES	0	2	GRASS	-	C-32
3-2	VARIES	2.5	0	1	GRASS	-	C-32
3-3	2.5	VARIES	0	1	GRASS	-	C-32
4	VARIES	2.5	0	1.5	GRASS	-	C-32
5-4	2.5	VARIES	0	1	GRASS	-	C-32
V-SHAPED GRASS-LINED CHANNEL							
6	AS GRADED		0	1	GRASS	-	C-31
8A AND 8B	3	3	0	1.5	GRASS	-	C-31
11A AND 11B	3	3	0	1.5	GRASS	-	C-31
V-SHAPED GRASS-LINED CHANNEL - TACK-ON BERM							
1-2	VARIES	2.5	0	1	GRASS	-	C-32
TRAPEZOIDAL GRASS-LINED CHANNEL							
7	AS GRADED		5	1	GRASS	-	C-31
9	AS GRADED		3	0.5	GRASS	-	C-31
10	AS GRADED		3	0.5	GRASS	-	C-31
TRAPEZOIDAL CHANNEL WITH RIPRAP							
2-2	2.5	2.5	5	1	RIPRAP	6	C-32
3-4	2.5	2.5	5	1	RIPRAP	6	C-32
5-1	2.5	2.5	3	1	RIPRAP	6	C-32
5-2	2.5	2.5	2.5	1	RIPRAP	9	C-32
5-3	2.5	2.5	5	1	RIPRAP	6	C-32
12	2.5	2.5	5	1	RIPRAP	6	C-31

CULVERT ID	DIAMETER (inches)	NUMBER	INVERT ELEVATION (feet)		LENGTH (feet)	MATERIAL[1]	SHEET LOCATION
			IN	OUT			
1	18	1	24.5	8.0	125	CPP	C-32
2	18	1	25.0	24.0	120	CPP	C-32
3	12	1	23.0	22.5	55	RCP	C-32
4	18	2	15.7	15.0	42	RCP	C-32
5	18	1	9.8	9.6	23	CPP	C-32
6	12	1	12.6	12.4	42	RCP	C-31
7	24	1	9.0	8.75	94	RCP	C-31
8	24	1	9.0	8.75	90	RCP	C-31
9	18	1	29.0	22.5	261	CPP	C-31
10	18	1	29.0	8.5	520	CPP	C-31
11	24	1	6.0	5.0	46	RCP	C-31
12	18	1	7.0	6.0	382	CPP	C-31
13	18	1	7.0	6.0	377	CPP	C-31
14	18	1	7.0	6.0	38	CPP	C-31
15	18	1	9.25	9.00	86	CPP	C-31
16	12	1	9.25	9.0	212	CPP	C-31
17	24	1	8.0	6.0	190	RCP	C-31

NOTES:
1.) RCP = REINFORCED CONCRETE PIPE
CPP = CORRUGATED PLASTIC PIPE



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NO.	DATE	DESCRIPTION	APPR'D
R	JUNE 2014	AS-BUILT DRAWINGS	

REVISIONS

DESIGNED BY: -
DRAWN BY: OM
SHEET CHK'D BY: RH
CROSS CHK'D BY: -
APPROVED BY:
DATE:

URS

APPROVED FOR THE CITY OF NEW YORK
P.E.
PROJECT MANAGER
P.E.
ACTING CHIEF, WASTEWATER AND WATER INFRASTUCTURE AND SUPPORT

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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
BROOKFIELD AVENUE LANDFILL REMEDIATION OPERABLE UNIT 1
CAPITAL PROJECT EP-8

CONTRACT NO. LF-BAL-1G

STORMWATER
DRAINAGE PLAN I

DATE: JUNE 2014
FILENAME:
DWG. NO: AB-C-31
SHEET NO:
OF
OF

Time: 9:54 A.M. Date: 6/9/2014 reggie_dorin Drawing File: H:\BROOKFIELD\AS-BUILTS\AS-BUILT_RECORD SET MAY 2014\AB-C-31.DWG

FIGURE 4

Storm water Drainage Plan II
(Sheet AB-C-32 of Brookfield Avenue Landfill Remediation OU1,
Contract No. LF-BAL-1G, As-Built Drawings, June 2014)



CULVERT ID	DIAMETER (inches)	NUMBER	INVERT ELEVATION (feet)		LENGTH (feet)	MATERIAL	SHEET LOCATION
			IN	OUT			
1	18	1	24.5	8.0	125	CPP	C-32
2	18	1	25.0	24.0	120	CPP	C-32
3	12	1	23.0	22.5	55	RCP	C-32
4	18	2	15.7	15.0	42	RCP	C-32
5	18	1	9.8	9.6	23	CPP	C-32
6	12	1	12.6	12.4	42	RCP	C-31
7	24	1	9.0	8.75	94	RCP	C-31
8	24	1	9.0	8.75	90	RCP	C-31
9	18	1	29.0	22.5	261	CPP	C-31
10	18	1	29.0	8.5	520	CPP	C-31
11	24	1	6.0	5.0	46	RCP	C-31
12	18	1	7.0	6.0	382	CPP	C-31
13	18	1	7.0	6.0	377	CPP	C-31
14	18	1	7.0	6.0	38	CPP	C-31
15	18	1	9.25	9.00	86	CPP	C-31
16	12	1	9.25	9.0	212	CPP	C-31
17	24	1	8.0	6.0	190	RCP	C-31

NOTES:
1.) RCP = REINFORCED CONCRETE PIPE
CPP = CORRUGATED PLASTIC PIPE

CHANNEL ID	CHANNEL DIMENSIONS (FEET)				CHANNEL LINING		SHEET LOCATION
	SIDE SLOPES		BOTTOM WIDTH	DEPTH	MATERIAL	RIPRAP THICKNESS d_{50} (INCHES)	
	LB	RB	BW	D		T	
V-SHAPED GRASS-LINED CHANNEL - RAISED ROAD/PATH							
1-1	2.5	VARIES	0	1	GRASS	-	C-32
2-1	2.5	VARIES	0	1.5	GRASS	-	C-32
3-1	2.5	VARIES	0	2	GRASS	-	C-32
3-2	VARIES	2.5	0	1	GRASS	-	C-32
3-3	2.5	VARIES	0	1	GRASS	-	C-32
4	VARIES	2.5	0	1.5	GRASS	-	C-32
5-4	2.5	VARIES	0	1	GRASS	-	C-32
V-SHAPED GRASS-LINED CHANNEL							
6	AS GRADED		0	1	GRASS	-	C-31
8A AND 8B	3	3	0	1.5	GRASS	-	C-31
11A AND 11B	3	3	0	1.5	GRASS	-	C-31
V-SHAPED GRASS-LINED CHANNEL - TACK-ON BERM							
1-2	VARIES	2.5	0	1	GRASS	-	C-32
TRAPEZOIDAL GRASS-LINED CHANNEL							
7	AS GRADED		5	1	GRASS	-	C-31
9	AS GRADED		3	0.5	GRASS	-	C-31
10	AS GRADED		3	0.5	GRASS	-	C-31
TRAPEZOIDAL CHANNEL WITH RIPRAP							
2-2	2.5	2.5	5	1	RIPRAP	6	C-32
3-4	2.5	2.5	5	1	RIPRAP	6	C-32
5-1	2.5	2.5	3	1	RIPRAP	6	C-32
5-2	2.5	2.5	2.5	1	RIPRAP	9	C-32
5-3	2.5	2.5	5	1	RIPRAP	6	C-32
12	2.5	2.5	5	1	RIPRAP	6	C-31

KEY MAP
NOT TO SCALE

THESE AS-BUILT DRAWINGS FOR CONTRACT NO. LF-BAL-1G BY URS CORPORATION, HAVE BEEN PREPARED AS RECORD COPY DRAWINGS, THE DRAWINGS REFLECT CHANGES TO THE CONFORMED DRAWINGS (ORIGINAL BID SET OF CONTRACT DRAWINGS WITH CHANGES BY ADDENDA) MADE BY CHANGE ORDERS, REQUESTS FOR CLARIFICATION, REQUESTS FOR INFORMATION, DSDC MEMOS AND THE CONTRACTOR'S OR OMRE'S (AS APPLICABLE) RED-LINE SET OF DRAWINGS. THE CHANGES MADE HAVE NOT BEEN OR HAVE BEEN (AS APPLICABLE) VERIFIED BY FIELD INVESTIGATION.

WARNING
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NO.	DATE	DESCRIPTION	APPR'D
R	JUNE 2014	AS-BUILT DRAWINGS	

REVISIONS

DESIGNED BY: -
DRAWN BY: OM
SHEET CHK'D BY: RH
CROSS CHK'D BY: -
APPROVED BY:
DATE:

URS

APPROVED FOR THE CITY OF NEW YORK

P.E.
PROJECT MANAGER

P.E.
ACTING CHIEF, WASTEWATER AND WATER INFRASTUCTURE AND SUPPORT

NYC Environmental Protection

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
BROOKFIELD AVENUE LANDFILL REMEDIATION
OPERABLE UNIT 1
CAPITAL PROJECT EP-8

CONTRACT NO. LF-BAL-1G

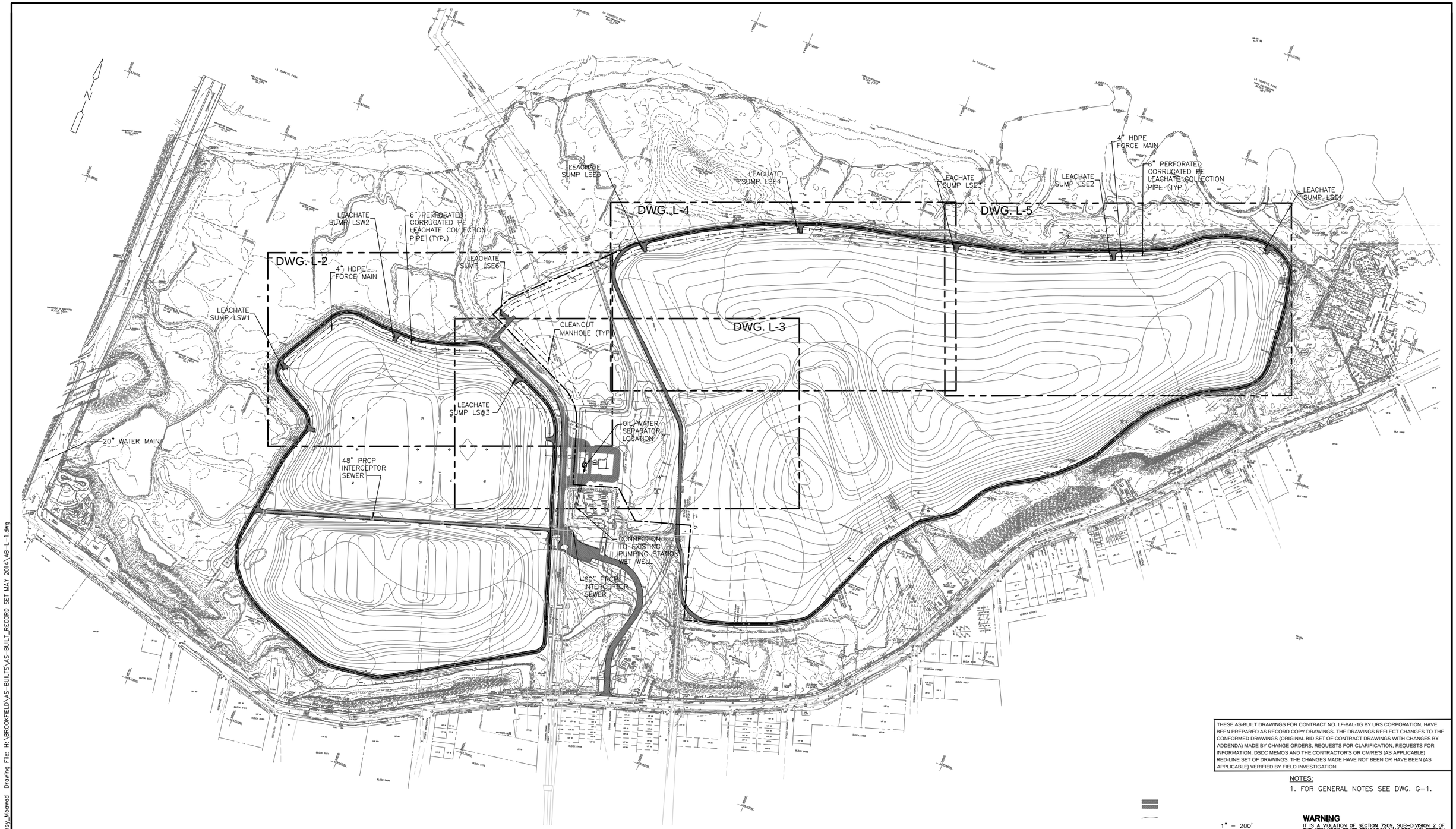
STORMWATER
DRAINAGE PLAN II

DATE: JUNE 2014
FILENAME:
DWG. NO: AB-C-32
SHEET NO:
OF
OF

Time: 10:06 A.M. Date: 6/6/2014 Onsy_Moawad Drawing File: H:\BROOKFIELD\AS-BUILTS\AS-BUILT_RECORD SET MAY 2014\AB-C-32.DWG

FIGURE 5

Leachate Collection Overall Plan
(Sheet AB-L-1 of Brookfield Avenue Landfill Remediation
OU1, Contract No. LF-BAL-1G, As-Built Drawings, June 2014)



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NOTES:

1. FOR GENERAL NOTES SEE DWG. G-1.

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NO.	DATE	DESCRIPTION	APPR'D
R	JUNE 2014	AS-BUILT DRAWINGS	

REVISIONS

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APPROVED BY:
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BROOKFIELD AVENUE LANDFILL REMEDIATION
OPERABLE UNIT 1
CAPITAL PROJECT EP-8

CONTRACT NO. LF-BAL-1G

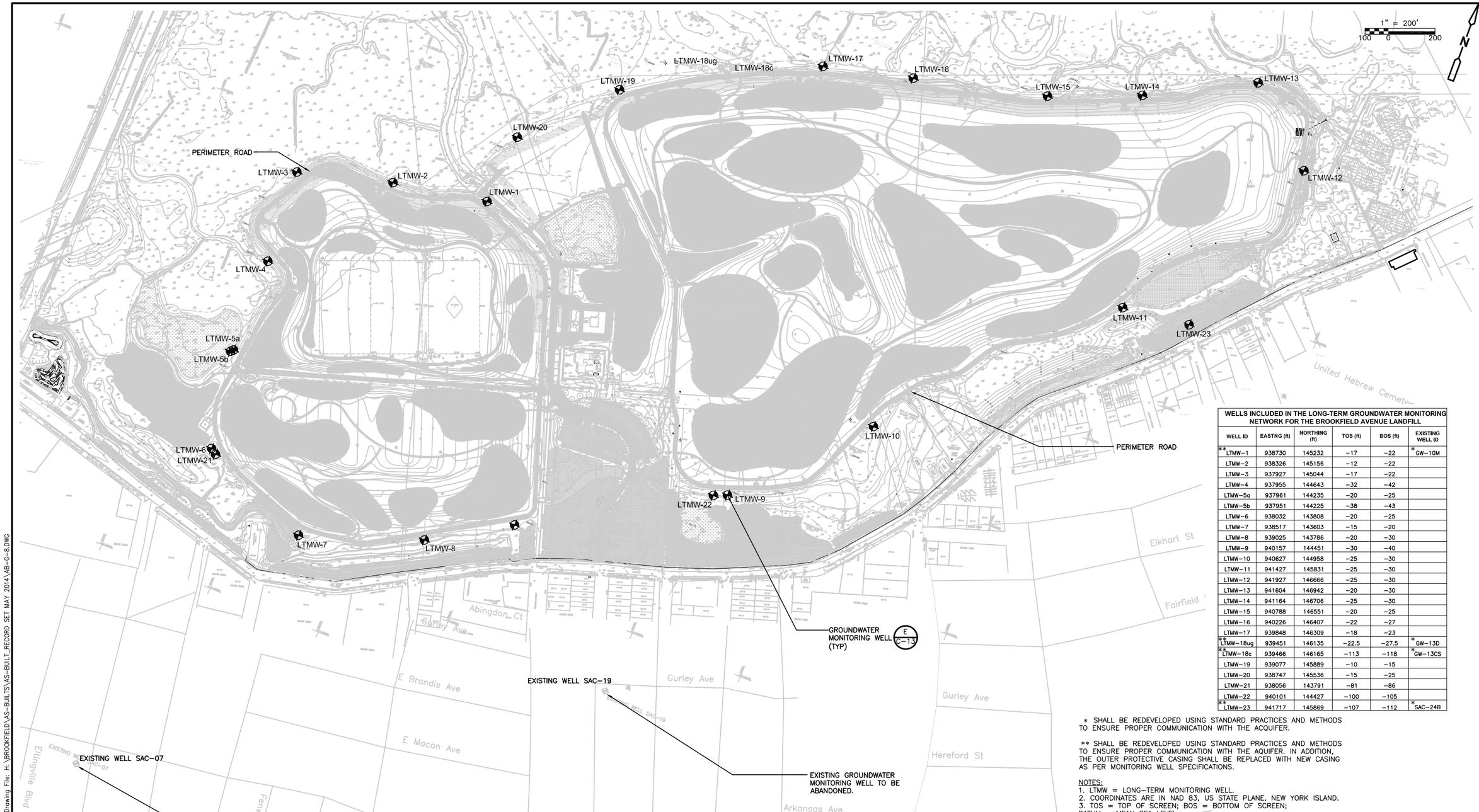
LEACHATE COLLECTION OVERALL PLAN

DATE: JUNE 2014
FILENAME:
DWG. NO: AB-L-1
SHEET NO:
OF
OF

Time: 9:28 A.M. Date: 6/9/2014 Onsy_Moawad Drawing File: H:\BROOKFIELD\AS-BUILTS\AS-BUILT_RECORD SET MAY 2014\AB-L-1.dwg

FIGURE 6

Long-Term Groundwater Monitoring Plan Monitoring Well Locations (Sheet AB-G-8 of Brookfield Avenue Landfill Remediation OU1, Contract No. LF-BAL-1G, As-Built Drawings, June 2014)



WELLS INCLUDED IN THE LONG-TERM GROUNDWATER MONITORING NETWORK FOR THE BROOKFIELD AVENUE LANDFILL

WELL ID	EASTNG (ft)	NORTHING (ft)	TOS (ft)	BOS (ft)	EXISTING WELL ID
** LTMW-1	938730	145232	-17	-22	* GW-10M
LTMW-2	938326	145156	-12	-22	
LTMW-3	937927	145044	-17	-22	
LTMW-4	937955	144643	-32	-42	
LTMW-5a	937961	144235	-20	-25	
LTMW-5b	937951	144225	-38	-43	
LTMW-6	938032	143808	-20	-25	
LTMW-7	938517	143603	-15	-20	
LTMW-8	939025	143786	-20	-30	
LTMW-9	940157	144451	-30	-40	
LTMW-10	940627	144958	-25	-30	
LTMW-11	941427	145831	-25	-30	
LTMW-12	941927	146666	-25	-30	
LTMW-13	941604	146942	-20	-30	
LTMW-14	941164	146706	-25	-30	
LTMW-15	940788	146551	-20	-25	
LTMW-16	940226	146407	-22	-27	
LTMW-17	939848	146309	-18	-23	
** LTMW-18ug	939451	146135	-22.5	-27.5	* GW-13D
** LTMW-18c	939466	146165	-113	-118	* GW-13CS
LTMW-19	939077	145889	-10	-15	
LTMW-20	938747	145536	-15	-25	
LTMW-21	938056	143791	-81	-86	
LTMW-22	940101	144427	-100	-105	
** LTMW-23	941717	145869	-107	-112	* SAC-24B

* SHALL BE REDEVELOPED USING STANDARD PRACTICES AND METHODS TO ENSURE PROPER COMMUNICATION WITH THE ACQUIFER.

** SHALL BE REDEVELOPED USING STANDARD PRACTICES AND METHODS TO ENSURE PROPER COMMUNICATION WITH THE AQUIFER. IN ADDITION, THE OUTER PROTECTIVE CASING SHALL BE REPLACED WITH NEW CASING AS PER MONITORING WELL SPECIFICATIONS.

NOTES:
1. LTMW = LONG-TERM MONITORING WELL.
2. COORDINATES ARE IN NAD 83, US STATE PLANE, NEW YORK ISLAND.
3. TOS = TOP OF SCREEN; BOS = BOTTOM OF SCREEN; DATUM = MEAN SEA LEVEL.
4. THE HORIZONTAL SPACING OF THESE WELLS SHALL NOT EXCEED 500 FEET AND THE WELLS SHALL NOT BE FURTHER THEN 50 FEET FROM THE BARRIER WALL.

THESE AS-BUILT DRAWINGS FOR CONTRACT NO, LF-BAL-1G BY URS CORPORATION, HAVE BEEN PREPARED AS RECORD COPY DRAWINGS, THE DRAWINGS REFLECT CHANGES TO THE CONFORMED DRAWINGS (ORIGINAL BID SET OF CONTRACT DRAWINGS WITH CHANGES BY ADDENDA) MADE BY CHANGE ORDERS, REQUESTS FOR CLARIFICATION, REQUESTS FOR INFORMATION, DSDC MEMOS AND THE CONTRACTOR'S OR CM/RE'S (AS APPLICABLE) RED-LINE SET OF DRAWINGS. THE CHANGES MADE HAVE NOT BEEN OR HAVE BEEN (AS APPLICABLE) VERIFIED BY FIELD INVESTIGATION.

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NO.	DATE	DESCRIPTION	APPR'D
R	JUNE 2014	AS-BUILT DRAWINGS	

REVISIONS

DESIGNED BY: –
DRAWN BY: OM
SHEET CHK'D BY: RH
CROSS CHK'D BY: –
APPROVED BY:
DATE:

URS

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P.E.
PROJECT MANAGER

P.E.
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CITY OF NEW YORK
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BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
BROOKFIELD AVENUE LANDFILL REMEDIATION
OPERABLE UNIT 1
CAPITAL PROJECT EP-8

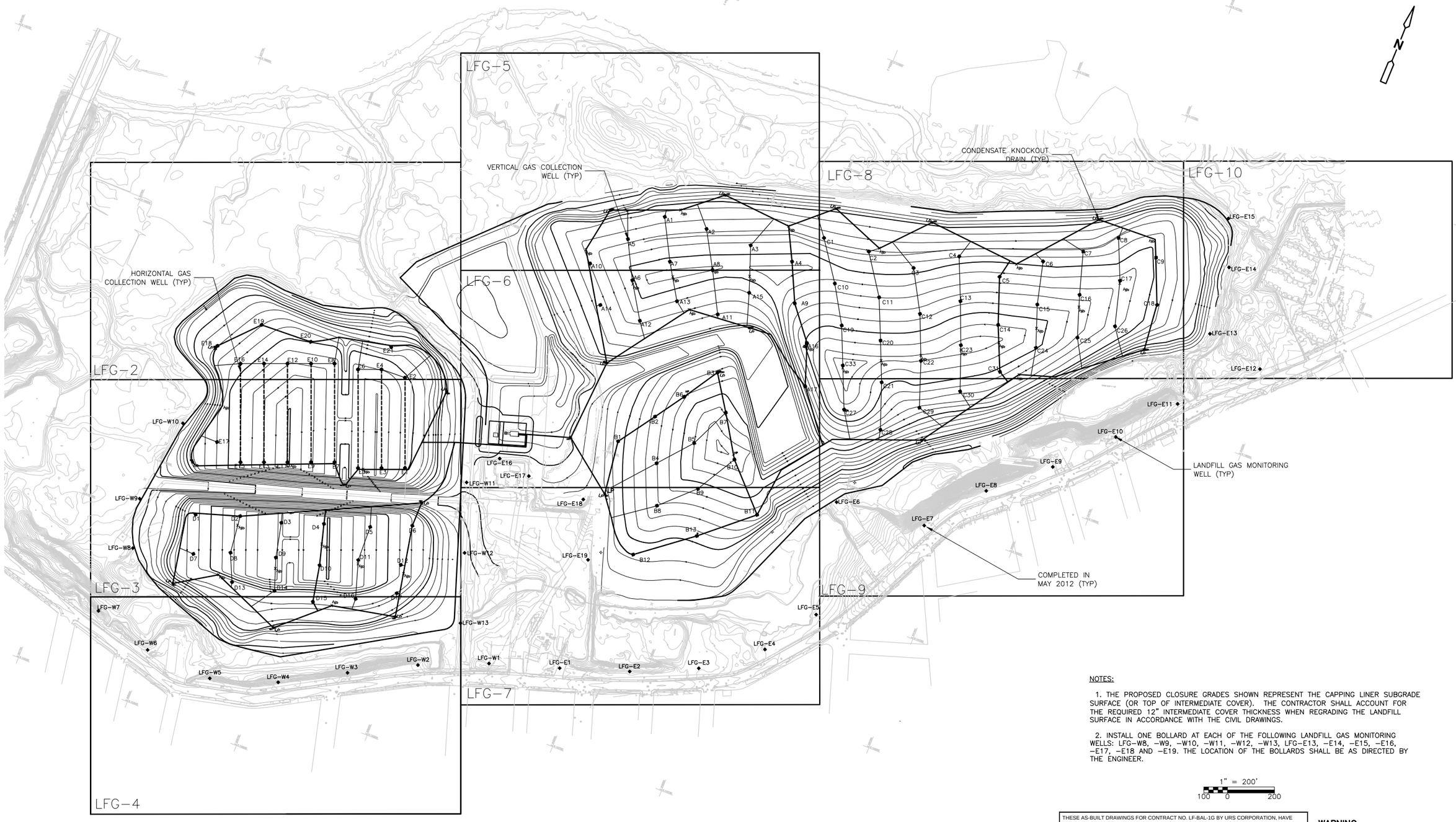
CONTRACT NO. LF-BAL-1G
LONG-TERM GROUNDWATER MONITORING PLAN
MONITORING WELL LOCATIONS

DATE: JUNE 2014
FILENAME:
DWG. NO: AB-G-8
SHEET NO:
OF OF

Time: 11:38 A.M. Date: 6/6/2014 Onsy_Moawad Drawing File: H:\BROOKFIELD\AS-BUILTS\AS-BUILT_RECORD SET MAY 2014\AB-G-8.DWG

FIGURE 7

Landfill Gas Collection Key Plan
(Sheet AB-LFG-1 of Brookfield Avenue Landfill Remediation
OU1, Contract No. LF-BAL-1G, As-Built Drawings, June 2014)



NOTES:

1. THE PROPOSED CLOSURE GRADES SHOWN REPRESENT THE CAPPING LINER SUBGRADE SURFACE (OR TOP OF INTERMEDIATE COVER). THE CONTRACTOR SHALL ACCOUNT FOR THE REQUIRED 12" INTERMEDIATE COVER THICKNESS WHEN REGRADING THE LANDFILL SURFACE IN ACCORDANCE WITH THE CIVIL DRAWINGS.

2. INSTALL ONE BOLLARD AT EACH OF THE FOLLOWING LANDFILL GAS MONITORING WELLS: LFG-W8, -W9, -W10, -W11, -W12, -W13, LFG-E13, -E14, -E15, -E16, -E17, -E18 AND -E19. THE LOCATION OF THE BOLLARDS SHALL BE AS DIRECTED BY THE ENGINEER.

1" = 200'
100 0 200

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NO.	DATE	DESCRIPTION	APPR'D
R	JUNE 2014	AS-BUILT DRAWINGS	

REVISIONS

DESIGNED BY: –
DRAWN BY: OM
SHEET CHK'D BY: RH
CROSS CHK'D BY: –
APPROVED BY:
DATE:

URS

APPROVED FOR THE CITY OF NEW YORK

P.E.
PROJECT MANAGER

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NYC Environmental Protection

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENGINEERING DESIGN AND CONSTRUCTION
BROOKFIELD AVENUE LANDFILL REMEDIATION OPERABLE UNIT 1
CAPITAL PROJECT EP-8

CONTRACT NO. LF-BAL-1G

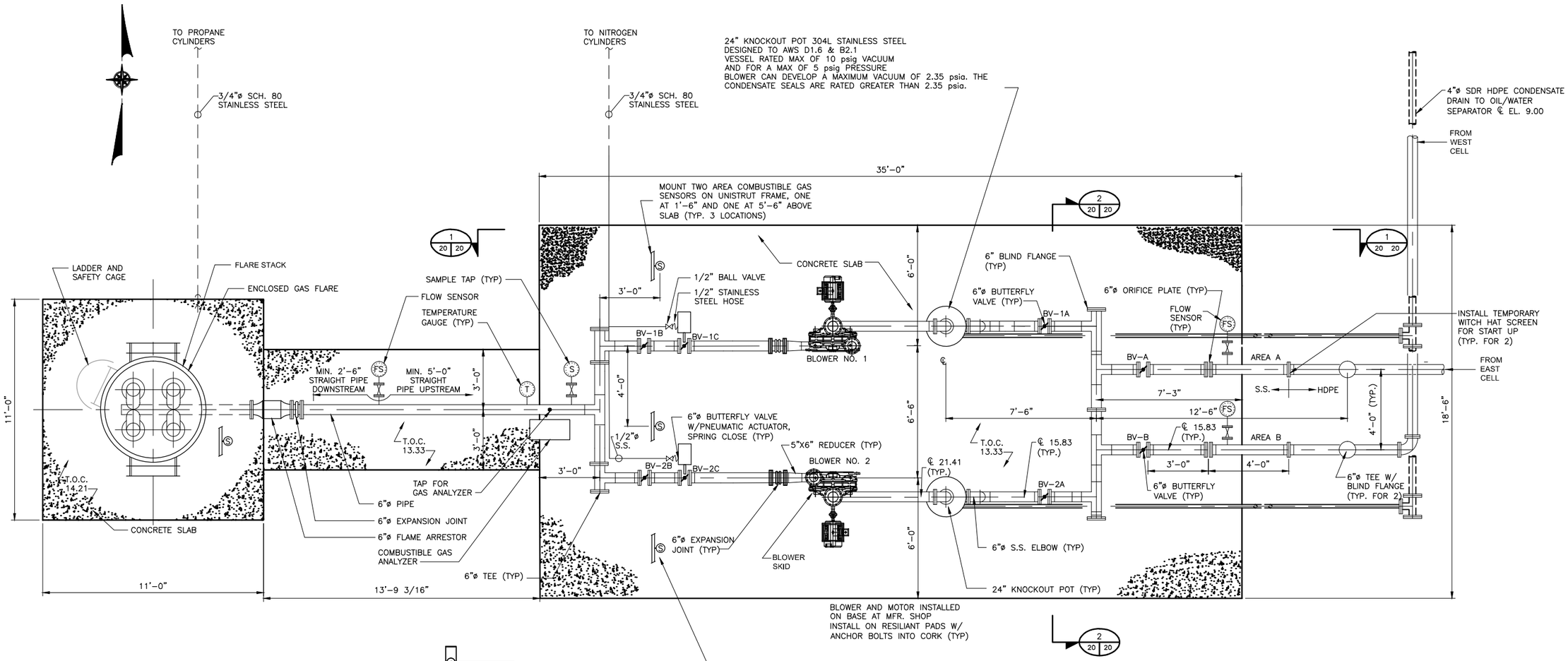
LANDFILL GAS COLLECTION KEY PLAN

DATE: JUNE 2014
FILENAME:
DWG. NO: AB-LFG-1
SHEET NO:
OF OF

Time: 8:15 A.M. Date: 6/9/2014 Onsy_Moowad Drawing File: H:\BROOKFIELD\AS-BUILTS\AS-BUILT_RECORD SET MAY 2014\AB-LFG-1.dwg

FIGURE 8

Gas Flare System
(Sheet AB-LFG-19 of Brookfield Avenue Landfill Remediation OU1,
Contract No. LF-BAL-1G, As-Built Drawings, June 2014)



NOTES:

1. NO VEGETATION SHALL BE PERMITTED WITHIN THE GAS FLARE AND BLOWER COMPOUND NOR WITHIN 25 FEET OF EITHER SIDE OF THE SECURITY FENCE.
2. THE TALLEST METALLIC STRUCTURE(S) SHALL BE GROUNDED FOR LIGHTNING PROTECTION.
3. ALL PIPING SHALL BE SCHEDULE 40 STAINLESS STEEL UNLESS OTHERWISE NOTED.

GAS FLARE SYSTEM – PLAN

SCALE: 3/8"=1'-0"

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NO.	DATE	DESCRIPTION	APPR'D
R	JUNE 2014	AS-BUILT DRAWINGS	

REVISIONS

DESIGNED BY: –
DRAWN BY: OM
SHEET CHK'D BY: RH
CROSS CHK'D BY: –
APPROVED BY:
DATE:

URS

APPROVED FOR THE CITY OF NEW YORK

P.E.

PROJECT MANAGER

P.E.

ACTING CHIEF, WASTEWATER AND WATER INFRASTUCTURE AND SUPPORT

NYC Environmental Protection

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENGINEERING DESIGN AND CONSTRUCTION
BROOKFIELD AVENUE LANDFILL REMEDIATION
OPERABLE UNIT 1
CAPITAL PROJECT EP-8

CONTRACT NO. LF-BAL-1G

GAS FLARE SYSTEM

DATE: JUNE 2014
FILENAME:
DWG. NO: AB-LFG-19
SHEET NO: OF OF

Time: 9:48 A.M. Date: 1/2/2015 reggie_dorin Drawing File: H:\BROOKFIELD\AS-BUILTS\AS-BUILT_RECORD SET MAY 2014\AB-LFG-19.dwg

FIGURE 9

End Use Plan



NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION

BROOKFIELD AVENUE LANDFILL REMEDIATION

Figure 9 - End Use Plan

CDM Smith

NYC Environmental Protection

FIGURE 10

Final Engineering Report Drawing No. AB-C-12 – 40-MIL Textured And 60-MIL Smooth LLDPE Geomembrane Liner Limits
(Sheet AB-C-12 of Brookfield Avenue Landfill Remediation OU1,
Contract No. LF-BAL-1G, As-Built Drawings,
October 2014)

TOTAL 40-MIL TEXTURED LLDPE GEOMEMBRANE INSTALLED	
EAST CELL	WEST CELL
380,070 SY	193,297 SY

TOTAL 60-MIL SMOOTH LLDPE GEOMEMBRANE INSTALLED	
EAST CELL	WEST CELL
54,714 SY	2,541 SY

LEGEND

- 4+00 — CENTERLINE OF BARRIER WALL
- 25 — AS-BUILT SUBGRADE CONTOUR
- LIMITS OF 40-MIL TEXTURED LLDPE GEOMEMBRANE
- LIMITS OF 60-MIL SMOOTH LLDPE GEOMEMBRANE



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150 0 150 300
SCALE IN FEET
1"=150'

NOTES:

Horizontal and Vertical Datum is a project specific datum, referenced from "Topographical Survey of the Brookfield Avenue Landfill, situated on Staten Island in the Borough of Richmond, County of Richmond, City of New York, State of New York" dated June 4, 2003 and prepared by Chas H. Sells, Inc. To convert to NAD 83 and NGVD 1929 see RFI #7 and #31.

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NO.	DATE	DESCRIPTION	APPR'D
R	OCT. 2014	AS-BUILT DRAWINGS	

REVISIONS

DESIGNED BY:
DRAWN BY: OM
SHEET CHK'D BY: RH
CROSS CHK'D BY: –
APPROVED BY:
DATE:

URS

APPROVED FOR THE CITY OF NEW YORK

P.E.
PROJECT MANAGER

P.E.
ACTING CHIEF, WASTEWATER AND WATER INFRASTUCTURE AND SUPPORT

NYC Environmental Protection

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENGINEERING DESIGN & CONSTRUCTION
BROOKFIELD AVENUE LANDFILL REMEDIATION OPERABLE UNIT 1
CAPITAL PROJECT EP-8

CONTRACT NO. LF-BAL-1G
FINAL ENGINEERING REPORT AS-BUILT DRAWINGS

40-MIL TEXTURED AND 60-MIL SMOOTH LLDPE GEOMEMBRANE LINER LIMITS

DATE: OCTOBER 2014
FILENAME:
DWG. NO: AB-C-12 OF
SHEET NO: OF

Time: 1:22 P.M. Date: 10/7/2014 Onsy_Mcawad Drawing File: H:\BROOKFIELD\AS-BUILTS\AS-BUILT_OCTOBER_2014\AB-C-12.dwg

LTMW-13
LTMW-18c
LTMW-18ug
LTMW-17
LTMW-16
LTMW-15
LTMW-14
LTMW-19
LTMW-20
LTMW-12
LTMW-3
LTMW-2
LTMW-1
LTMW-4
LTMW-11
LTMW-23
LTMW-5a
LTMW-5b
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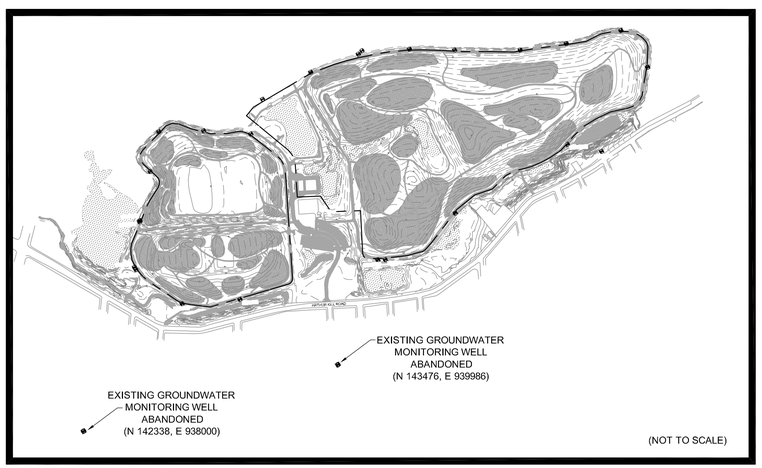
LTMW-8
ARTHUR KILL ROAD



REFERENCES:

"Contract No. LF–BAL–1G, Long–Term Groundwater Monitoring Plan, Monitoring Well Locations" dated April 2007, last revised 10/12/12 and prepared by Camp Dresser & McKee.

NOTES:

1. Horizontal and Vertical Datum is a project specific datum, referenced from "Topographical Survey of the Brookfield Avenue Landfill, situated on Staten Island in the Borough of Richmond, County of Richmond, City of New York, State of New York" dated June 4, 2003 prepared by Chas. H. Sells, Inc. To convert to NAD 83 and NGVD 1929 see RFI #7 and #31.
2. Coordinates and elevations are shown in U.S. Survey Feet.

LEGEND

LTMW-8 — LONG-TERM GROUNDWATER MONITORING WELL

CENTERLINE OF BARRIER WALL

AS-BUILT FINAL GRADE

0 75 150 300 450
(IN FEET)
1 inch = 150 ft.

LONG-TERM GROUNDWATER MONITORING WELLS

WELL ID	NORTHING (ft)	EASTING (ft)	ELEV. (ft)	TOS ELEV. (ft)
LTMW-1	145217	938728	18.3	-17.0
LTMW-2	145136	938324	16.7	-11.7
LTMW-3	145027	937951	16.7	-16.8
LTMW-4	144670	937969	17.8	-32.4
LTMW-5a	144236	937993	15.0	-19.7
LTMW-5b	144226	937992	15.1	-37.9
LTMW-6	143830	938055	15.4	-20.0
LTMW-7	143633	938538	15.2	-14.8
LTMW-8	143802	939014	15.8	-19.8
LTMW-9	144467	940145	18.2	-30.0
LTMW-10	145018	940628	16.4	-25.8
LTMW-11	145851	941413	16.7	-25.5
LTMW-12	146682	941912	13.6	-25.7
LTMW-13	146930	941604	16.5	-20.9
LTMW-14	146696	941175	18.2	-25.3
LTMW-15	146537	940802	17.3	-20.2
LTMW-16	146386	940251	16.5	-22.1
LTMW-17	146292	939869	14.2	-18.2
LTMW-18ug	146133	939450	11.6	-22.5
LTMW-18c	146169	939473	13.0	-113.0
LTMW-19	145873	939091	12.8	-9.3
LTMW-20	145535	938748	9.2	-15.0
LTMW-21	143814	938072	15.7	-76.0
LTMW-22	144447	940083	19.9	-100.0
LTMW-23	145869	941717	24.1	-107.0

CONTRACT NO. 1359-BRK

Layeux Inc.
PROFESSIONAL LAND SURVEYORS
CONSTRUCTION SURVEYING SPECIALISTS
GPS CONSULTANTS
1 Entin Road, Unit 8
Clifton, N.J. 07014
Ph: 973-249-0900 Fax: 973-249-0988

LONG-TERM GROUNDWATER MONITORING WELL LOCATION PLAN

BROOKFIELD AVENUE LANDFILL

Prepared For:
CITY OF NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

BROOKFIELD CONSTRUCTION ASSOCIATES, LLC
136 CENTRAL AVENUE
CLARK, NJ 07066

Drawn By:	MP
Checked:	JB
Scale:	1"=150'
Date:	07-23-15
Proj. No.:	2857

FIGURE 11

Overview of Hot Spot Data

S:\5215\ HLTH\ FIG3-2A 03/09/98 18:30:29 46:33 Chris Kalny

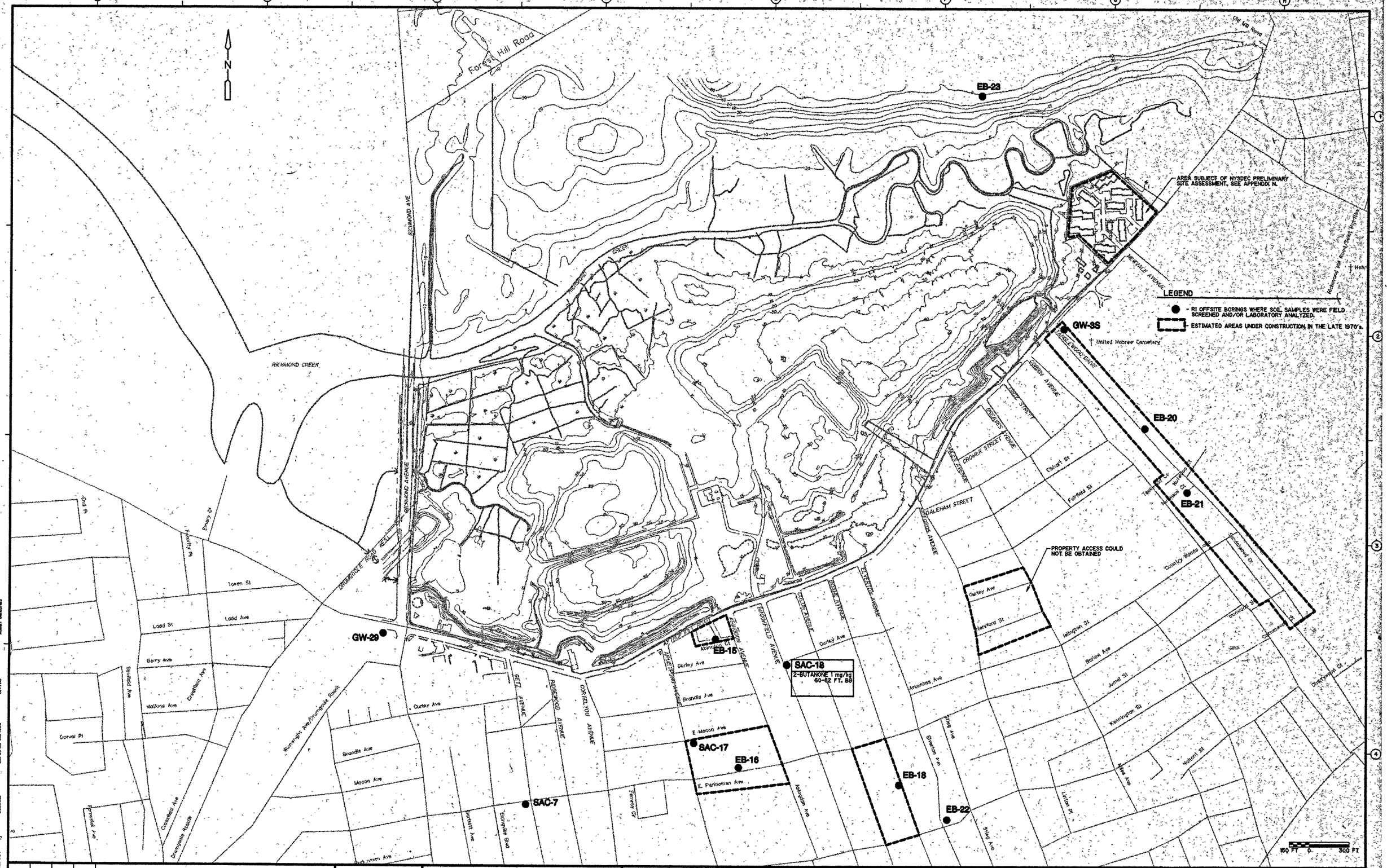


CDM Camp Dresser & McKee

Figure 3-17
Overview of Hot Spot Study Areas
Brookfield Avenue Landfill Remediation Project

FIGURE 12

Summary of Exceedances in Soil, Groundwater, Surface Water, and Sediment



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY:
DRAWN BY: R. GENCORELLI
SHEET CHK'D BY:
CROSS CHK'D BY:
APPROVED BY:
DATE:

CDM Camp Dresser & McKee

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION

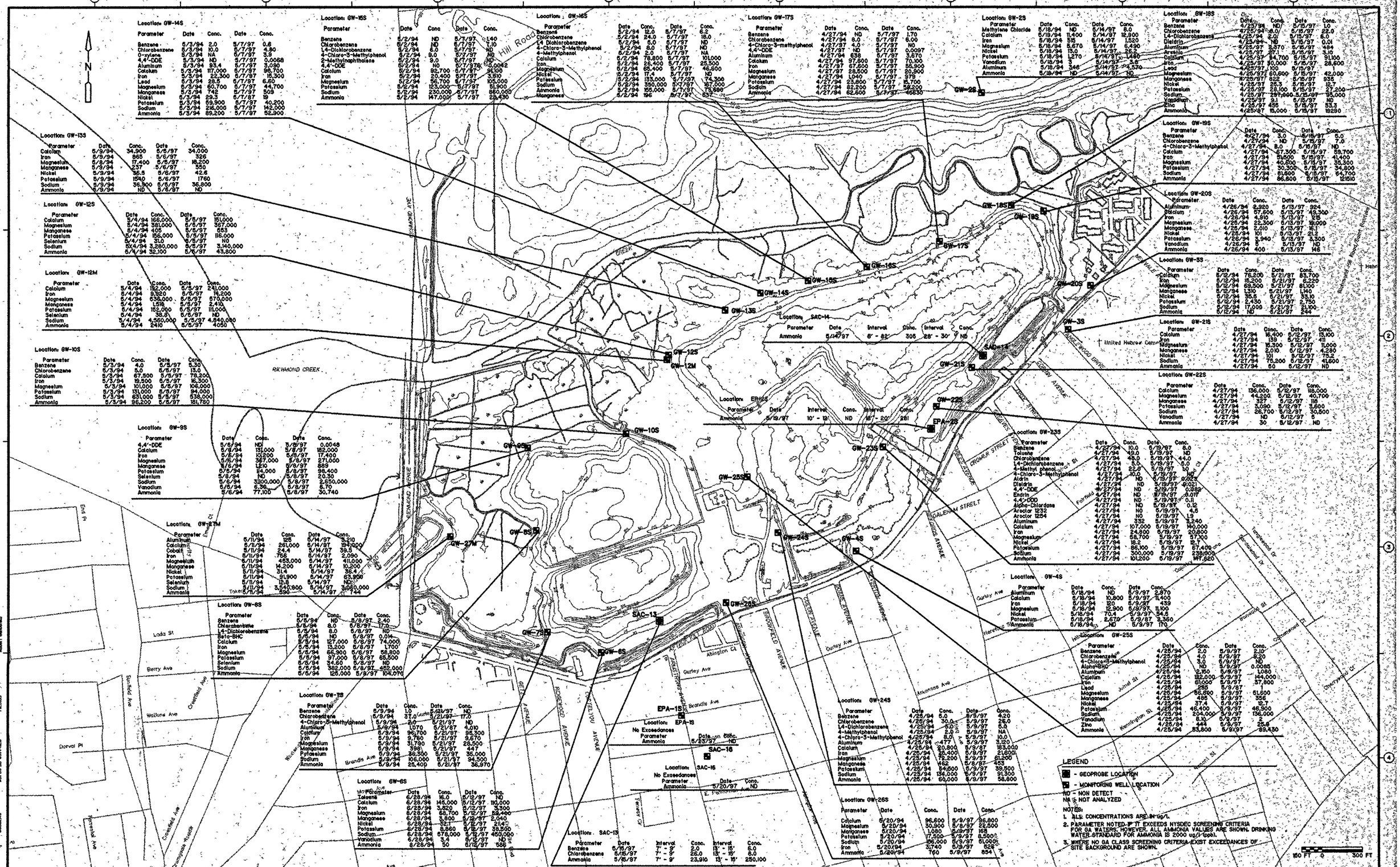
BROOKFIELD AVENUE LANDFILL REMEDIATION PROJECT

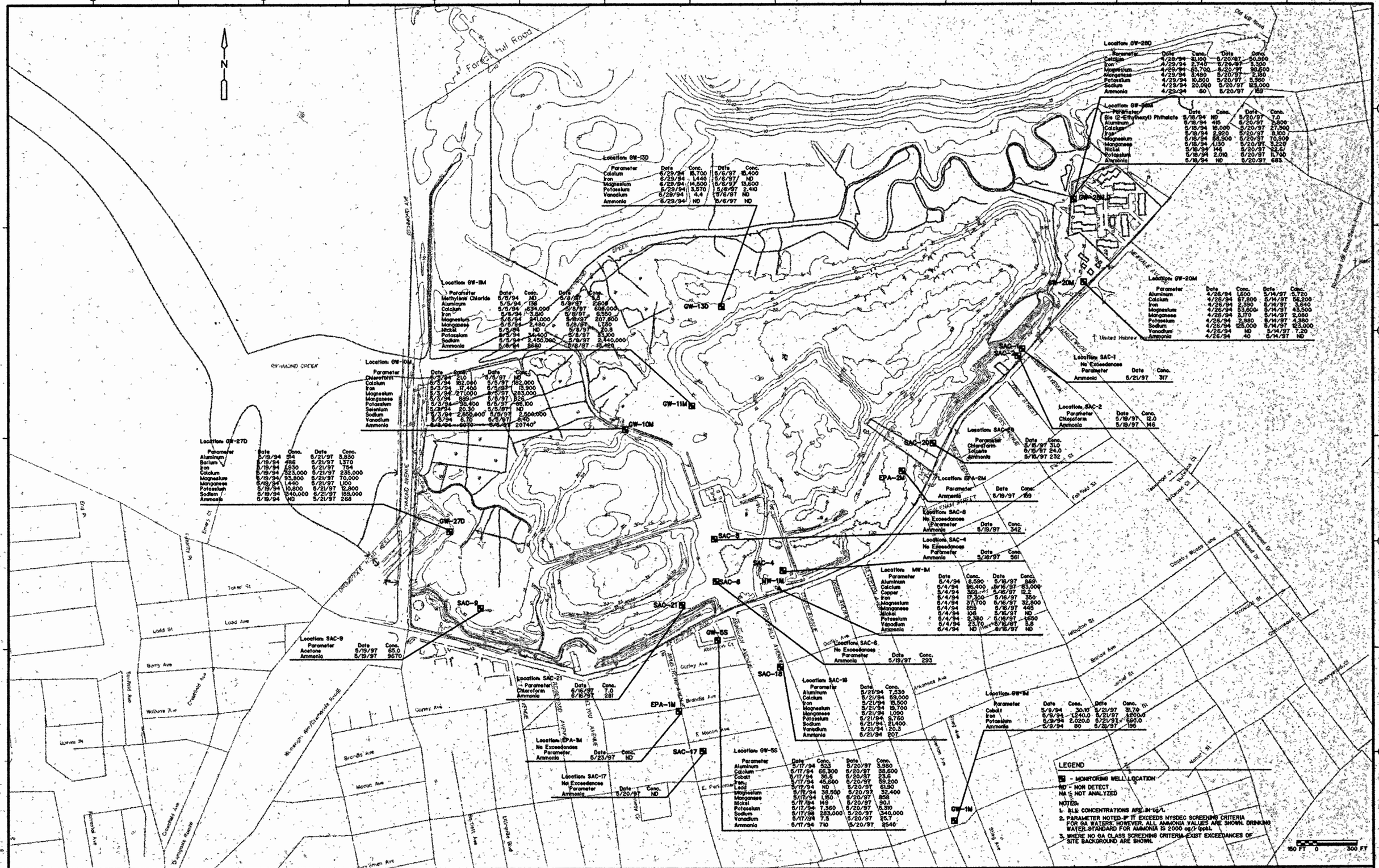
SCG EXCEEDANCES IN OFFSITE SOIL BORINGS

PROJECT NO. 5215-12929
FILE NAME: SCGSOIL

DRAWING NO. 30

Robert Gencorelli 3:47:28 03/31/98 05:41:08 B2SCGSOIL 5215-12929 VER


Location: GW-14S
Parameter | Date | Conc. | Date | Conc.
Benzene | 5/3/94 | 2.0 | 5/7/97 | 0.6
Chlorobenzene | 5/3/94 | 10.0 | 5/7/97 | 4.80
o-xylene | 5/3/94 | 5.0 | 5/7/97 | 3.9
4,4'-DDE | 5/3/94 | ND | 5/7/97 | 0.0058
Aluminum | 5/3/94 | 93.4 | 5/7/97 | 3,090
Calcium | 5/3/94 | 117,000 | 5/7/97 | 96,700
Iron | 5/3/94 | 22,300 | 5/7/97 | 16,300
Lead | 5/3/94 | 28.5 | 5/7/97 | 6.60
Magnesium | 5/3/94 | 60,700 | 5/7/97 | 44,700
Manganese | 5/3/94 | 742 | 5/7/97 | 509
Nickel | 5/3/94 | 29.3 | 5/7/97 | 19
Potassium | 5/3/94 | 59,300 | 5/7/97 | 40,200
Sodium | 5/3/94 | 216,000 | 5/7/97 | 142,000
Ammonia | 5/3/94 | 89,200 | 5/7/97 | 52,900
Location: GW-15S
Parameter | Date | Conc. | Date | Conc.
Benzene | 5/2/94 | ND | 5/7/97 | 1.40
Chlorobenzene | 5/2/94 | ND | 5/7/97 | 7.10
1,4-Dichlorobenzene | 5/2/94 | 8.0 | 5/7/97 | ND
4-Chloro-3-Methylphenol | 5/2/94 | 9.0 | 5/7/97 | ND
2-Methylnaphthalene | 5/2/94 | 9.0 | 5/7/97 | ND
4,4'-DDE | 5/2/94 | ND | 5/7/97 | 0.0042
Calcium | 5/2/94 | 82,700 | 5/7/97 | 94,900
Iron | 5/2/94 | 20,400 | 5/7/97 | 3,810
Magnesium | 5/2/94 | 56,700 | 5/7/97 | 105,000
Potassium | 5/2/94 | 123,000 | 5/7/97 | 51,900
Sodium | 5/2/94 | 230,000 | 5/7/97 | 860,000
Ammonia | 5/2/94 | 147,000 | 5/7/97 | 28,430
Location: GW-16S
Parameter | Date | Conc. | Date | Conc.
Benzene | 5/2/94 | 12.0 | 5/7/97 | 6.2
Chlorobenzene | 5/2/94 | 24.0 | 5/7/97 | 18.0
1,4 Dichlorobenzene | 5/2/94 | 5.0 | 5/7/97 | ND
4-Chloro-3-Methylphenol | 5/2/94 | 8.0 | 5/7/97 | ND
4-Methylphenol | 5/2/94 | 2.0 | 5/7/97 | NA
Calcium | 5/2/94 | 76,800 | 5/7/97 | 101,000
Iron | 5/2/94 | 26,400 | 5/7/97 | 25,500
Magnesium | 5/2/94 | 65,400 | 5/7/97 | 46,600
Manganese | 5/2/94 | 17.4 | 5/7/97 | ND
Potassium | 5/2/94 | 131,000 | 5/7/97 | 74,300
Sodium | 5/2/94 | 350,000 | 5/7/97 | 167,000
Ammonia | 5/2/94 | 155,000 | 5/7/97 | 73,680
Manganese | 5/2/94 | 196 | 5/7/97 | 637
Location: GW-17S
Parameter | Date | Conc. | Date | Conc.
Benzene | 4/27/94 | ND | 5/7/97 | 1.70
Chlorobenzene | 4/27/94 | 2.0 | 5/7/97 | 16.00
4-Chloro-3-methylphenol | 4/27/94 | 4.0 | 5/7/97 | NO
4,4'-DDE | 4/27/94 | ND | 5/7/97 | 0.0097
Aluminum | 4/27/94 | 638 | 5/7/97 | 3,670
Calcium | 4/27/94 | 97,500 | 5/7/97 | 70,100
Iron | 4/27/94 | 87,600 | 5/7/97 | 55,900
Magnesium | 4/27/94 | 28,500 | 5/7/97 | 20,500
Manganese | 4/27/94 | 1,040 | 5/7/97 | 379
Potassium | 4/27/94 | 23,800 | 5/7/97 | 15,700
Sodium | 4/27/94 | 32,200 | 5/7/97 | 19,600
Ammonia | 4/27/94 | 62,600 | 5/7/97 | 45830
Location: GW-23
Parameter | Date | Conc. | Date | Conc.
Methylene Chloride | 5/18/94 | ND | 5/14/97 | 8.0
Calcium | 5/18/94 | 11,400 | 5/14/97 | 12,900
Iron | 5/18/94 | 136 | 5/14/97 | 1,520
Magnesium | 5/18/94 | 5,670 | 5/14/97 | 6,490
Nickel | 5/18/94 | 13.0 | 5/14/97 | 25.2
Potassium | 5/18/94 | 1,270 | 5/14/97 | 1,480
Vanadium | 5/18/94 | 3.6 | 5/14/97 | 3.6
Aluminum | 5/18/94 | 346 | 5/14/97 | 2,570
Ammonia | 5/18/94 | ND | 5/14/97 | ND
Location: GW-18S
Parameter | Date | Conc. | Date | Conc.
Benzene | 4/25/94 | ND | 5/15/97 | 1.0
Chlorobenzene | 4/25/94 | 6.0 | 5/15/97 | 22.0
1,4-Dichlorobenzene | 4/25/94 | 2.0 | 5/15/97 | 6.0
Dieldrin | 4/25/94 | ND | 5/15/97 | 0.01
Aluminum | 4/25/97 | 3,570 | 5/15/97 | 494
Arsenic | 4/25/97 | 27.1 | 5/15/97 | 3.10
Calcium | 4/25/97 | 34,700 | 5/15/97 | 91,100
Iron | 4/25/97 | 10,000 | 5/15/97 | 28,600
Lead | 4/25/97 | 100 | 5/15/97 | 5
Magnesium | 4/25/97 | 60,600 | 5/15/97 | 42,000
Manganese | 4/25/97 | 1,000 | 5/15/97 | 318
Nickel | 4/25/97 | 25.3 | 5/15/97 | 12.7
Potassium | 4/25/97 | 28,100 | 5/15/97 | 27,200
Sodium | 4/25/97 | 79,600 | 5/15/97 | 140,000
Vanadium | 4/25/97 | 9.1 | 5/15/97 | ND
Zinc | 4/25/97 | 436 | 5/15/97 | 53.5
Ammonia | 4/25/97 | 15,000 | 5/15/97 | 19280
Location: GW-19S
Parameter | Date | Conc. | Date | Conc.
Benzene | 4/27/94 | 3.0 | 5/15/97 | 5.0
Chlorobenzene | 4/27/94 | ND | 5/15/97 | 7.0
4-Chloro-3-Methylphenol | 4/27/94 | 8.0 | 5/15/97 | ND
Calcium | 4/27/94 | 57,300 | 5/15/97 | 59,700
Iron | 4/27/94 | 31,600 | 5/15/97 | 41,400
Magnesium | 4/27/94 | 40,800 | 5/15/97 | 35,300
Potassium | 4/27/94 | 30,300 | 5/15/97 | 34,800
Sodium | 4/27/94 | 91,600 | 5/15/97 | 64,700
Ammonia | 4/27/94 | 86,800 | 5/15/97 | 121510
Location: GW-20S
Parameter | Date | Conc. | Date | Conc.
Aluminum | 4/26/94 | 2,920 | 5/13/97 | 324
Calcium | 4/26/94 | 57,600 | 5/13/97 | 49,300
Iron | 4/26/94 | 4,910 | 5/13/97 | 215
Magnesium | 4/26/94 | 22,000 | 5/13/97 | 19,000
Manganese | 4/26/94 | 2,010 | 5/13/97 | 161
Nickel | 4/26/94 | 101 | 5/13/97 | 21.2
Potassium | 4/26/94 | 5,940 | 5/13/97 | 3,500
Vanadium | 4/26/94 | 6 | 5/13/97 | ND
Ammonia | 4/26/94 | 400 | 5/13/97 | 146
Location: GW-13S
Parameter | Date | Conc. | Date | Conc.
Calcium | 5/9/94 | 34,900 | 5/6/97 | 34,000
Iron | 5/9/94 | 865 | 5/6/97 | 326
Magnesium | 5/9/94 | 17,400 | 5/6/97 | 18,200
Manganese | 5/9/94 | 231 | 5/6/97 | 550
Nickel | 5/9/94 | 36.5 | 5/6/97 | 42.6
Potassium | 5/9/94 | 1540 | 5/6/97 | 1760
Sodium | 5/9/94 | 36,900 | 5/6/97 | 36,800
Ammonia | 5/9/94 | ND | 5/6/97 | ND
Location: GW-12S
Parameter | Date | Conc. | Date | Conc.
Calcium | 5/4/94 | 166,000 | 5/5/97 | 151,000
Magnesium | 5/4/94 | 381,000 | 5/5/97 | 367,000
Manganese | 5/4/94 | 405 | 5/5/97 | 563
Potassium | 5/4/94 | 156,000 | 5/5/97 | 116,000
Selenium | 5/4/94 | 31.0 | 5/5/97 | ND
Sodium | 5/4/94 | 3,280,000 | 5/5/97 | 3,140,000
Ammonia | 5/4/94 | 32,100 | 5/5/97 | 43,800
Location: GW-12M
Parameter | Date | Conc. | Date | Conc.
Calcium | 5/4/94 | 192,000 | 5/5/97 | 241,000
Iron | 5/4/94 | 9,320 | 5/5/97 | 14,200
Magnesium | 5/4/94 | 636,000 | 5/5/97 | 670,000
Manganese | 5/4/94 | 1,516 | 5/5/97 | 2,410
Potassium | 5/4/94 | 152,000 | 5/5/97 | 111,000
Selenium | 5/4/94 | 38.6 | 5/5/97 | ND
Sodium | 5/4/94 | 4,560,000 | 5/5/97 | 4,840,000
Ammonia | 5/4/94 | 2410 | 5/5/97 | 4050
Location: GW-10S
Parameter | Date | Conc. | Date | Conc.
Benzene | 5/3/94 | 4.0 | 5/5/97 | 5.30
Chlorobenzene | 5/3/94 | 5.0 | 5/5/97 | 13.0
Calcium | 5/3/94 | 67,500 | 5/5/97 | 78,200
Iron | 5/3/94 | 19,100 | 5/5/97 | 16,300
Magnesium | 5/3/94 | 101,000 | 5/5/97 | 106,000
Potassium | 5/3/94 | 131,000 | 5/5/97 | 94,000
Sodium | 5/3/94 | 831,000 | 5/5/97 | 538,000
Ammonia | 5/3/94 | 96,200 | 5/5/97 | 181,780
Location: GW-9S
Parameter | Date | Conc. | Date | Conc.
4,4'-DDE | 5/6/94 | ND | 5/8/97 | 0.0048
Calcium | 5/6/94 | 131,000 | 5/8/97 | 182,000
Iron | 5/6/94 | 10,200 | 5/8/97 | 17,400
Magnesium | 5/6/94 | 367,000 | 5/8/97 | 271,000
Manganese | 5/6/94 | 1,210 | 5/8/97 | 889
Potassium | 5/6/94 | 114,000 | 5/8/97 | 98,400
Selenium | 5/6/94 | ND | 5/8/97 | 20.30
Sodium | 5/6/94 | 3300,000 | 5/8/97 | 2,650,000
Vanadium | 5/6/94 | 6.36 | 5/8/97 | 5.70
Ammonia | 5/6/94 | 77,100 | 5/8/97 | 30,740
Location: GW-2TM
Parameter | Date | Conc. | Date | Conc.
Aluminum | 5/11/94 | 125 | 6/14/97 | 3,210
Calcium | 5/11/94 | 261,000 | 6/14/97 | 194,000
Cobalt | 5/11/94 | 24.4 | 5/14/97 | 39.5
Iron | 5/11/94 | 755 | 6/14/97 | 2,090
Magnesium | 6/11/94 | 453,000 | 6/14/97 | 411,000
Manganese | 5/11/94 | 14,200 | 6/14/97 | 10,200
Nickel | 5/11/94 | 31.4 | 6/14/97 | 36.4
Potassium | 6/11/94 | 91,900 | 6/14/97 | 63,900
Selenium | 5/11/94 | 12.6 | 5/14/97 | ND
Sodium | 6/11/94 | 3,540,900 | 5/14/97 | 3,080,000
Ammonia | 6/11/94 | 590 | 5/14/97 | 744
Location: GW-8S
Parameter | Date | Conc. | Date | Conc.
Benzene | 5/5/94 | ND | 5/8/97 | 2.40
Chlorobenzene | 5/5/94 | 8.0 | 5/8/97 | 17.0
1,4-Dichlorobenzene | 5/5/94 | 8.0 | 5/8/97 | ND
Beta-BHC | 5/5/94 | ND | 5/8/97 | 0.014
Calcium | 5/5/94 | 127,000 | 5/8/97 | 74,000
Iron | 5/5/94 | 13,200 | 5/8/97 | 1,700
Magnesium | 5/5/94 | 66,900 | 5/8/97 | 58,800
Potassium | 5/5/94 | 97,000 | 5/8/97 | 65,500
Selenium | 5/5/94 | 34.60 | 5/8/97 | ND
Sodium | 5/5/94 | 382,000 | 5/8/97 | 452,000
Ammonia | 5/5/94 | 125,000 | 5/8/97 | 104,070
Location: GW-7S
Parameter | Date | Conc. | Date | Conc.
Benzene | 5/9/94 | 1.0 | 5/21/97 | ND
Chlorobenzene | 5/9/94 | 37.0 | 5/21/97 | 17.0
4-Chloro-3-Methylphenol | 5/9/94 | 2.0 | 5/21/97 | ND
Aluminum | 5/9/94 | 1070 | 5/21/97 | 6830
Calcium | 5/9/94 | 96,700 | 5/21/97 | 96,500
Iron | 5/9/94 | 9,760 | 5/21/97 | 9,670
Magnesium | 5/9/94 | 31,700 | 5/21/97 | 28,500
Manganese | 5/9/94 | 398 | 5/21/97 | 447
Potassium | 5/9/94 | 36,300 | 5/21/97 | 35,000
Sodium | 5/9/94 | 206,000 | 5/21/97 | 94,500
Ammonia | 5/9/94 | 25,400 | 5/21/97 | 36,970
Location: GW-6S
Parameter | Date | Conc. | Date | Conc.
Toluene | 6/28/94 | 16.0 | 6/12/97 | ND
Calcium | 6/28/94 | 148,000 | 6/12/97 | 110,000
Iron | 6/28/94 | 3,820 | 6/12/97 | 3,500
Magnesium | 6/28/94 | 58,700 | 6/12/97 | 58,400
Manganese | 6/28/94 | 3,800 | 6/12/97 | 2,040
Nickel | 6/28/94 | 321 | 6/12/97 | 214.0
Potassium | 6/28/94 | 9,860 | 6/12/97 | 33,500
Sodium | 6/28/94 | 578,000 | 6/12/97 | 450,000
Vanadium | 6/28/94 | 3.4 | 6/12/97 | 5.0
Ammonia | 6/28/94 | 50 | 6/12/97 | 588
Location: SAC-13
Parameter | Date | Interval | Conc. | Interval | Conc.
Benzene | 5/15/97 | 7' - 9' | 2.0 | 13' - 15' | 5.0
Chlorobenzene | 5/15/97 | 7' - 9' | 26.0 | 13' - 15' | 8.0
Ammonia | 5/15/97 | 7' - 9' | 23,910 | 13' - 15' | 250,100
Location: SAC-14
Parameter | Date | Interval | Conc. | Interval | Conc.
Ammonia | 5/14/97 | 6' - 8' | 306 | 28' - 30' | ND
Location: EPA-13
No Exceedances
Parameter | Date | Conc.
Ammonia | 5/23/97 | ND
Location: SAC-16
No Exceedances
Parameter | Date | Conc.
Ammonia | 5/20/97 | ND
Location: EPA-28
Parameter | Date | Interval | Conc. | Interval | Conc.
Ammonia | 5/19/97 | 10' - 12' | ND | 18' - 20' | 281
Location: GW-24S
Parameter | Date | Conc. | Date | Conc.
Benzene | 4/25/94 | 6.0 | 5/9/97 | 4.20
Chlorobenzene | 4/25/94 | 30.0 | 5/9/97 | 26.0
1,4-Dichlorobenzene | 4/25/94 | 2.0 | 5/9/97 | 5.0
4-Methylphenol | 4/25/94 | 2.0 | 5/9/97 | NA
4-Chloro-3-Methylphenol | 4/25/94 | 8.0 | 5/9/97 | 10.0
Aluminum | 4/25/94 | 4477 | 5/9/97 | 3,120
Calcium | 4/25/94 | 20,800 | 5/9/97 | 183,000
Iron | 4/25/94 | 26,400 | 5/9/97 | 21,800
Magnesium | 4/25/94 | 72,200 | 5/9/97 | 61,200
Manganese | 4/25/94 | 462 | 5/9/97 | 453
Potassium | 4/25/94 | 54,600 | 5/9/97 | 39,500
Sodium | 4/25/94 | 156,000 | 5/9/97 | 91,300
Ammonia | 4/25/94 | 60,000 | 5/9/97 | 58,800
Location: GW-25S
Parameter | Date | Conc. | Date | Conc.
Benzene | 4/25/94 | 2.0 | 5/9/97 | 2.10
Chlorobenzene | 4/25/94 | 4.0 | 5/9/97 | 5.20
4-Chloro-3-Methylphenol | 4/25/94 | 4.0 | 5/9/97 | ND
Alpha-BHC | 4/25/94 | ND | 5/9/97 | 0.0085
Aluminum | 4/25/94 | 2,150 | 5/9/97 | 1,080
Calcium | 4/25/94 | 122,000 | 5/9/97 | 144,000
Iron | 4/25/94 | 61,000 | 5/9/97 | 57,800
Lead | 4/25/94 | 255 | 5/9/97 | 1
Magnesium | 4/25/94 | 56,600 | 5/9/97 | 51,600
Manganese | 4/25/94 | 486 | 5/9/97 | 356
Nickel | 4/25/94 | 37.4 | 5/9/97 | 12.7
Potassium | 4/25/94 | 46,400 | 5/9/97 | 46,900
Sodium | 4/25/94 | 204,000 | 5/9/97 | 136,000
Vanadium | 4/25/94 | 8.0 | 5/9/97 | 3
Zinc | 4/25/94 | 444 | 5/9/97 | 25.6
Ammonia | 4/25/94 | 83,800 | 5/9/97 | 89,430
Location: GW-26S
Parameter | Date | Conc. | Date | Conc.
Calcium | 5/20/94 | 96,600 | 5/9/97 | 96,800
Magnesium | 5/20/94 | 30,900 | 5/9/97 | 22,500
Manganese | 5/20/94 | 1,080 | 5/9/97 | 168
Potassium | 5/20/94 | 17,500 | 5/9/97 | 8,500
Sodium | 5/20/94 | 196,000 | 5/9/97 | 61,000
Iron | 5/20/94 | 3740 | 5/9/97 | 828
Ammonia | 5/20/94 | 760 | 5/9/97 | 854
Location: GW-2S
Parameter | Date | Conc. | Date | Conc.
Methylene Chloride | 5/18/94 | ND | 5/14/97 | 8.0
Calcium | 5/18/94 | 11,400 | 5/14/97 | 12,900
Iron | 5/18/94 | 136 | 5/14/97 | 1,520
Magnesium | 5/18/94 | 5,670 | 5/14/97 | 6,490
Nickel | 5/18/94 | 13.0 | 5/14/97 | 25.2
Potassium | 5/18/94 | 1,270 | 5/14/97 | 1,480
Vanadium | 5/18/94 | 3.6 | 5/14/97 | 3.6
Aluminum | 5/18/94 | 346 | 5/14/97 | 2,570
Ammonia | 5/18/94 | ND | 5/14/97 | ND
Location: GW-3S
Parameter | Date | Conc. | Date | Conc.
Calcium | 5/12/94 | 76,200 | 5/21/97 | 83,700
Iron | 5/12/94 | 15,200 | 5/21/97 | 6,220
Magnesium | 5/12/94 | 53,500 | 5/21/97 | 51,100
Manganese | 5/12/94 | 1,310 | 5/21/97 | 1,140
Nickel | 5/12/94 | 35.5 | 5/21/97 | 33.10
Potassium | 5/12/94 | 3,450 | 5/21/97 | 2,750
Sodium | 5/12/94 | 17,000 | 5/21/97 | 21,100
Ammonia | 5/12/94 | ND | 5/21/97 | 244
Location: GW-21S
Parameter | Date | Conc. | Date | Conc.
Calcium | 4/27/94 | 16,400 | 5/12/97 | 15,100
Iron | 4/27/94 | 159 | 5/12/97 | 411
Magnesium | 4/27/94 | 16,300 | 5/12/97 | 11,000
Manganese | 4/27/94 | 2,010 | 6/12/97 | 4,280
Nickel | 4/27/94 | 101 | 5/12/97 | 75.2
Sodium | 4/27/94 | 76,200 | 5/12/97 | 41,600
Ammonia | 4/27/94 | 50 | 5/12/97 | ND
Location: GW-22S
Parameter | Date | Conc. | Date | Conc.
Calcium | 4/27/94 | 156,000 | 5/12/97 | 118,000
Magnesium | 4/27/94 | 44,200 | 5/12/97 | 40,700
Manganese | 4/27/94 | 327 | 5/12/97 | 118
Potassium | 4/27/94 | 30,090 | 5/12/97 | 11,600
Sodium | 4/27/94 | 26,700 | 5/12/97 | 30,500
Vanadium | 4/27/94 | ND | 5/12/97 | 5
Ammonia | 4/27/94 | 30 | 5/12/97 | ND
Location: GW-23S
Parameter | Date | Conc. | Date | Conc.
Benzene | 4/27/94 | 10.0 | 5/19/97 | 6.0
Toluene | 4/27/94 | 49.0 | 5/19/97 | ND
Chlorobenzene | 4/27/94 | 48.0 | 5/19/97 | 44.0
1,4-Dichlorobenzene | 4/27/94 | 5.0 | 5/19/97 | 4.0
4-Methyl phenol | 4/27/94 | 22.0 | 5/19/97 | 10
4-Chloro-3-Methylphenol | 4/27/94 | 10.0 | 5/19/97 | NA
Aldrin | 4/27/94 | ND | 5/19/97 | 0.0021
Dieldrin | 4/27/94 | ND | 5/19/97 | 0.0021
4,4'-DDE | 4/27/94 | ND | 5/19/97 | 0.0082
Endrin | 4/27/94 | ND | 5/19/97 | 0.0017
4,4'-DDD | 4/27/94 | ND | 5/19/97 | 0.11
Alpha-Chlordane | 4/27/94 | ND | 5/19/97 | 0.12
Aroclor 1232 | 4/27/94 | ND | 5/19/97 | 4.6
Aroclor 1254 | 4/27/94 | ND | 5/19/97 | 1.9
Aluminum | 4/27/94 | 232 | 5/19/97 | 3,240
Calcium | 4/27/94 | 107,000 | 5/19/97 | 140,000
Iron | 4/27/94 | 24,800 | 5/19/97 | 20,800
Magnesium | 4/27/94 | 58,700 | 5/19/97 | 57,100
Nickel | 4/27/94 | 18.2 | 5/19/97 | 12.7
Potassium | 4/27/94 | 86,100 | 5/19/97 | 67,400
Sodium | 4/27/94 | 300,000 | 5/19/97 | 239,000
Ammonia | 4/27/94 | 101,200 | 5/19/97 | 117,520
Location: GW-4S
Parameter | Date | Conc. | Date | Conc.
Aluminum | 5/18/94 | ND | 5/9/97 | 2,870
Calcium | 5/18/94 | 10,900 | 5/9/97 | 11,400
Iron | 5/18/94 | 120 | 5/9/97 | 439
Magnesium | 5/18/94 | 12,900 | 5/9/97 | 11,100
Nickel | 5/18/94 | 10.4 | 5/9/97 | 54.5
Potassium | 5/18/94 | 2,670 | 5/9/97 | 2,360
Ammonia | 5/18/94 | ND | 5/9/97 | 170
Location: GW-1S
Parameter | Date | Conc. | Date | Conc.
Benzene | 4/27/94 | 2.0 | 5/15/97 | 1.0
Chlorobenzene | 4/27/94 | 4.0 | 5/15/97 | 2.0
1,4-Dichlorobenzene | 4/27/94 | 2.0 | 5/15/97 | 1.0
Aluminum | 4/27/94 | 1,220 | 5/15/97 | 1,320
Calcium | 4/27/94 | 107,000 | 5/15/97 | 91,100
Iron | 4/27/94 | 5,370 | 5/15/97 | 494
Magnesium | 4/27/94 | 52,000 | 5/15/97 | 42,000
Manganese | 4/27/94 | 1,000 | 5/15/97 | 318
Nickel | 4/27/94 | 25.3 | 5/15/97 | 12.7
Potassium | 4/27/94 | 28,100 | 5/15/97 | 27,200
Sodium | 4/27/94 | 79,600 | 5/15/97 | 140,000
Vanadium | 4/27/94 | 9.1 | 5/15/97 | ND
Zinc | 4/27/94 | 436 | 5/15/97 | 53.5
Ammonia | 4/27/94 | 15,000 | 5/15/97 | 19280
Location: GW-1M
Parameter | Date | Conc. | Date | Conc.
Benzene | 4/27/94 | 2.0 | 5/15/97 | 1.0
Chlorobenzene | 4/27/94 | 4.0 | 5/15/97 | 2.0
1,4-Dichlorobenzene | 4/27/94 | 2.0 | 5/15/97 | 1.0
Aluminum | 4/27/94 | 1,220 | 5/15/97 | 1,320
Calcium | 4/27/94 | 107,000 | 5/15/97 | 91,100
Iron | 4/27/94 | 5,370 | 5/15/97 | 494
Magnesium | 4/27/94 | 52,000 | 5/15/97 | 42,000
Manganese | 4/27/94 | 1,000 | 5/15/97 | 318
Nickel | 4/27/94 | 25.3 | 5/15/97 | 12.7
Potassium | 4/27/94 | 28,100 | 5/15/97 | 27,200
Sodium | 4/27/94 | 79,600 | 5/15/97 | 140,000
Vanadium | 4/27/94 | 9.1 | 5/15/97 | ND
Zinc | 4/27/94 | 436 | 5/15/97 | 53.5
Ammonia | 4/27/94 | 15,000 | 5/15/97 | 19280
Location: EPA-25
Parameter | Date | Interval | Conc. | Interval | Conc.
Ammonia | 5/19/97 | 10' - 12' | ND | 18' - 20' | 281
Location: GW-25S
Parameter | Date | Conc. | Date | Conc.
Benzene | 4/25/94 | 2.0 | 5/9/97 | 2.10
Chlorobenzene | 4/25/94 | 4.0 | 5/9/97 | 5.20
4-Chloro-3-Methylphenol | 4/25/94 | 4.0 | 5/9/97 | ND
Alpha-BHC | 4/25/94 | ND | 5/9/97 | 0.0085
Aluminum | 4/25/94 | 2,150 | 5/9/97 | 1,080
Calcium | 4/25/94 | 122,000 | 5/9/97 | 144,000
Iron | 4/25/94 | 61,000 | 5/9/97 | 57,800
Lead | 4/25/94 | 255 | 5/9/97 | 1
Magnesium | 4/25/94 | 56,600 | 5/9/97 | 51,600
Manganese | 4/25/94 | 486 | 5/9/97 | 356
Nickel | 4/25/94 | 37.4 | 5/9/97 | 12.7
Potassium | 4/25/94 | 46,400 | 5/9/97 | 46,900
Sodium | 4/25/94 | 204,000 | 5/9/97 | 136,000
Vanadium | 4/25/94 | 8.0 | 5/9/97 | 3
Zinc | 4/25/94 | 444 | 5/9/97 | 25.6
Ammonia | 4/25/94 | 83,800 | 5/9/97 | 89,430
LEGEND
- GEOPROBE LOCATION
- MONITORING WELL LOCATION
ND = NON DETECT
NA = NOT ANALYZED
NOTES:
1. ALL CONCENTRATIONS ARE IN ug/L.
2. PARAMETER NOTED IF IT EXCEEDS NYSDEC SCREENING CRITERIA FOR GA WATERS. HOWEVER, ALL AMMONIA VALUES ARE SHOWN. DRINKING WATER STANDARD FOR AMMONIA IS 2000 ug/L (ppb).
3. WHERE NO GA CLASS SCREENING CRITERIA EXIST EXCEEDANCES OF SITE BACKGROUND ARE SHOWN.
150 FT 0 300 FT
Hill Road
RICHMOND AVENUE
RICHMOND CREEK
Richmond Valley Road
Richmond Hill Road Reformed
Richmond Valley Road
Richmond Valley Road Reformed
Richmond Valley Road Abandoned
Richmond Valley Road Abandoned
Richmond Valley Road Abandoned



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: B. MURTAGH
DRAWN BY: R. GENCORELLI
SHEET CHK'D BY:
CROSS CHK'D BY:
APPROVED BY:
DATE:

CDM Camp Dresser & McKee

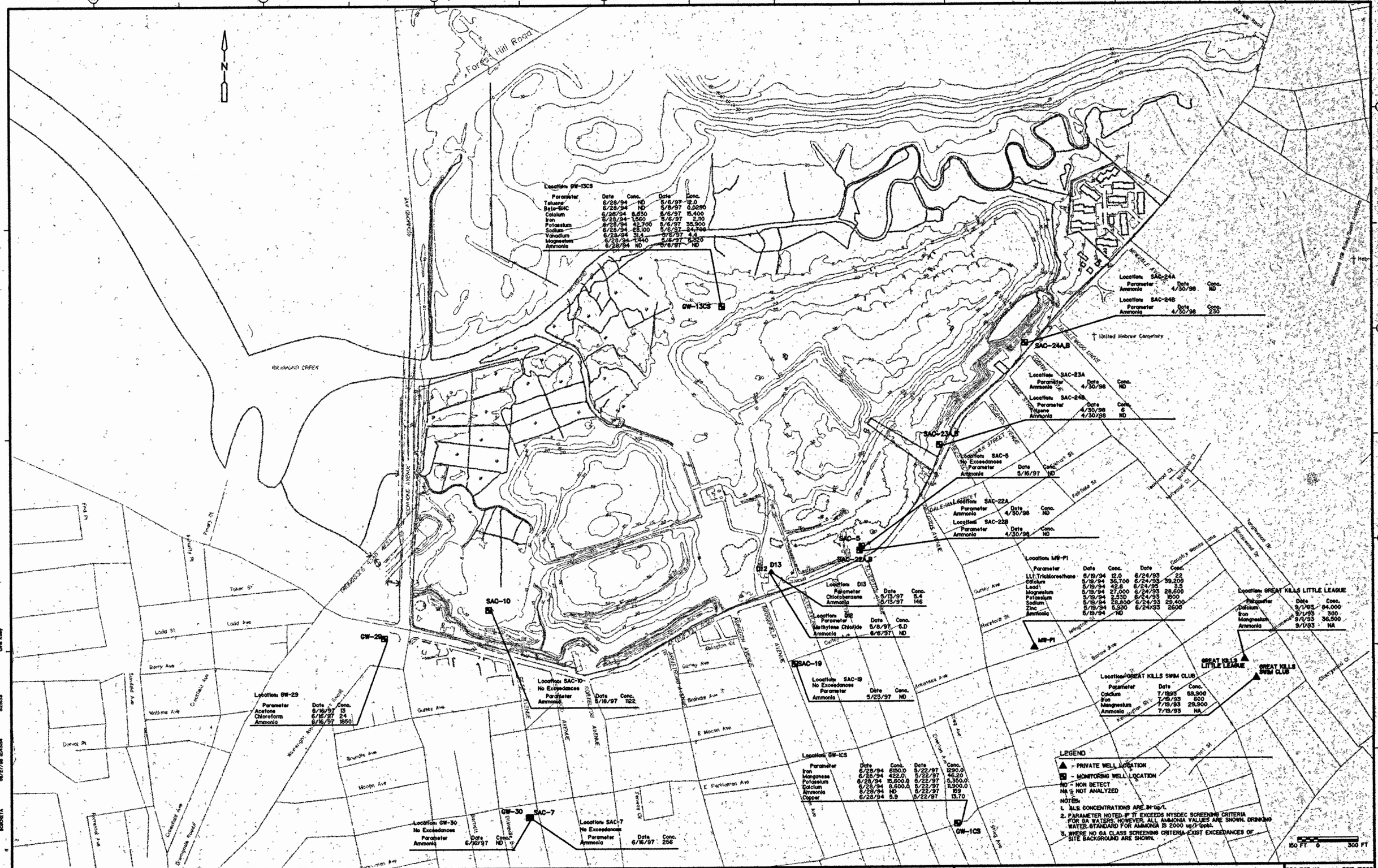
NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION

BROOKFIELD AVENUE LANDFILL REMEDIATION PROJECT

SCG EXCEEDANCES IN DEEP AND REWORKED UPPER GLACIAL AQUIFER

PROJECT NO. 5215-12929
FILE NAME: SCGLGLAC

DRAWING NO. 32



REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: S. MURTAGH
DRAWN BY: R. GENCORELLI
SHEET CHK'D BY:
CROSS CHK'D BY:
APPROVED BY:
DATE:

CDM Camp Dresser & McKee

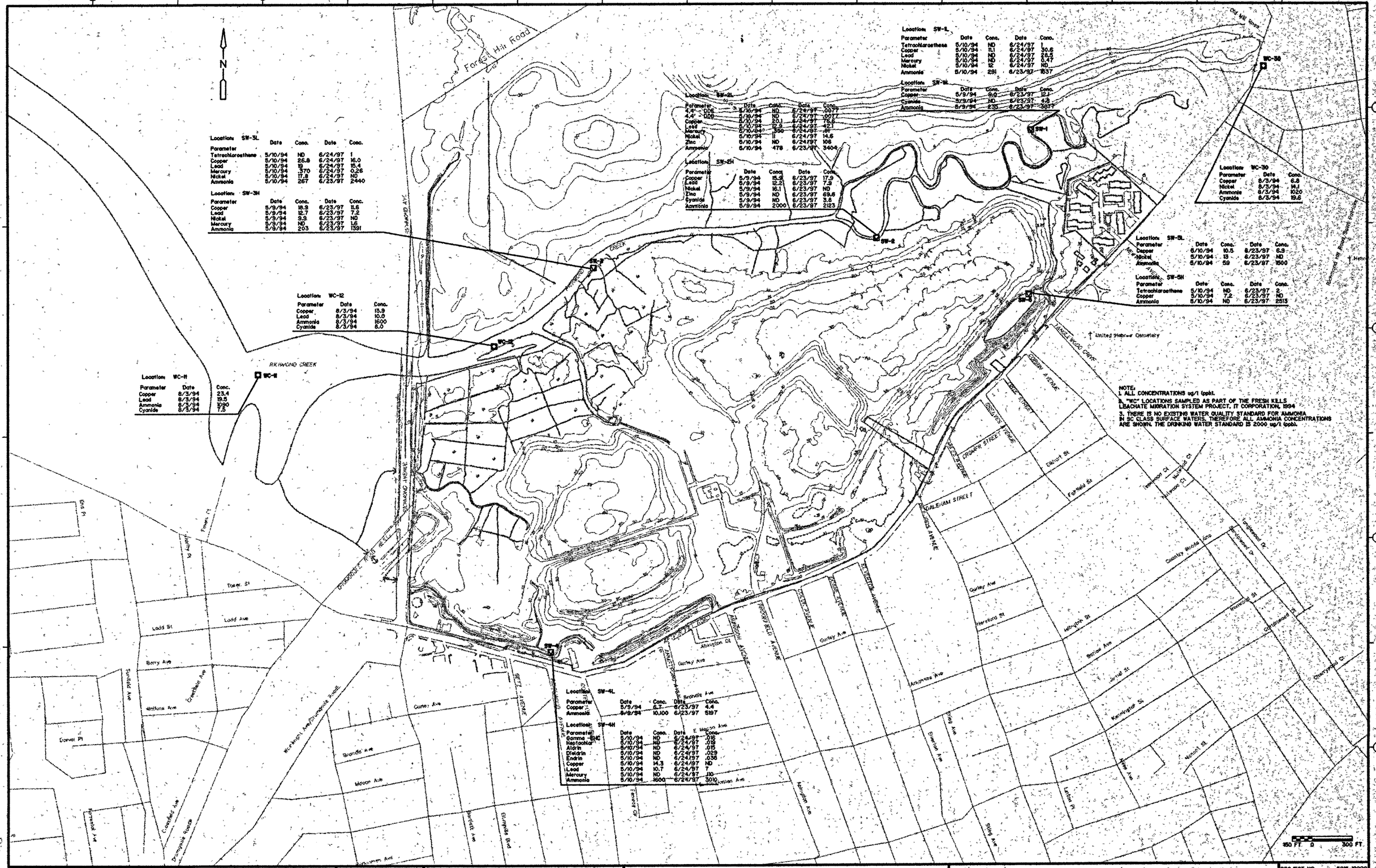
NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION

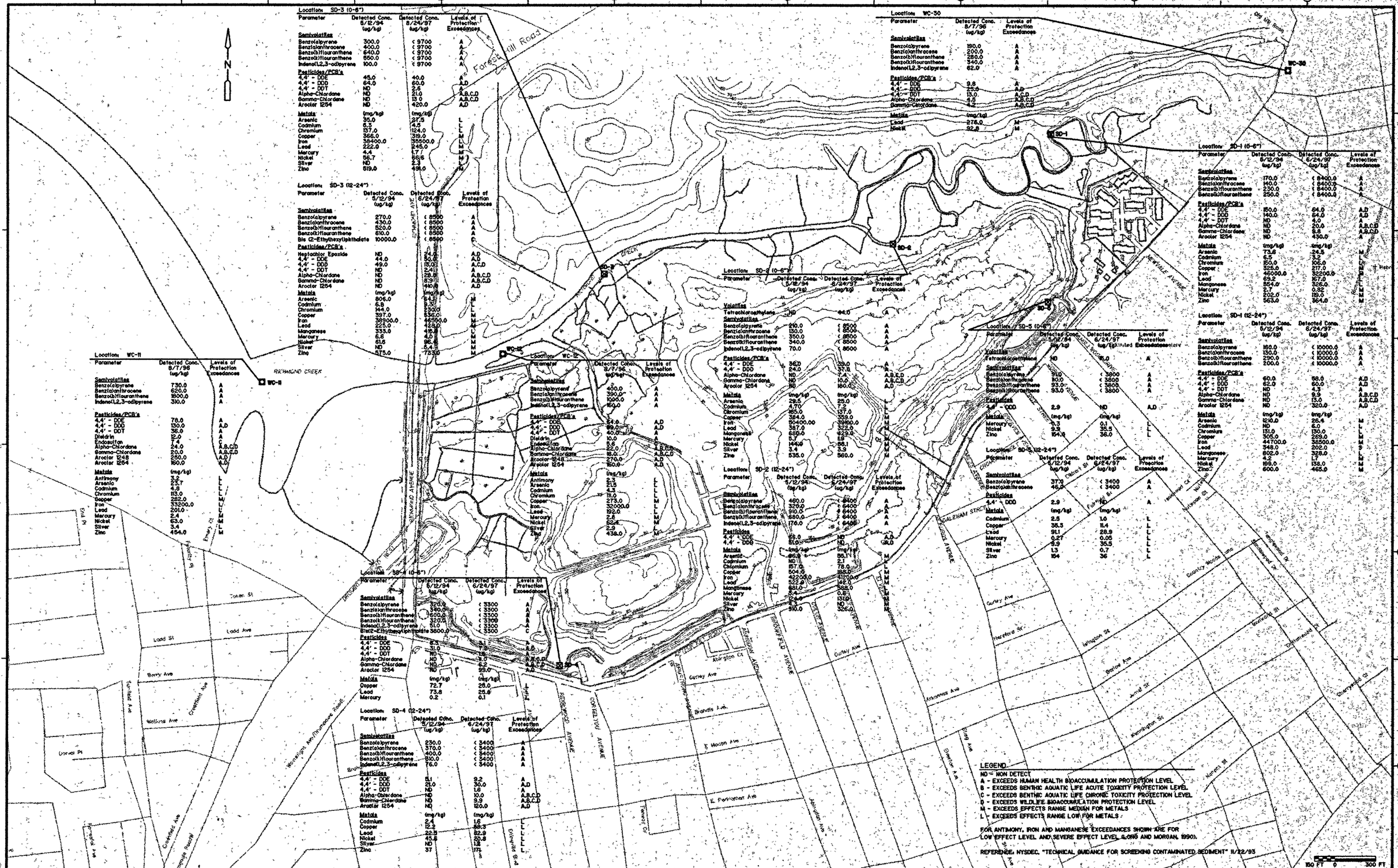
BROOKFIELD AVENUE LANDFILL REMEDIATION PROJECT

SCG EXCEEDANCES IN THE CRETACEOUS AQUIFER

PROJECT NO. 5215-12929
FILE NAME: SCGCRET

DRAWING NO. 33


Location: SW-3L
Parameter | Date | Conc. | Date | Conc.
Tetrachloroethene | 5/10/94 | ND | 6/24/97 | 1
Copper | 5/10/94 | 26.8 | 6/24/97 | 16.0
Lead | 5/10/94 | 19 | 6/24/97 | 15.4
Mercury | 5/10/94 | 3.70 | 6/24/97 | 0.26
Nickel | 5/10/94 | 17.8 | 6/24/97 | ND
Ammonia | 5/10/94 | 267 | 6/23/97 | 2440
Location: SW-3H
Parameter | Date | Conc. | Date | Conc.
Copper | 5/9/94 | 18.9 | 6/23/97 | 11.6
Lead | 5/9/94 | 12.7 | 6/23/97 | 7.2
Nickel | 5/9/94 | 9.3 | 6/23/97 | ND
Mercury | 5/9/94 | ND | 6/23/97 | 1.6
Ammonia | 5/9/94 | 203 | 6/23/97 | 1391
Location: WC-12
Parameter | Date | Conc.
Copper | 8/3/94 | 15.9
Lead | 8/3/94 | 10.0
Ammonia | 8/3/94 | 1500
Cyanide | 8/3/94 | 8.0
Location: WC-11
Parameter | Date | Conc.
Copper | 8/3/94 | 23.4
Lead | 8/3/94 | 19.5
Ammonia | 8/3/94 | 1090
Cyanide | 8/3/94 | 7.5
Location: SW-2L
Parameter | Date | Conc. | Date | Conc.
4,4'- DDE | 5/10/94 | ND | 6/24/97 | .0077
4,4'- DDD | 5/10/94 | ND | 6/24/97 | .0077
Copper | 5/10/94 | 20.1 | 6/24/97 | 15.6
Lead | 5/10/94 | 12.9 | 6/24/97 | 12.1
Mercury | 5/10/94 | 1.50 | 6/24/97 | .81
Nickel | 5/10/94 | 11 | 6/24/97 | 14.6
Zinc | 5/10/94 | ND | 6/24/97 | 106
Ammonia | 5/10/94 | 478 | 6/23/97 | 3404
Location: SW-2H
Parameter | Date | Conc. | Date | Conc.
Copper | 5/9/94 | 15.9 | 6/23/97 | 17.9
Lead | 5/9/94 | 12.2 | 6/23/97 | 7.9
Nickel | 5/9/94 | 16.1 | 6/23/97 | ND
Zinc | 5/9/94 | ND | 6/23/97 | 69.6
Cyanide | 5/9/94 | ND | 6/23/97 | 3.6
Ammonia | 5/9/94 | 2000 | 6/23/97 | 2123
Location: SW-1L
Parameter | Date | Conc. | Date | Conc.
Tetrachloroethene | 5/10/94 | ND | 6/24/97 | 1
Copper | 5/10/94 | 11.1 | 6/24/97 | 30.6
Lead | 5/10/94 | ND | 6/24/97 | 28.5
Mercury | 5/10/94 | ND | 6/24/97 | 1.47
Nickel | 5/10/94 | 12 | 6/24/97 | ND
Ammonia | 5/10/94 | 291 | 6/23/97 | 1537
Location: SW-1H
Parameter | Date | Conc. | Date | Conc.
Copper | 5/9/94 | 9.0 | 6/23/97 | 12.1
Cyanide | 5/9/94 | ND | 6/23/97 | 4.8
Ammonia | 5/9/94 | 4.55 | 6/23/97 | 3877
Location: WC-30
Parameter | Date | Conc.
Copper | 8/3/94 | 6.8
Nickel | 8/3/94 | 14.1
Ammonia | 8/3/94 | 1020
Cyanide | 8/3/94 | 19.6
Location: SW-5L
Parameter | Date | Conc. | Date | Conc.
Copper | 5/10/94 | 10.5 | 6/23/97 | 6.9
Nickel | 5/10/94 | 13 | 6/23/97 | ND
Ammonia | 5/10/94 | 59 | 6/23/97 | 1500
Location: SW-5H
Parameter | Date | Conc. | Date | Conc.
Tetrachloroethene | 5/10/94 | ND | 6/23/97 | 2.
Copper | 5/10/94 | 7.2 | 6/23/97 | ND
Ammonia | 5/10/94 | ND | 6/23/97 | 2513
Location: SW-4L
Parameter | Date | Conc. | Date | Conc.
Copper | 5/9/94 | 8.7 | 6/23/97 | 4.4
Ammonia | 5/9/94 | 10,100 | 6/23/97 | 5197
Location: SW-4H
Parameter | Date | Conc. | Date | Conc.
Gamma - BHC | 5/10/94 | ND | 6/24/97 | .018
Heptachlor | 5/10/94 | ND | 6/24/97 | .018
Aldrin | 5/10/94 | ND | 6/24/97 | .015
Dieldrin | 5/10/94 | ND | 6/24/97 | .029
Endrin | 5/10/94 | ND | 6/24/97 | .036
Copper | 5/10/94 | 14.3 | 6/24/97 | ND
Lead | 5/10/94 | 10.7 | 6/24/97 | 7
Mercury | 5/10/94 | ND | 6/24/97 | .10
Ammonia | 5/10/94 | 1600 | 6/24/97 | 3010
SW-1
SW-2
SW-3
SW-4
SW-5
WC-11
WC-12
WC-30
RICHMOND CREEK
Richmond Creek
Forest Hill Road
Old Mill Street
Richmond Hill Road Service Road Southbound
Richmond Hill Road Service Road Northbound
Richmond Avenue
Richmond Avenue/Drumgoole Road
Drumgoole Road East
Drumgoole Road West
Brookfield Avenue
Arthur Kill Road
Veterans Memorial Highway
Staten Island Expressway
United Hebrew Cemetery
Jewett Avenue
Forest Avenue
Bradley Avenue
Victory Boulevard
Bloomingdale Road
Travis Avenue
Goethals Road North
Goethals Road South
Fresh Kills Landfill
Fresh Kills Park
Fresh Kills Park Visitor Center
Fresh Kills Park Service Road
Fresh Kills Park Service Road Northbound
Fresh Kills Park Service Road Southbound
Fresh Kills Park Service Road Southbound Extension
Fresh Kills Park Service Road Northbound Extension


N
WC-11
RICHMOND CREEK
WC-12
SD-3
SD-4
SD-2
SD-1
WC-30
Location: WC-11
Parameter | Detected Conc. 8/7/96 (ug/kg)
Semivolatiles
Benzo(a)pyrene 730.0
Benzo(a)anthracene 620.0
Benzo(b)fluoranthene 1900.0
Indeno(1,2,3-cd)pyrene 310.0
Pesticides/PCB's
4,4' - DDE 76.0
4,4' - DDD 130.0
4,4' - DDT 36.0
Dieldrin 12.0
Endosulfan I 4.4
Alpha-Chlordane 24.0
Gamma-Chlordane 20.0
Aroclor 1248 250.0
Aroclor 1254 160.0
Metals (mg/kg)
Antimony 3.2
Arsenic 23.7
Cadmium 4.8
Chromium 115.0
Copper 282.0
Iron 33200.0
Lead 201.0
Mercury 2.4
Nickel 63.0
Silver 3.4
Zinc 454.0
Location: SD-3 (0-6")
Parameter | Detected Conc. 6/12/94 (ug/kg) | Detected Conc. 8/24/97 (ug/kg) | Levels of Protection Exceedances
Semivolatiles
Benzo(a)pyrene 300.0 < 9700 A
Benzo(a)anthracene 400.0 < 9700 A
Benzo(b)fluoranthene 640.0 < 9700 A
Benzo(k)fluoranthene 550.0 < 9700 A
Indeno(1,2,3-cd)pyrene 100.0 < 9700 A
Pesticides/PCB's
4,4' - DDE 45.0 40.0 A
4,4' - DDD 64.0 60.0 A,D
4,4' - DDT ND 2.5 A
Alpha-Chlordane ND 21.0 A,B,C,D
Gamma-Chlordane ND 13.0 A,B,C,D
Aroclor 1254 ND 420.0 A,D
Metals (mg/kg) (mg/kg)
Arsenic 35.0 27.3 L
Cadmium 6.5 4.5 L
Chromium 137.0 124.0 L
Copper 366.0 319.0 M
Iron 395400.0 355000.0 M
Lead 222.0 245.0 M
Mercury 4.4 1.7 M
Nickel 56.7 66.8 M
Silver ND 2.3 M
Zinc 519.0 491.0 M
Location: SD-3 (12-24")
Parameter | Detected Conc. 6/12/94 (ug/kg) | Detected Conc. 6/24/97 (ug/kg) | Levels of Protection Exceedances
Semivolatiles
Benzo(a)pyrene 270.0 < 8500 A
Benzo(a)anthracene 430.0 < 8500 A
Benzo(b)fluoranthene 520.0 < 8500 A
Benzo(k)fluoranthene 510.0 < 8500 A
Bis (2-Ethylhexyl)phthalate 10000.0 < 8500 C
Pesticides/PCB's
Heptachlor Epoxide ND 24.0 A,D
4,4' - DDE 44.0 50.0 A,D
4,4' - DDD 49.0 18.0 A,C,D
4,4' - DDT ND 2.4 A
Alpha-Chlordane ND 28.0 A,B,C,D
Gamma-Chlordane ND 8.3 A,B,C,D
Aroclor 1254 ND 410.0 A,D
Metals (mg/kg) (mg/kg)
Arsenic 805.0 64.1 M
Cadmium 5.8 9.3 L
Chromium 144.0 230.0 L
Copper 397.0 536.0 M
Iron 38900.0 44900.0 M
Lead 223.0 428.0 M
Manganese 335.0 415.0 L
Mercury 5.8 4.5 M
Nickel 61.5 96.8 M
Silver ND 5.4 M
Zinc 575.0 733.0 M
Location: WC-12
Parameter | Detected Conc. 8/7/96 (ug/kg)
Semivolatiles
Benzo(a)pyrene 400.0
Benzo(a)anthracene 390.0
Benzo(b)fluoranthene 1000.0
Indeno(1,2,3-cd)pyrene 160.0
Pesticides/PCB's
4,4' - DDE 84.0
4,4' - DDD 86.0
4,4' - DDT 40.0
Dieldrin 10.0
Endosulfan I 5.6
Alpha-Chlordane 22.0
Gamma-Chlordane 18.0
Aroclor 1248 270.0
Aroclor 1254 160.0
Metals (mg/kg)
Antimony 5.3
Arsenic 4.3
Cadmium 1.0
Copper 273.0
Iron 32000.0
Lead 192.0
Mercury 2.8
Nickel 62.4
Silver 2.9
Zinc 438.0
Location: SD-4 (0-6")
Parameter | Detected Conc. 6/12/94 (ug/kg) | Detected Conc. 6/24/97 (ug/kg) | Levels of Protection Exceedances
Semivolatiles
Benzo(a)pyrene 320.0 < 3300 A
Benzo(a)anthracene 540.0 < 3300 A
Benzo(b)fluoranthene 600.0 < 3300 A
Benzo(k)fluoranthene 320.0 < 3300 A
Indeno(1,2,3-cd)pyrene 510.0 < 3300 A
Bis(2-Ethylhexyl)phthalate 3800.0 < 3300 C
Pesticides
4,4' - DDE 33.0 5.1 A
4,4' - DDD 31.0 7.8 A,D
4,4' - DDT ND 1.6 A
Alpha-Chlordane ND 3.0 A,B,C,D
Gamma-Chlordane ND 5.2 A,B,C,D
Aroclor 1254 ND 99.0 A,D
Metals (mg/kg) (mg/kg)
Copper 72.7 28.0
Lead 73.8 25.8
Mercury 0.2 0.1
Location: SD-4 (12-24")
Parameter | Detected Conc. 6/12/94 (ug/kg) | Detected Conc. 6/24/97 (ug/kg) | Levels of Protection Exceedances
Semivolatiles
Benzo(a)pyrene 230.0 < 3400 A
Benzo(a)anthracene 370.0 < 3400 A
Benzo(b)fluoranthene 400.0 < 3400 A
Benzo(k)fluoranthene 510.0 < 3400 A
Indeno(1,2,3-cd)pyrene 76.0 < 3400 A
Pesticides
4,4' - DDE 5.1 9.2 A
4,4' - DDD 21.0 30.0 A,D
4,4' - DDT ND 1.6 A
Alpha-Chlordane ND 10.0 A,B,C,D
Gamma-Chlordane ND 9.9 A,B,C,D
Aroclor 1254 ND 120.0 A,D
Metals (mg/kg) (mg/kg)
Cadmium 2.4 1.6 L
Copper 12.2 58.3 L
Lead 22.5 82.9 L
Nickel 45.6 20.8 L
Silver ND 1.4 L
Zinc 37 173 L
Location: SD-2 (0-6")
Parameter | Detected Conc. 5/12/94 (ug/kg) | Detected Conc. 6/24/97 (ug/kg) | Levels of Protection Exceedances
Volatiles
Tetrachloroethylene ND 44.0 A
Semivolatiles
Benzo(a)pyrene 210.0 < 8500 A
Benzo(a)anthracene 130.0 < 8500 A
Benzo(b)fluoranthene 350.0 < 8500 A
Benzo(k)fluoranthene 340.0 < 8500 A
Indeno(1,2,3-cd)pyrene 70.0 < 8500 A
Pesticides/PCB's
4,4' - DDE 36.0 29.0 A
4,4' - DDD 24.0 37.0 A,D
Alpha-Chlordane ND 7.4 A,B,C,D
Gamma-Chlordane ND 10.0 A,B,C,D
Aroclor 1254 ND 180.0 A,D
Metals (mg/kg) (mg/kg)
Arsenic 29.5 25.0
Cadmium 4.70 7.2
Chromium 165.0 137.0
Copper 364.0 359.0 M
Iron 50400.00 39900.0 M
Lead 387.0 322.0 M
Manganese 680.0 429.0 M
Mercury 5.7 6.8 M
Nickel 144.0 86.1 M
Silver 3.4 3.9 M
Zinc 535.0 560.0 M
Location: SD-2 (12-24")
Parameter | Detected Conc. 5/12/94 (ug/kg) | Detected Conc. 6/24/97 (ug/kg) | Levels of Protection Exceedances
Semivolatiles
Benzo(a)pyrene 460.0 < 6400 A
Benzo(a)anthracene 320.0 < 6400 A
Benzo(b)fluoranthene 910.0 < 6400 A
Benzo(k)fluoranthene 680.0 < 6400 A
Indeno(1,2,3-cd)pyrene 176.0 < 6400 A
Pesticides
4,4' - DDE 69.0 ND A,D
4,4' - DDD 81.0 ND A,D
Metals (mg/kg) (mg/kg)
Arsenic 86.8 55.1 M
Cadmium ND 2.1 L
Chromium 157.0 76.0 L
Copper 504.0 188.0 M
Iron 422000.0 412000.0 M
Lead 522.8 147.0 M
Manganese 681.0 585.0 M
Mercury 0.4 0.3 M
Nickel 24.4 13.9 M
Silver 4.1 ND M
Zinc 910.0 326.0 M
Location: WC-30
Parameter | Detected Conc. 8/7/96 (ug/kg)
Semivolatiles
Benzo(a)pyrene 190.0 A
Benzo(a)anthracene 200.0 A
Benzo(b)fluoranthene 280.0 A
Benzo(k)fluoranthene 340.0 A
Indeno(1,2,3-cd)pyrene 62.0 A
Pesticides/PCB's
4,4' - DDE 9.8 A
4,4' - DDD 23.0 A,D
4,4' - DDT 13.0 A,C,D
Alpha-Chlordane 4.5 A,B,C,D
Gamma-Chlordane 4.2 A,B,C,D
Metals (mg/kg)
Lead 276.0 M
Nickel 92.8 M
Location: SD-1 (0-6")
Parameter | Detected Conc. 5/12/94 (ug/kg) | Detected Conc. 6/24/97 (ug/kg) | Levels of Protection Exceedances
Semivolatiles
Benzo(a)pyrene 170.0 < 8400 A
Benzo(a)anthracene 140.0 < 8400 A
Benzo(b)fluoranthene 230.0 < 8400 A
Benzo(k)fluoranthene 250.0 < 8400 A
Pesticides/PCB's
4,4' - DDE 150.0 64.0 A,D
4,4' - DDD 140.0 64.0 A,D
4,4' - DDT ND 4.0 A
Alpha-Chlordane ND 20.0 A,B,C,D
Gamma-Chlordane ND 8.8 A,B,C,D
Aroclor 1254 ND 430.0 A
Metals (mg/kg) (mg/kg)
Arsenic 73.6 24.5 M
Cadmium 6.5 3.2 L
Chromium 150.0 105.0 L
Copper 326.0 217.0 M
Iron 46000.0 32200.0 M
Lead 69.2 67.0 L
Manganese 554.0 326.0 L
Mercury 2.7 0.82 M
Nickel 202.0 119.0 M
Zinc 563.0 364.0 M
Location: SD-1 (12-24")
Parameter | Detected Conc. 5/12/94 (ug/kg) | Detected Conc. 6/24/97 (ug/kg) | Levels of Protection Exceedances
Semivolatiles
Benzo(a)pyrene 160.0 < 10000.0 A
Benzo(a)anthracene 130.0 < 10000.0 A
Benzo(b)fluoranthene 230.0 < 10000.0 A
Benzo(k)fluoranthene 200.0 < 10000.0 A
Pesticides/PCB's
4,4' - DDE 60.0 68.0 A,D
4,4' - DDD 62.0 62.0 A,D
4,4' - DDT ND 4.3 A
Alpha-Chlordane ND 9.9 A,B,C,D
Gamma-Chlordane ND 13.0 A,B,C,D
Aroclor 1254 ND 320.0 A,D
Metals (mg/kg) (mg/kg)
Arsenic 1210.0 26.4 M
Cadmium ND 6.0 L
Chromium 151.0 130.0 L
Copper 305.0 269.0 M
Iron 44700.0 38500.0 M
Lead 548.0 202.0 M
Manganese 802.0 328.0 L
Mercury 4.2 1.7 M
Nickel 198.0 138.0 M
Zinc 600.0 465.0 M
Location: SD-5 (0-6")
Parameter | Detected Conc. 5/12/94 (ug/kg) | Detected Conc. 6/24/97 (ug/kg) | Levels of Protection Exceedances
Volatiles
Tetrachloroethylene ND 8.0 A
Semivolatiles
Benzo(a)pyrene 91.0 < 3800 A
Benzo(a)anthracene 80.0 < 3800 A
Benzo(b)fluoranthene 93.0 < 3800 A
Benzo(k)fluoranthene 93.0 < 3800 A
Pesticides
4,4' - DDD 2.9 ND A,D
Metals (mg/kg) (mg/kg)
Mercury 0.3 0.1 L
Nickel 9.9 35.5 L
Zinc 154.8 36.0 L
Location: SD-5 (12-24")
Parameter | Detected Conc. 5/12/94 (ug/kg) | Detected Conc. 6/24/97 (ug/kg) | Levels of Protection Exceedances
Semivolatiles
Benzo(a)pyrene 37.0 < 3400 A
Benzo(a)anthracene 46.0 < 3400 A
Pesticides
4,4' - DDD 2.9 ND A
Metals (mg/kg) (mg/kg)
Cadmium 2.5 1.0 L
Copper 38.3 11.4 L
Lead 91.1 28.9 L
Mercury 0.27 0.05 L
Nickel 24.9 35.5 L
Silver 1.3 0.7 L
Zinc 164 36
LEGEND
ND = NON DETECT
A - EXCEEDS HUMAN HEALTH BIOACCUMULATION PROTECTION LEVEL
B - EXCEEDS BENTHIC AQUATIC LIFE ACUTE TOXICITY PROTECTION LEVEL
C - EXCEEDS BENTHIC AQUATIC LIFE CHRONIC TOXICITY PROTECTION LEVEL
D - EXCEEDS WILDLIFE BIOACCUMULATION PROTECTION LEVEL
M - EXCEEDS EFFECTS RANGE MEDIAN FOR METALS
L - EXCEEDS EFFECTS RANGE LOW FOR METALS
FOR ANTIMONY, IRON AND MANGANESE EXCEEDANCES SHOWN ARE FOR LOW EFFECT LEVEL AND SEVERE EFFECT LEVEL (LONG AND MORGAN, 1990).
REFERENCE: NYSDEC, "TECHNICAL GUIDANCE FOR SCREENING CONTAMINATED SEDIMENT" 11/22/93
150 FT 0 300 FT
Richmond Ave
Forest Hill Road
Brookfield Ave
Ledyard St
Ledyard Ave
Berry Ave
Wolfins Ave
Crawford Ave
Drummond Road
Woodrow Rd
Brookfield Avenue
Arlington Ave
Abington Ct
Brookfield Avenue
Brookfield Ave
Brookfield Avenue
Brookfield Avenue
Brookfield Avenue

N

1"=300'

Location: LS-4

Parameter	Date	Conc.	Q
Ethylbenzene	6/25/94	950	E
Xylene (Total)	6/25/94	240	-
1,2-Dichlorobenzene	6/25/94	140	E

Location: GW-17S

Parameter	Date	Conc.	Q
4,4'-DDE	5/7/97	0.0097	JN
Mercury	5/7/97	0.22	-

Location: GW-16S

Parameter	Date	Conc.	Q
Dieldrin	5/15/97	0.01	J
Lead	4/25/94	100	-
Mercury	4/26/94	0.28	N

Location: GW-8S

Parameter	Date	Conc.	Q
4,4'-DDE	5/7/97	0.0042	-

Location: GW-20M

Parameter	Date	Conc.	Q
Nickel	5/18/94	146	-

Location: LS-3

Parameter	Date	Conc.	Q	Date	Conc.	Q
Alpha-Chlordane	6/12/97	0.0190	JN	-	-	-
Gamma-Chlordane	6/12/97	0.0090	JN	-	-	-
Lead	5/25/94	86.2	-	6/12/97	736	-
Mercury	5/25/94	0.61	-	6/12/97	4.1	-
Nickel	5/25/94	41.2	J	6/12/97	496	-
Zinc	5/25/94	189	J	6/12/97	4940	-

Location: LS-5

Parameter	Date	Conc.	Q	Date	Conc.	Q
4,4'-DDE	6/13/97	0.014	J	-	-	-
Chromium	5/25/94	6.7	J	6/13/97	869	-
Lead	5/25/94	ND	-	6/13/97	1290	-
Mercury	5/25/94	0.30	-	6/13/97	2.4	-
Nickel	5/25/94	19	B	6/13/97	159	-
Zinc	5/25/94	248	-	6/13/97	684	-

Location: GW-14S

Parameter	Date	Conc.	Q
4,4'-DDE	5/7/97	0.0068	Q
Mercury	5/7/97	0.18	B

Location: LS-2

Parameter	Date	Conc.	Q
Benzo(a)pyrene	6/12/97	1.0	J
Lead	6/12/97	857	-
Mercury	6/12/97	8.5	-
Nickel	6/12/97	130	J
Zinc	6/12/97	1550	-

Location: GW-20S

Parameter	Date	Conc.	Q
Nickel	4/26/94	101	-

Location: GW-11M

Parameter	Date	Conc.	Q
4,4'-DDE	5/8/97	0.0056	JN
Mercury	5/8/97	0.220	-

Location: GW-21S

Parameter	Date	Conc.	Q
Nickel	4/27/94	101	-

Location: GW-9S

Parameter	Date	Conc.	Q
4,4'-DDE	5/8/97	0.0068	JN

Location: LW-4S

Parameter	Date	Conc.	Q	Date	Conc.	Q
Mercury	5/16/94	ND	-	5/14/97	0.13	B
Ethylbenzene	5/16/94	60	-	5/14/97	64	-
4,4'-DDE	5/16/94	ND	-	5/14/97	0.0096	JN
Nickel	5/16/94	125	-	5/14/97	105	-
Cyanide	5/16/94	27.5	-	5/14/97	33	J

Location: GW-23S

Parameter	Date	Conc.	Q
Aldrin	5/19/97	0.0230	J
Dieldrin	5/19/94	0.0210	J
4,4'-DDE	5/19/97	0.0820	-
4,4'-DDD	5/19/97	0.1100	-
Alpha-Chlordane	5/19/97	0.12	-
Gamma-Chlordane	5/19/97	0.086	J
Aroclor 1232	5/19/97	4.5	-
Aroclor 1254	5/19/97	1.9	-

Location: GW-25S

Parameter	Date	Conc.	Q
Lead	4/25/94	295	-
Mercury	4/26/94	0.43	N

Location: LW-1S (EB-4)

Location: MW-1M

Location: MW-2M

Parameter	Date	Conc.	Q
Nickel	5/4/94	106	-

Location: SAC-1S

Parameter	Date	Conc.	Q
Mercury	5/21/97	1.3	-

Location: GW-5S

Parameter	Date	Conc.	Q	Date	Conc.	Q
Mercury	5/17/94	ND	-	5/20/97	<0.190	U
Nickel	5/17/94	49	-	5/20/97	90.1	-

Location: LW-1S

Parameter	Date	Conc.	Q
Ethylbenzene	5/16/94	69	-
Xylene (Total)	5/16/94	310	-

Location: LS-1

Parameter	Date	Conc.	Q
Lead	6/12/97	393	-
Mercury	6/12/97	0.91	-
Nickel	6/12/97	84	-
Zinc	6/12/97	852	-

Location: LS-6

Parameter	Date	Conc.	Q
4,4'-DDE	6/13/97	0.0056	JN
Chromium	6/13/97	140	-
Lead	6/13/97	2860	-
Mercury	6/13/97	33	-
Nickel	6/13/97	647	-

Location: SAC-1S

Parameter	Date	Conc.	Q
Mercury	5/21/97	1.3	-

Location: GW-20S

Parameter	Date	Conc.	Q
Nickel	4/26/94	101	-

Location: GW-21S

Parameter	Date	Conc.	Q
Nickel	4/27/94	101	-

Location: GW-23S

Parameter	Date	Conc.	Q
Aldrin	5/19/97	0.0230	J
Dieldrin	5/19/94	0.0210	J
4,4'-DDE	5/19/97	0.0820	-
4,4'-DDD	5/19/97	0.1100	-
Alpha-Chlordane	5/19/97	0.12	-
Gamma-Chlordane	5/19/97	0.086	J
Aroclor 1232	5/19/97	4.5	-
Aroclor 1254	5/19/97	1.9	-

Location: GW-25S

Parameter	Date	Conc.	Q
Lead	4/25/94	295	-
Mercury	4/26/94	0.43	N

Location: LW-1S

Parameter	Date	Conc.	Q
Ethylbenzene	5/16/94	69	-
Xylene (Total)	5/16/94	310	-

Location: LS-1

Parameter	Date	Conc.	Q
Lead	6/12/97	393	-
Mercury	6/12/97	0.91	-
Nickel	6/12/97	84	-
Zinc	6/12/97	852	-

LEGEND
ALL CONCENTRATIONS ARE IN µg/L

1" = 300'
150 0 300

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: B. MURTAGH
DRAWN BY: C. KALNY
SHEET CHK'D BY: J. BOYER
CROSS CHK'D BY:
APPROVED BY:
DATE:

CDM Camp Dresser & McKee

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION

BROOKFIELD AVENUE LANDFILL REMEDIATION PROJECT

SHALLOW GROUNDWATER AND LEACHATE SEEP EXCEEDANCES OF 10 TIMES CLASS SC SURFACE WATER STANDARD

PROJECT NO. 5215-12929
FILE NAME: SGALSE

SHEET NO. 39

Appendix G
Well Construction Logs for Long-Term Monitoring Wells

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-1

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
11/15/2012		10'		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 11/15/2012
DATE FINISH 11/16/2012
DRILLER M. Carire
INSPECTOR Scott Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	6" Casing	1	14	15"	Gravel
2			18 19 20		
3		2	19	10"	Same
4			21 19 22		
5		3	20	12"	Same
6			18 15 17		
7		4	17	8"	Same
8			25 25 23		
9		5	21	10"	Sand, gravel & some trash (plastic fiber / wood)
10			15 12 12		
11		6	10	12"	Sandy silt, some gravel
12			12 14 13		
13		7	10	12"	Same with some wood
14			10 10 12		
15		8	2	12"	Peat
16	Revert		3 3 3		
17		9	1	13"	Same
18			2 3 2		
19		10	3	18"	Clayey silt
20			4 3 4		
21		11	12	6"	Sandy silt & some gravel
22			12 25 30		
23		12	31	5"	Same
24			30 29 31		
25		13	25	14"	Sandy silt
26			20 19 15		
27		14	6 13	15"	Same

REMARKS

BOREHOLE GROUTED

YES__X__ NO_____

Samples received in field by Client's Rep.

YES_____ NO__X__

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal _____
Quick Gel _____
Hole Plug _____
Revert _____
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 38'.
5' Screen 35' Riser
6" Stand Pipe
2" Locking Cap

1 drum

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-1
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	16 19	15"	Sandy silt	
29 30		15	15 20 19 20	17"	Same	
31 32		16	18 14 11 10	11"	Sand, trace silt & trace gravel	
33 34		17	4 6 7 8	14"	Sand & trace silt	
35 36		18	5 7 7 9	12"	Same	
37 38		19	8 9 12 16	15"	Same	
39 40		20	14 15 16 17	15"	Same	
41 42 43 44 45 46 47 48 49 50 51 52 53					E.O.B. - 40 feet	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-2

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
11/14/2012		10'		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 11/14/2012
DATE FINISH 11/14/2012
DRILLER M. Carlre
INSPECTOR Scott Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1	6" Casing	1	3	3"	Gravel	BOREHOLE GROUTED
2			6 8 10			YES__X__ NO_____
3		2	9	2"	Same	
4			10 10 11			Samples received in field by Client's Rep.
5		3	7	5"	Same	YES_____ NO__X__
6			12 11 13			
7		4	10	4"	Same	If YES, sign & print name
8			12 12 14			
9		5	15	3"	Same	Signature
10			14 12 16			
11		6	15	1"	Trash (wood, plastic, rubber fiber)	Print name
12			10 8 8			
13		7	8	1"	Same	Materials used on Boring
14			4 3 2			
15		8	5	6"	Sand & trace silt	Benseal _____
16			6 8 10			Quick Gel _____
17		9	11	8"	Sandy silt & some gravel	Hole Plug _____
18			10 10 9			Revert _____
19		10	11	12"	Same	Well gravel _____
20	▼		13 12 12			Concrete _____
21	Revert	11	7	10"	Sandy silt	Asphalt _____
22			7 7 7			Spoons _____
23		12	7	11"	Silty sand	Traps _____
24			8 7 8			Bits
25		13	7	13"	Same	Well gravel _____
26			5 6 6			Concrete _____
27	▼	14	3 4	15"	Silty sand & trace of gravel	Asphalt _____
						Spoons _____
						Traps _____
						Bits
						Installed a 2" well @ 36'. 10' Screen 28' Riser 6" Stand Pipe 2" Locking Cap

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-2
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	7 7	15"	Silty sand & trace gravel	
29		15	7 5	14"	Same	
30			6 7			
31		16	12 15	20"	Sand & trace silt	
32			12 15			
33		17	13 14	18"	Same	
34			14 14			
35		18	12 10	17"	Silty sand	
36			9 10			
37		19	5 10	19"	Sand & trace silt	
38			9 8			
39					E.O.B. - 38 feet	
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-3

PROJECT: Brookfield Landfill — SHT. NO. 1 of 2
CLIENT: Brookfield Construction Associates, LLC — JOB NO. 12 - 092
LOCATION: Staten Island, New York — ELEVATION
Ground Water — PERMIT NO.

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
11/12/2012		12'		DIA.	HW	SS	NX	
				WT.	6"	2"		
				FALL	140	140		
					30"	30"		

DATE START 11/9/2012
DATE FINISH 11/12/2012
DRILLER M. Carlre
INSPECTOR Scott Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	6" Casing	1	5	7"	Gravel
2			9		
			10		
			10		
3		2	10	10"	Same
4			9		
			10		
			12		
5		3	12	12"	Same
6			14		
			51		
			30		
7		4	29	10"	Gravel, some sand
8			29		
			40		
			31		
9		5	31	10"	Sand & gravel
10			25		
			29		
			31		
11		6	9	5"	Garbage (plastic, wood, fiber)
12			11		
			3		
			3		
13		7	3	2"	Same
14			4		
			5		
			6		
15		8	3	3"	Peat
16			3		
			1		
			1		
17		9	1	2"	Garbage (glass, plastic, fiber)
18			2		
			2		
			1		
19		10	2	8"	Sand & gravel, trace of silt
20			3		
			5		
			10		
21	Revert	11	17	6"	Sand, trace of silt and gravel
22			23		
			23		
			25		
23		12	24	3"	Same
24			26		
			25		
			25		
25		13	24	3"	Sand, gravel & silt
26			26		
			27		
			30		
27		14	31	6"	Same
			27		

REMARKS

BOREHOLE GROUTED

YES__X__ NO_____

Samples received in field by Client's Rep.

YES__X__ NO_____

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal _____
Quick Gel _____
Hole Plug _____
Revert _____
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 36'.
5' Screen 33' Riser
6" Stand Pipe
2" Locking Cap

1 drum

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-3
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	29 30	6"	Silty sand, some gravel	
29 30		15	27 19 15 15	10"	Sandy silt, some gravel	
31 32		16	12 9 12 15	10"	Same	
33 34		17	12 14 14 16	12"	Same	
35 36		18	2 5 9 10	18"	Silty clay, trace sand	
37 38		19	8 9 9 12	24"	Same	
39					E.O.B. - 38 feet	
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-4

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING
11/6/2012		11'	

TYPE	CAS.	SAMP.	CORE	TUBE
DIA.	6"	2"		
WT.	140	140		
FALL	30"	30"		

SHT. NO. 1 of 3
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 10/26/2012
DATE FINISH 11/6/2012
DRILLER M. Carire
INSPECTOR Scott Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	6" Casing	1	6	10"	Gravel
2			10		
			11		
			12		
3		2	11	8"	Same w/ some sand
4			9		
			8		
			6		
5		3	8	7"	Gravel
6			11		
			7		
			8		
7		4	9	9"	Same
8			10		
			8		
			10		
9		5	8	13"	Gravel, some sand & trace silt
10			25		
			33		
			22		
11		6	21	4"	Silty sand
12			18		
			12		
			6		
13		7	2	5"	Same
14			4		
			3		
			5		
15		8	5	9"	Same
16			6		
			6		
			7		
17		9	2	3"	Silty sand
18			3		
			3		
			2		
19		10	1	4"	Same
20	▼		3		
			2		
			2		
21	Revert	11	6	10"	Sandy silt
22			7		
			9		
			11		
23		12	10	11"	Same
24			10		
			11		
			12		
25		13	9	14"	Same
26			11		
			10		
			11		
27	▼	14	11	14"	Silty sand, trace gravel
			13		

REMARKS

BOREHOLE GROUTED

YES__X__ NO_____

Samples received in field by Client's Rep.

YES__X__ NO____

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal _____
Quick Gel _____
Hole Plug _____
Revert _____
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 58'.
10' Screen 50' Riser
6" Stand Pipe
2" Locking Cap

1 drum

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-4
PROJECT: Brookfield Landfill		SHT. NO. 2 of 3
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	14 14	14"	Silty sand, trace gravel	
29 30		15	4 12 15 20	16"	Silty clay, trace gravel & trace sand	
31 32		16	21 18 14 12	20"	Same	
33 34		17	18 15 13 13	16"	Same	
35 36		18	7 8 11 10	12"	Same	
37 38		19	6 7 7 9	6"	Same	
39 40		20	10 9 10 8	10"	Same	
41 42		21	16 31 71 65	24"	Sandy silt & gravel	
43 44		22	63 55 50 30	18"	Sandy silt	
45 46		23	W.O.H. 16 5 7	24"	Same	
47 48		24	5 8 8 10	16"	Same	
49 50		25	10 15 14 25	19"	Same	
51 52		26	22 15 16 21	16"	Same	
53	▼	27	19 14	6"	Same	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-4
PROJECT: Brookfield Landfill		SHT. NO. 3 of 3
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
			18			
54	Revert	27	20	6"	Silty sand, trace gravel	
			13			
55		28	12	8"	Same	
			14			
56			18			
			17			
57		29	14	10"	Same	
			17			
58			20			
			15			
59		30	15	16"	Same	
			18			
60			19			
					E.O.B. - 60 feet	
61						
62						
63						
64						
65						
66						
67						
68						
69						
70						
71						
72						
73						
74						
75						
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77						
78						
79						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-5A

PROJECT: Brookfield Landfill — SHT. NO. 1 of 2
CLIENT: Brookfield Construction Associates, LLC — JOB NO. 12 - 092
LOCATION: Staten Island, New York — ELEVATION
Ground Water — PERMIT NO.

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
10/25/2012		7'		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

DATE START 10/23/2012
DATE FINISH 10/25/2012
DRILLER M. Carire
INSPECTOR Scott Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	6" Casing	1	10	12"	Gravel
2			11 10 12		
3		2	9 7	7"	Sand, some silt & gravel
4			12 8		
5		3	5 7	10"	Same
6			10 8		
7		4	8 9	12"	Silty sand & some gravel
8			8 8		
9		5	6 7	12"	Sandy silt, trace gravel & trace peat
10			6 5		
11		6	7 7	12"	Sandy silt & gravel
12			8 9		
13		7	9 7	14"	Same
14			9 10		
15		8	3 7	12"	Sandy silt
16	Water		7 7		
17		9	11 10	20"	Silty sand
18			11 14		
19		10	13 14	18"	Same
20			14 15		
21		11	15 14	21"	Silty clay & trace sand
22			14 15		
23		12	2 5	20"	Same
24			5 9		
25		13	6 8	18"	Same
26			8 10		
27		14	10 9	7"	Silty clay & some sand

REMARKS

BOREHOLE GROUTED

YES__X__ NO____

Samples received in field by Client's Rep.

YES__X__ NO____

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal _____
Quick Gel _____
Hole Plug _____
Revert _____
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 37'.
5' Screen 34' Riser
6" Stand Pipe
2" Locking Cap

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-5A
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Water	14	7 5	7"	Silty clay & some sand	
29		15	6 7	9"	Same	
30			10 13			
31		16	8 8	12"	Same with gravel	
32			5 5			
33		17	8 7	15"	Silty sand & trace sand	
34			5 4			
35		18	3 4	15"	Same	
36			6 7			
37		19	9 8	16"	Same	
38			7 7			
39					E.O.B. - 38 feet	
40						
41					Manuel D. Caire	
42						
43						
44						
45						
46						
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50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-5B

PROJECT: Brookfield Landfill									SHT. NO. 1 of 3	
CLIENT: Brookfield Construction Associates, LLC									JOB NO.	12 - 092
LOCATION: Staten Island, New York									ELEVATION	
Ground Water					CAS.	SAMP.	CORE	TUBE	PERMIT NO.	
DATE	TIME	DEPTH	CASING	TYPE	HW	SS	NX		DATE START	10/22/2012
10/23/2012		7'		DIA.	6"	2"			DATE FINISH	10/23/2012
				WT.	140	140			DRILLER	M. Carire,
				FALL	30"	30"			INSPECTOR	Scott Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	6" Casing	1	6	10"	Gravel
2			21		
			22		
			23		
3		2	20	13"	Same
			17		
4			17		
			14		
5		3	13	10"	Same
			15		
6			15		
			18		
7		4	15	8"	Sand, silt & some gravel
			16		
8			10		
			6		
9		5	13	15"	Same
			9		
10			8		
			5		
11		6	13	3"	Same
			12		
12			12		
			8		
13		7	5	2"	Same
			4		
14			5		
			5		
15	▼	8	15	10"	Sandy silt
			11		
16	Revert		6		
			7		
17		9	17	14"	Same
			16		
18			8		
			9		
19		10	12	20"	Same
			10		
20			18		
			19		
21		11	20	18"	Silty sand
			20		
22			15		
			18		
23		12	19	14"	Same
			16		
24			18		
			18		
25		13	5	23"	Same
			4		
26			5		
			4		
27	▼	14	4	22"	Same
			5		

REMARKS

BOREHOLE GROUTED

YES__X__ NO____

Samples received in field by Client's Rep.

YES__X__ NO____

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal _____
Quick Gel _____
Hole Plug _____
Revert _____
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 55'.
5' Screen 52' Riser
6" Stand Pipe
2" Locking Cap

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-5B
PROJECT: Brookfield Landfill		SHT. NO. 2 of 3
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	6 7	22"	Silty sand	
29 30		15	7 7 6 7	21"	Same	
31 32		16	6 8 7 8	18"	Same	
33 34		17	12 7 7 10	20"	Sandy silt & trace gravel	
35 36		18	5 6 6 6	20"	Silty sand	
37 38		19	7 6 6 6	22"	Same	
39 40		20	7 8 7 7	24"	Same	
41 42		21	3 5 5 5	24"	Same	
43 44		22	5 6 6 5	22"	Sandy silt & some gravel	
45 46		23	6 4 6 7	18"	Silty sand	
47 48		24	6 79 29 50	11"	Sandy silt & gravel	
49 50		25	43 27 21 25	10"	Sandy silt & some gravel	
51 52		26	9 12 16 20	10"	Same	
53		27	11 14	18"	Same	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-5B
PROJECT:		SHT. NO. 3 of 3
CLIENT:		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
54	Revert	27	17 24	18"	Silty sand & some gravel	
55	↓	28	12 17	20"	Same	
56	↓		21 31			
					E.O.B. - 56 feet	
57						
58						
59						
60						
61						
62						
63						
64						
65						
66						
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69						
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77						
78						
79						

Manuel L. Laire

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-6

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
10/18/2012		7'		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 10/17/2012
DATE FINISH 10/18/2012
DRILLER M. Carlre
INSPECTOR Scott Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	6" Casing	1	4	12"	Gravel & some sand
2			20		
			17		
			18		
3		2	18	12"	Same
4			18		
			17		
			19		
5		3	3	16"	Sand, silt, and gravel
6			9		
			14		
			14		
7		4	14	14"	Same
8			10		
			10		
			13		
9		5	14	18"	Same
10	↓		11		
			12		
			13		
11	Revert	6	14	16"	Sandy silt
12			10		
			9		
			11		
13		7	10	20"	Same
14			10		
			12		
			13		
15		8	9	8"	Same
16			10		
			20		
			35		
17		9	34	9"	Same with some gravel
18			23		
			12		
			11		
19		10	3	24"	Sandy silt
20			5		
			6		
			11		
21		11	12	20"	Same
22			7		
			9		
			8		
23		12	12	11"	Same
24			13		
			8		
			14		
25		13	11	20"	Same
26			17		
			17		
			19		
27	↓	14	14	16"	Same
			14		

REMARKS

BOREHOLE GROUTED

YES__X__ NO____

Samples received in field by Client's Rep.

YES__X__ NO____

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal _____
Quick Gel _____
Hole Plug _____
Revert _____
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 38'.
5' Screen 35' Riser
6" Stand Pipe
2" Locking Cap

JERSEY BORING & DRILLING CO., INC.

TEST BORING LOGS

BORING NO. LTMW-6

PROJECT: Brookfield Landfill

SHT. NO. 2 of 2

CLIENT: Brookfield Construction Associates, LLC

JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
			13			
28	Revert	14	14	16"	Sandy silt	
			16			
29		15	16	19"	Sandy silt & some gravel	
			17			
30			19			
			20			
31		16	18	16"	Sand & some silt	
			16			
32			18			
			12			
33		17	7	14"	Clayey silt & trace sand	
			10			
34			13			
			8			
35		18	16	13"	Sand, silt & some gravel	
			17			
36			17			
			8			
37		19	6	15"	Clayey silt & trace sand	
			7			
38			7			
			12			
39		20	13	15"	Clayey silt & some sand	
			15			
40	▼		17			
					E.O.B. - 40 feet	
41						
42						
43						
44						
45						
46						
47						
48						
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51						
52						
53						

Manuel L. Lariu

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-7

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
10/17/2012		8'		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 10/16/2012
DATE FINISH 10/17/2012
DRILLER M. Carire
INSPECTOR Scott Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	6" Casing	1	3	10"	Sand, gravel & trave silt
2			12		
			20		
			21		
3		2	14	13"	Same
4			15		
			24		
			23		
5		3	30	11"	Same
6			25		
			29		
			18		
7		4	17	10"	Same
8			14		
			12		
			16		
9		5	4	20"	Silty clay, peat & some gravel
10	▼		10		
			15		
			19		
11	Revert	6	5	15"	Silt, sand & some gravel
12			11		
			17		
			22		
13		7	9	14"	Same
14			12		
			17		
			20		
15		8	15	15"	Same
16			16		
			17		
			20		
17		9	17	18"	Same
18			19		
			19		
			21		
19		10	15	12"	Same
20			14		
			18		
			25		
21		11	6	15"	Sand, silt & trace of gravel
22			6		
			9		
			12		
23		12	11	12"	Sand, some silt & some gravel
24			10		
			14		
			14		
25		13	11	14"	Same
26			17		
			20		
			17		
27	▼	14	22	14"	Same
			25		

REMARKS

BOREHOLE GROUTED

YES__X__ NO_____

Samples received in field by Client's Rep.

YES__X__ NO____

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal _____
Quick Gel _____
Hole Plug _____
Revert _____
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 33'.
5' Screen 30' Riser
6" Stand Pipe
2" Locking Cap

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-7
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	19 19	14"	Sand, some silt & some gravel	
29		15	11 16	11"	Sand, gravel & trace silt	
30			16 20			
31		16	25 25	11"	Same	
32			31 22			
33		17	19 19	9"	Same	
34			25 23			
35					E.O.B. - 34 feet	
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
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49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-8

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS	SAMP	CORE	TUBE
10/15/2012		8'		DIA	6"	2"		
				WT	140	140		
				FALL	30"	30"		

SHT NO	1 of 2
JOB NO	12 - 092
ELEVATION	
PERMIT NO	
DATE START	10/11/2012
DATE FINISH	10/15/2012
DRILLER	M Carire
INSPECTOR	Scott Piccino

DEPTH FEET	CASING BLOWS	SAMPLE NO	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	6" Casing	1	2	6"	Brown sand & gravel
2			10		
			11		
			13		
3		2	13	12"	Gravel & some sand
			13		
4			13		
			11		
5		3	37	3"	Same w/ some silt
			36		
6			37		
			15		
7		4	18	3"	Same
			13		
8			10		
			15		
9		5	10	12"	Sand & some gravel
			8		
10	▼		9		
			12		
11	Revert	6	11	12"	Sand & trace gravel
			11		
			11		
12			12		
13		7	10	12"	Same w/ some silt
			15		
			24		
14			15		
15		8	13	18"	Silty sand & trace fine gravel
			13		
			15		
16			15		
17		9	11	3"	Silty sand
			9		
			12		
18			18		
19		10	12	24"	Same
			15		
			21		
20			13		
21		11	7	14"	Same w/ some fine gravel
			7		
			16		
22			17		
23		12	17	18"	Sand, gravel & trace silt
			19		
			14		
24			21		
25		13	6	12"	Sand, gravel and trace silt
			9		
			11		
26			12		
27	▼	14	12	14"	Same

REMARKS

BOREHOLE GROUTED

YES X NO

Samples received in field by Client's Rep

YES X NO

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal
Quick Gel
Hole Plug
Revert
Well gravel
Concrete
Asphalt
Spoons
Traps
Bits
Well gravel
Concrete
Asphalt
Spoons
Traps
Bits

Installed a 2" well @ 43'
10' Screen 35' Riser
6" Stand Pipe
2" Locking Cap

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-8
PROJECT: Brookfield Landfill		SHT NO 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28		14	14 14	14"	Sand, gravel & trace silt	
29		15	10 16	10"	Same	
30			19 21			
31		16	16 19	14"	Same	
32			22 23			
33		17	5 5	10"	Same	
34			10 5			
35		18	11 15	12"	Same	
36			32 29			
37		19	4 9	10"	Same	
38			16 17			
39		20	22 15	14"	Same	
40			19 25			
41		21	3 8	12"	Same	
42			15 21			
43		22	24 18	14"	Same	
44			33 34			
45					E O.B - 44 feet	
46						
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-9

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
11/29/2012		10'		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

SHT. NO. 1 of 3
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 11/28/2012
DATE FINISH 11/29/2012
DRILLER M. Carire
INSPECTOR Scott Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1	6" Casing	1	5	15"	Gravel & some sand	BOREHOLE GROUTED
2			7 8 12			YES__X__ NO_____
3		2	10	14"	Sand, trace silt & gravel	
4			13 13 14			Samples received in field by Client's Rep.
5		3	13	10"	Sandy silt & trace gravel	
6			11 10 11			YES_____ NO__X__
7		4	8	15"	Sand & trace silt	If YES, sign & print name
8			9 10 11			
9		5	11	12"	Same w/ trace gravel	Signature
10			12 12 13			
11		6	8	13"	Same	
12			12 14 17			Print name
13		7	14	12"	Same	
14			14 15 16			Materials used on Boring
15		8	13	14"	Sand & trace silt	Benseal _____
16			14 17 14			Quick Gel _____
17		9	12	15"	Sand, gravel & trace silt	Hole Plug _____
18			9 10 9			Revert _____
19		10	10	11"	Same	Well gravel _____
20	▼		10 11 12			Concrete _____
21	Revert	11	14	10"	Sand, gravel & trace silt	Asphalt _____
22			15 27 19			Spoons _____
23		12	19	12"	Same	Traps _____
24			20 25 21			Bits
25		13	20	10"	Sand, gravel & some silt	Well gravel _____
26			19 19 20			Concrete _____
27	▼	14	36 22	15"	Same	Asphalt _____
						Spoons _____
						Traps _____
						Bits
						Installed a 2" well @ 58'. 10' Screen 50' Riser 6" Stand Pipe 2" Locking Cap
						2 drums

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-9
PROJECT: Brookfield Landfill		SHT. NO. 2 of 3
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	29 37	15"	Sand, gravel & some silt	
29 30		15	25 21 20 18	15"	Sand, some silt & trace gravel	
31 32		16	15 18 16 18	11"	Same	
33 34		17	17 11 14 17	14"	Sand, gravel & some silt	
35 36		18	19 19 11 15	10"	Same	
37 38		19	24 34 25 16	12"	Sand, gravel & trace silt	
39 40		20	15 17 20 18	13"	Same	
41 42		21	12 16 14 15	14"	Same	
43 44		22	13 19 27 24	16"	Same	
45 46		23	18 15 18 20	14"	Same	
47 48		24	13 19 27 24	16"	Sand, trace silt & some gravel	
49 50		25	19 15 14 13	12"	Sand & trace silt	
51 52		26	9 15 20 19	24"	Sandy silt, some gravel & some clay	
53	▼	27	21 20	19"	Clayey silt & trace gravel	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-9
PROJECT: Brookfield Landfill		SHT. NO. 3 of 3
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
54	Revert	27	18 24	19"	Claey silt & trace silt	
55		28	21 19	14"	Same	
56			18 20			
57		29	16 19	19"	Sand, gravel & some silt	
58			25 13			
59		30	13 15	22"	Silty clay & some sand	
60			17 17			
61					E.O.B. - 60 feet	
62						
63						
64						
65						
66						
67						
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JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-10

PROJECT: Brookfield Landfill									SHT. NO. 1 of 2	
CLIENT: Brookfield Construction Associates, LLC									JOB NO.	12 - 092
LOCATION: Staten Island, New York									ELEVATION	
Ground Water					CAS.	SAMP.	CORE	TUBE	PERMIT NO.	
DATE	TIME	DEPTH	CASING	TYPE	HW	SS	NX		DATE START	11/19/2012
		15'	5"	DIA.	140	2"			DATE FINISH	11/20/2012
				WT.					DRILLER	K. Elliott
				FALL					INSPECTOR	

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1	5" Casing	S -1	4	14"	Gravel & sand	BOREHOLE GROUTED
2			5 8 8			YES__X__ NO____
3		S - 2	6	16"	Same	
4			7 12 13			Samples received in field by Client's Rep.
5		S - 3	11	6"	Same w/ wood	YES____ NO__X__
6			14 17 20			
7		S - 4	9	11"	Yellowish brown sand, gravel & plastic	If YES, sign & print name
8			7 7 8			
9		S - 5	10	15"	Same	Signature
10			10 9 10			
11		S - 6	4	12"	Gray clay & silt with organics, plastic	
12			5 5 6			Print name
13		S - 7	7	16"	Gray and brown sand & gravel	
14			10 12 12			Materials used on Boring
15		S - 8	12	11"	Same	Benseal ____1___
16			14 17 17			Quick Gel _____
17		S - 9	3	10"	Brown silt, sand & gravel	Hole Plug ____1___
18			4 7 11			Revert _____
19		S - 10	8	4"	Same w/ clay	Well gravel __3 1/2__
20			9 9 9			Concrete __1 1/2__
21		S - 11	6	20"	Brown silty clay	Asphalt _____
22			6 6 6			Spoons _____
23		S - 12	3	24"	Same	Traps _____
24			7 7 8			Bits
25		S - 13	5	14"	Brown silt, clay & gravel	Well gravel _____
26			5 5 6			Concrete _____
27		S - 14	6 6	20"	Same	Asphalt _____
						Spoons _____
						Traps _____
						Bits
						Installed a 2" well @ 44'. 5' Screen 39' Riser 6" Stand Pipe 2" Locking Cap
						3 drums

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-10
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
			7			
28		S - 14	7	20"	Brown silt, clay & gravel	
			10			
29		S - 15	11	7"	Brown sand, silt & gravel	
			11			
30			14			
			9			
31		S - 16	9	6"	Same	
			13			
32			17			
			9			
33		S - 17	11	4"	Same	
			14			
34			15			
			8			
35		S - 18	13	7"	Same w/ more gravel	
			13			
36			16			
			12			
37		S - 19	12	9"	Same	
			14			
38			14			
			13			
39		S - 20	12	11"	Same	
			12			
40			15			
			6			
41		S - 21	15	13"	Sand, silt & gravel	
			20			
42			24			
			17			
43		S - 22	21	8"	Same	
			21			
44			21			
		S - 23	17	5"	Same	
45			20			
					E.O.B. - 45 feet	
46						
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-11

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
		20'	5"	DIA.	HW	SS	NX	
				WT.	140	2"		
				FALL				

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 11/18/2012
DATE FINISH 11/19/2012
DRILLER K. Elliott
INSPECTOR

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	5" Casing	S -1	3	6"	Sand & gravel / felt membrane
2			4 8 9		
3		S - 2	7	5"	Sand, gravel & stone
4			8 12 19		
5		S - 3	16	14"	Same
6			21 22 22		
7		S - 4	11	2"	Sand & gravel
8			14 14 17		
9		S - 5	9	0"	No recovery
10			11 13 14		
11		S - 6	4	10"	Top - Gray silty clay w/ organics
12			5 9 13		Bottom - Gray sand & silt
13		S - 7	5	14"	Gray sand, silt & traces of clay
14			5 3 4		
15		S - 8	3	6"	Brown and gray sand w/ silt & gravel
16			4 5 5		
17		S - 9	7	7"	Brown sand & gravel
18			8 11 13		
19		S - 10	10	8"	Same
20			10 13 14		
21		S -11	3	10"	Same
22			4 5 5		
23		S -12	5	7"	Same
24			6 5 7		
25		S - 13	4	15"	Brown sand & silt
26			5 7 6		
27		S - 14	8 9	13"	Same

REMARKS

BOREHOLE GROUTED

YES__X__ NO_____

Samples received in field by Client's Rep.

YES_____ NO__X__

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal ____1___
Quick Gel _____
Hole Plug ____1___
Revert _____
Well gravel __3 1/2__
Concrete __1 1/2__
Asphalt _____
Spoons _____
Traps _____
Bits
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 44'.
5' Screen 41' Riser
6" Stand Pipe
2" Locking Cap

1 drum

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-11
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28		S -14	12 12	13"	Brown sand & silt	
29		S - 15	10 10	21"	Same	
30			12 12			
31		S - 16	4 5	14"	Same	
32			5 5			
33		S - 17	5 6	10"	Same	
34			6 8			
35		S - 18	4 5	9"	Same	
36			7 7			
37		S - 19	5 5	14"	Same	
38			8 11			
39		S - 20	10 12	7"	Same	
40			8 9			
41		S - 21	5 8	11"	Same	
42			11 13			
43		S - 22	9 9	6"	Same	
44			12 14			
45		S -23	8 10	4"	Same	
46					E.O.B. - 45 feet	
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-12

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York

SHT. NO.	1 of 2
JOB NO.	12 - 092
ELEVATION	
PERMIT NO.	
DATE START	11/15/2012
DATE FINISH	11/16/2012
DRILLER	K. Elliott
INSPECTOR	

Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
			5"	DIA.	140	2"		
				WT.				
				FALL				

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	5" Casing	S -1	18	1"	Gravel
2			24		
			27		
			38		
3		S - 2	17	6"	Stone & sand
			21		
4			21		
			30		
5		S - 3	18	1"	Same
			24		
6			25		
			19		
7		S - 4	8	4"	Brown sand, gravel & trace of silt
			6		
8			5		
			5		
9		S - 5	7	6"	Same
			11		
10			11		
			11		
11		S - 6	5	11"	Same
			7		
12			16		
			21		
13		S - 7	16	6"	Same
			21		
14			24		
			28		
15		S - 8	7	11"	Gray sand & some silt
			8		
16			3		
			7		
17		S - 9	7	9"	Gray sand, silt & trace of gravel
			4		
18			2		
			11		
19		S - 10	9	4"	Same
			9		
20			9		
			11		
21		S -11	5	8"	Brown sand & silt
			5		
22			6		
			9		
23		S -12	8	12"	Brown sand, silt & seams of clay
			9		
24			9		
			9		
25		S - 13	4	13"	Brown clayey silt
			8		
26			12		
			10		
27		S - 14	9	13"	Same
			8		

REMARKS

BOREHOLE GROUTED

YES__X__ NO_____

Samples received in field by Client's Rep.

YES_____ NO__X__

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal	1
Quick Gel	
Hole Plug	1
Revert	
Well gravel	4
Concrete	2
Asphalt	
Spoons	
Traps	
Bits	
Well gravel	
Concrete	
Asphalt	
Spoons	
Traps	
Bits	

Installed a 2" well @ 42'.
5' Screen 40' Riser
6" Stand Pipe
2" Locking Cap

3 drums

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-12
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28		S - 14	8 10	13"	Brown clayey silt	
29 30		S - 15	9 4 5 5	20"	Brown silt & sand seams w/ silty clay	
31 32		S - 16	3 3 4 5	22"	Brown silty clay	
33 34		S - 17	2 1 2 3	24"	Same w/ sand seams & gravel	
35 36		S - 18	2 3 4 7	11"	Top - Sand w/ silt seams Bottom - Sand w/ clayey seams & gravel	
37 38		S - 19	4 3 4 6	20"	Sand w/ clayey seams & gravel	
39 40		S - 20	2 5 5 4	17"	Same	
41 42		S - 21	3 3 7 17	20"	Top - Silty sand w/ clay seams Bottom 2" - Sand & gravel	
43		S - 22	11 12	5"	Sand & gravel	
44 45 46 47 48 49 50 51 52 53					E.O.B. - 43 feet	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-13

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 11/20/2012
DATE FINISH 11/27/2012
DRILLER K. Elliott
INSPECTOR

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
		15'	5"	DIA.	HW	SS	NX	
				WT.	140	2"		
				FALL				

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	5" Casing	S - 1	8	4"	Gravel, sand & stone
2			14		
3		S - 2	14	6"	Same
4			15		
5		S - 3	12	5"	Same
6			13		
7		S - 4	13	7"	Plastic, gravel & brown sand
8			13		
9		S - 5	11	4"	Same
10			12		
11		S - 6	17	4"	Same w/ trace of clay
12			17		
13		S - 7	7	8"	Plastic & peat
14			8		
15		S - 8	11	6"	Gray silty clay
16			11		
17		S - 9	8	7"	Same
18			10		
19		S - 10	13	12"	Gray sand, silt & trace of gravel
20			14		
21		S - 11	3	14"	Top - Gray sand & silt Bottom - Sand, gravel & trace of silt
22			4		
23		S - 12	4	7"	Same
24			4		
25		S - 13	4	11"	Same
26			11		
27		S - 14	7	9"	Brown sand, silt & trace of gravel
			8		
			9		
			11		

REMARKS

BOREHOLE GROUTED

YES__X__ NO_____

Samples received in field by Client's Rep.

YES_____ NO__X__

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal ____1___
Quick Gel _____
Hole Plug ____1___
Revert _____
Well gravel ____4___
Concrete __1 1/2__
Asphalt _____
Spoons _____
Traps _____
Bits
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 45'.
10' Screen 37' Riser
6" Stand Pipe
2" Locking Cap

3 drums

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-13
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28		S - 14	12 15	9"	Brown sand, silt & trace of gravel	
29		S - 15	13 14	14"	Same	
30			14 17			
31		S - 16	6 7	9"	Same	
32			8 7			
33		S - 17	9 9	14"	Same	
34			8 9			
35		S - 18	10 9	13"	Same	
36			9 9			
37		S - 19	9 11	18"	Brown sand & gravel	
38			17 12			
39		S - 20	13 15	6"	Same	
40			15 11			
41		S - 21	6 7	9"	Same	
42			6 9			
43		S - 22	10 17	4"	Gravel & sand	
44			16 16			
45		S - 23	12 13	6"	Same	
46			16 15			
47					E.O.B. - 46 feet	
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-15

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
11/28/2012		13'		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 11/27/2012
DATE FINISH 11/28/2012
DRILLER M. Carire
INSPECTOR S. Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1	6" Casing	1	9	15"	Gravel & trace sand	BOREHOLE GROUTED YES__X__ NO_____
2			15 22 22			
3		2	22 21	14"	Same	
4			24 26			Samples received in field by Client's Rep. YES_____ NO__X__
5		3	25 21	10"	Same	
6			15 11			If YES, sign & print name
7		4	9 10	12"	Gravel, some sand & trace silt	
8			8 7			
9		5	8 10	14"	Sandy silt, some gravel & some trash (plastic, wood)	Signature
10			10 10			
11		6	9 8	3"	Trash (wood, plastic, glass, brick, paper) & trace sand	Print name
12			5 5			
13		7	4 3	2"	Same	Materials used on Boring
14			4 7			
15		8	6 5	3"	Trash, some clay, some sand & some gravel	Benseal _____ Quick Gel ____1____ Hole Plug _____ Revert _____ Well gravel _____ Concrete _____ Asphalt _____ Spoons _____ Traps _____ Bits
16			4 3			
17		9	W.O.H.	24"	Clay, silt & trace peat	
18						
19		10	W.O.H.	3"	Peat & some clay	
20			1 2			Well gravel _____ Concrete _____ Asphalt _____ Spoons _____ Traps _____ Bits
21	Revert	11	W.O.H. 2	15"	Sand, some gravel & trace clayey silt	
22			1 2			
23		12	2 3	10"	Same	Installed a 2" well @ 40'. 5' Screen 37' Riser 6" Stand Pipe 2" Locking Cap
24			3 3			
25		13	3 5	12"	Silty sand & trace gravel	
26			6 7			1 drum
27		14	5 8	22"	Same	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-15
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	15 17	22"	Silty sand & trace gravel	
29 30		15	14 17 17 19	21"	Silty clay, trace fine sand & trace gravel	
31 32		16	10 11 11 12	15"	Sandy silt & trace gravel	
33 34		17	14 15 13 13	12"	Silty sand & trace gravel	
35 36		18	11 11 11 12	15"	Silt & trace sand	
37 38		19	11 13 15 16	18"	Silty sand	
39 40		20	15 15 16 18	16"	Same	
41 42		21	15 16 17 18	18"	Same	
43					E.O.B. - 42 feet	
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-16

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
11/27/2012		11'		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 11/21/2012
DATE FINISH 11/27/2012
DRILLER M. Carire
INSPECTOR S. Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1	6" Casing	1	13	15"	Gravel, some sand & trace silt	BOREHOLE GROUTED
2			25 18 12			YES__X__ NO_____
3		2	11	10"	Same	
4			14 15 14			Samples received in field by Client's Rep.
5		3	15	8"	Same	YES_____ NO__X__
6			14 15 14			
7		4	14	6"	Sandy silt & gravel	If YES, sign & print name
8			14 13 13			
9		5	12	5"	Same	Signature
10			11 14 16			
11		6	11	4"	Trash (plastic, paper, rubber, wood, glass) some gravel & trace sand	Print name
12			25 17 9			
13		7	8	3"	Same	Materials used on Boring
14			10 14 10			
15		8	10	3"	Trash, wood & trace peat	Benseal _____
16			10 17 10			Quick Gel _____ Hole Plug _____
17		9	W.O.H.	10"	Peat	Revert ____1___ Well gravel _____
18						Concrete _____ Asphalt _____
19		10	W.O.H.	9"	Same	Spoons _____ Traps _____ Bits
20						Well gravel _____
21	Revert	11	W.O.H.	15"	Clayey silt, trace sand & trace organics	Concrete _____ Asphalt _____ Spoons _____ Traps _____ Bits
22			1			
23		12	1 2	20"	Clayey silt & trace sand	Installed a 2" well @ 41'. 5' Screen 38' Riser 6" Stand Pipe 2" Locking Cap
24			2 2			
25		13	6	18"	Clay & silt	
26			9 11 13			1 drum
27		14	11 12	20"	Same	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-16
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	12 15	20"	Clay & silt	
29		15	10 11	18"	Silty clay & trace fine sand	
30			10 11			
31		16	11 12	15"	Same	
32			12 12			
33		17	11 11	18"	Same w/ gravel	
34			14 14			
35		18	12 9	19"	Clayey silt	
36			10 9			
37		19	5 7	22"	Silty clay	
38			7 9			
39		20	7 8	24"	Same w/ some sand	
40			8 8			
41		21	6 5	15"	Sand & trace silt	
42	▼		6 7			
43					E.O.B. - 42 feet	
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-17

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York
Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
11/21/2012		7'		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 11/20/2012
DATE FINISH 11/21/2012
DRILLER M. Carire
INSPECTOR Joe Giordano

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1	6" Casing	1	19	16"	Gravel	BOREHOLE GROUTED
2			19			YES__X__ NO____
			19			
			25			
3		2	18	14"	Same	
4			19			Samples received in field by Client's Rep.
			21			
			23			YES____ NO__X__
5		3	20	11"	Same	
6			21			If YES, sign & print name
			22			
			20			
7		4	10	12"	Gravel, trace sand, trace wood & trace silt	
8			19			
			15			
			14			
9		5	12	6"	Sand, gravel, trace silt & trace wood	Signature
10			11			
			9			
			8			
11		6	3	2"	Trash (Plastic, wood, glass & fibers)	Print name
12			2			
			1			
			2			
13		7	1	1"	Same	Materials used on Boring
14			2			
			1			
			1			
15		8	W.O.H.	1"	Some trash, wood & some peat	Benseal _____
16			1			Quick Gel _____
			1			Hole Plug _____
			1			Revert _____
17		9	W.O.H.	7"	Sandy silt, trace gravel & trace trash	Well gravel _____
18			2			Concrete _____
			2			Asphalt _____
						Spoons _____
19		10	4	9"	Same	Traps _____
20			5			Bits
			4			Well gravel _____
			6			Concrete _____
21		11	11	6"	Sand, gravel & trace silt	Asphalt _____
22			15			Spoons _____
			19			Traps _____
			25			Bits
23		12	20	5"	Same	
24			22			Installed a 2" well @ 35'.
			21			5' Screen 32' Riser
			26			6" Stand Pipe
25		13	100 / 0"	0"	No recovery - 12" boulder	2" Locking Cap
26	Revert					1 drum
27		14	34	3"	Gravel & some sand	
			29			

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-17
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
			45			
28	Revert	14	56	3"	Gravel & some sand	
			42			
29		15	50	6"	Same	
			43			
30			51			
			66			
31		16	66	9"	Sandy silt & gravel	
			33			
32			27			
			31			
33		17	35	6"	Same	
			28			
34			29			
			22			
35		18	31	8"	Silty sand & gravel	
			29			
36	↓		25			
37					E.O.B. - 36 feet	
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-18AUG

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York

SHT. NO. 1 of 2	
JOB NO.	12 - 092
ELEVATION	
PERMIT NO	
DATE START	12/3/2012
DATE FINISH	12/4/2012
DRILLER	K. Elliott
INSPECTOR	

Ground Water

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
			5"	DIA	HW	SS	NX	
				DIA	140	2"		
				WT				
				FALL				

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1		1	4	0"	No recovery - 2 attempts	BOREHOLE GROUTED
2			3			YES__X__ NO_____
			5			
			6			
3		2	9	0"	No recovery	Samples received in field by Client's Rep.
			8			
4			7			YES_____ NO__X__
			7			
5		3	6	14"	Silty clay with gravel	If YES, sign & print name
			8			
6			7			
			11			
7		4	8	12"	Same	Signature
			9			
8			9			
			9			
9		5	6	10"	Same	
			9			
10			8			
			9			
11		6	4	6"	Same	Print name
			10			
12			9			
			11			
13		7	8	6"	Same	Materials used on Boring
			11			
14			10			
			9			
15		8	5	20"	Brown sand, silt & trace of gravel	Benseal _____
			5			Quick Gel _____
16			7			Hole Plug _____
			13			Revert _____
17		9	10	7"	Sand, gravel & trace of silt	Well gravel _____
			13			Concrete _____
18			14			Asphalt _____
			18			Spoons _____
19		10	13	11"	Same	Traps _____
			14			Bits
20			14			Well gravel _____
			14			Concrete _____
21		11	9	10"	Same	Asphalt _____
			12			Spoons _____
22			13			Traps _____
			16			Bits
23		12	14	6"	Same	
			18			
24			11			
			14			
25		13	100 / 4"	2"	Boulder	Installed a 2" well @ 40'
26						
27		14	100 / 0"	0"	Boulder	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-18AUG
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28		14	100 / 0"	0"	Boulder	
29		15	100 / 0"	0"	Boulder	
30						
31		16	17	6"	Sand, gravel & trace of silt	
			28			
32			100 / 3"			
33		17	100 / 0"	0"	Boulder	
34						
35		18	9	10"	Sand & gravel	
			17			
36			17			
			20			
37		19	18	6"	Same	
			41			
38			28			
			30			
39		20	27	11"	Same	
			28			
40			28			
			30			
41		21	21	4"	Same	
			24			
42					E.O.B. - 41 feet	
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-19

PROJECT: Brookfield Landfill — SHT. NO. 1 of 1
CLIENT: Brookfield Construction Associates, LLC — JOB NO. 12 - 092
LOCATION: Staten Island, New York — ELEVATION
Ground Water — PERMIT NO.

DATE	TIME	DEPTH	CASING	TYPE	CAS.	SAMP.	CORE	TUBE
11/20/2012		6'		DIA.	6"	2"	NX	
				WT.	140	140		
				FALL	30"	30"		

DATE START 11/19/2012
DATE FINISH 11/20/2012
DRILLER M. Carire
INSPECTOR S. Picerno

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	6" Casing	1	5	12"	Gravel
2			6 7 9		
3		2	9 9	10"	Same
4			12 16		
5		3	14 13	16"	Sandy silt, some gravel
6			15 16		
7		4	15 11	10"	Sand, trace silt, gravel & wood
8			9 9		
9		5	9 8	7"	Same
10			9 10		
11		6	5 3	2"	Peat
12			2 1		
13		7	2 1	1"	Same
14			1 2		
15	▼	8	2 2	6"	Sand, trace silt, trace gravel & trace organics
16	Revert		3 3		
17		9	7 9	15"	Sandy silt
18			9 10		
19		10	10 11	18"	Silty clay, trace sand
20			10 12		
21		11	6 11	20"	Silty clay
22			13 13		
23		12	11 12	19"	Same
24			14 13		
25		13	14 16	18"	Same
26	▼		17 18		
27					E.O.B. - 26 feet

REMARKS

BOREHOLE GROUTED

YES__X__ NO_____

Samples received in field by Client's Rep.

YES_____ NO__X__

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal _____
Quick Gel _____
Hole Plug _____
Revert _____
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits
Well gravel _____
Concrete _____
Asphalt _____
Spoons _____
Traps _____
Bits

Installed a 2" well @ 25'.
5' Screen 22' Riser
6" Stand Pipe
2" Locking Cap

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-20

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York

SHT. NO. 1 of 2
JOB NO. 12 - 092
ELEVATION
PERMIT NO.
DATE START 11/16/2012
DATE FINISH 11/19/2012
DRILLER M. Carire
INSPECTOR S. Picerno

Ground Water					CAS.	SAMP.	CORE	TUBE
DATE	TIME	DEPTH	CASING	TYPE	HW	SS	NX	
11/19/2012		1		DIA.	6"	2"		
				WT.	140	140		
				FALL	30"	30"		

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1	6" Casing	1	W.O.H.	15"	Silty clay	BOREHOLE GROUTED
2			1 3 2			YES__X__ NO_____
3		2	4 6	12"	Silty clay w/ gravel	
4			8 8			Samples received in field by Client's Rep.
5		3	11 5	16"	Clay, trace peat & trace organics	YES_____ NO__X__
6			3 2			
7		4	2 1	6"	Same	If YES, sign & print name
8			1 2			
9		5	2 1	5"	Same	Signature
10			2 1			
11		6	W.O.H. 1	2"	Clay & trace organics	Print name
12			2 1			
13		7	2 3	6"	Sand	Materials used on Boring
14			4 3			
15	▼	8	4 6	10"	Sand & trace silt	Benseal _____
16	Revert		6 5			Quick Gel _____
17		9	5 4	11"	Same	Hole Plug _____
18			3 3			Revert _____
19		10	4 5	12"	Sandy silt & trace gravel	Well gravel _____
20			7 8			Concrete _____
21		11	3 7	12"	Silty sand	Asphalt _____
22			12 12			Spoons _____
23		12	12 13	16"	Same	Traps _____
24			12 12			Bits
25		13	10 9	15"	Same	Well gravel _____
26			10 8			Concrete _____
27	▼	14	5 9	15"	Silty clay, trace gravel & trace sand	Asphalt _____

Spoons _____
Traps _____
Bits

Installed a 2" well @ 32'.
10' Screen 24' Riser
6" Stand Pipe
2" Locking Cap

1 drum

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-20
PROJECT: Brookfield Landfill		SHT. NO. 2 of 2
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Revert	14	9 8	15"	Silty clay, trace gravel & trace sand	
29		15	9 10	14"	Silty clay	
30			9 8			
31		16	5 5	18"	Silty clay, trace sand & trace gravel	
32			9 10			
33		17	6 7	15"	Same	
34	▼		9 10			
35					E.O.B. - 34 feet	
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-21
PROJECT: Brookfield Landfill		SHT. NO. 1 of 4
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092
LOCATION: Staten Island, New York		ELEVATION
Ground Water		PERMIT NO.

					CAS.	SAMP.	CORE	TUBE	
DATE	TIME	DEPTH	CASING	TYPE	HW	SS	NX		DATE START 11/28/2012
			5"	DIA.	140	2"			DATE FINISH 11/30/2012
				WT.					DRILLER K. Elliott
				FALL					INSPECTOR

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
1	5" Casing	S - 1	4	14"	Gravel, stone & gray sand	BOREHOLE GROUTED
2			4 7 7			YES__X__ NO_____
3		S - 2	8	11"	Same	
4			9 9 8			Samples received in field by Client's Rep.
5		S - 3	11	8"	Same	YES_____ NO__X__
6			14 13 14			
7		S - 4	12	1"	Wood	If YES, sign & print name
8			9 9 6			
9		S - 5	5	7"	Brown sand, gravel, plastic & trace clay	Signature
10			8 9 9			
11		S - 6	2	20"	Silty clay w/ gravel	Print name
12			5 6 7			
13		S - 7	5	21"	Silty clay w/ sand & gravel	Materials used on Boring
14			8 8 7			
15		S - 8	2	24"	Silty clay w/ gravel	Benseal ___1____
16			4 4 4			Quick Gel _____
17		S - 9	4	24"	Same	Hole Plug ___1____
18			6 6 5			Revert _____
19		S - 10	5	24"	Same	Well gravel __5 1/2__
20			6 7 5			Concrete __2 1/2__
21		S - 11	5	23"	Same	Asphalt _____
22			6 5 7			Spoons _____
23		S - 12	5	16"	Sand, silt & gravel	Traps _____
24			9 9 8			Bits
25		S - 13	4	18"	Same	Well gravel _____
26			7 7 11			Concrete _____
27		S - 14	9 10	14"	Same	Asphalt _____
						Spoons _____
						Traps _____
						Bits
						Installed a 2" well @ 99'. 10' Screen 92' Riser 6" Stand Pipe 2" Locking Cap
						4 drums

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-21
PROJECT: Brookfield Landfill		SHT. NO. 2 of 4
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28		S - 14	12 15	14"	Sand, silt & gravel	
29 30		S - 15	12 14 15 14	16"	Same	
31 32		S - 16	4 4 4 5	7"	Silty sand & gravel	
33 34		S - 17	6 8 8 11	4"	Same	
35 36		S - 18	5 6 6 7	18"	Same	
37 38		S - 19	7 6 6 6	21"	Gray silty clay	
39 40		S - 20	5 6 7 7	24"	Same	
41 42		S - 21	11 13 16 17	13"	Brown sand, silt & gravel	
43 44		S - 22	9 14 13 12	11"	Same	
45 46		S - 23	15 17 17 17	4"	Gravel, sand & trace silt	
47 48		S - 24	13 15 13 13	8"	Same	
49 50		S - 25	17 21 23 31	1"	Gravel	
51 52		S - 26	7 7 6 11	10"	Brown sand, gray silt seams & gravel	
53		S - 27	10 10	14"	Brown sand, silt seams & gravel	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-21
PROJECT: Brookfield Landfill		SHT. NO. 3 of 4
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
54		S - 27	13 12	14"	Brown sand, silt seams & gravel	
55 56		S - 28	9 12 12 14	11"	Same	
57 58		S - 29	9 8 4 3	23"	Gray silty sand	
59 60		S - 30	7 12 11 13	14"	Top 11" - Gray sand, gravel & silt Bottom 3" - Hard gray clay	
61 62		S - 31	7 27 21 23	10"	Top 6" - Hard gray clay Bottom 4" - Gray sand, silt & gravel	
63 64		S - 32	100 / 4"	1"	Gravel or piece of boulder	
65 66		S - 33	14 28 31 27	5"	Gray sand, silt & trace of gravel	
67 68		S - 34	17 21 21 19	11"	Hard gray silty clay	
69 70		S - 35	14 24 27 29	8"	Same w/ trace gravel	
71 72		S - 36	6 7 5 7	24"	Gray clay	
73 74		S - 37	5 6 6 6	24"	Same	
75 76		S - 38	4 3 5 5	24"	Same	
77 78		S - 39	2 4 4 5	24"	Same	
79		S - 40	6 7	24"	Gray clay w/ sand seams	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-21
PROJECT: Brookfield Landfill		SHT. NO. 4 of 4
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
80		S - 40	8 7	24"	Gray clay w/ sand seams	
81		S - 41	5 7	24"	Gray clay w/ silt seams	
82			7 7			
83		S - 42	6 7	24"	Same	
84			10 7			
85		S - 43	5 8	21"	Same	
86			9 11			
87		S - 44	8 7	20"	Sand w/ seams of clay	
88			13 13			
89		S - 45	6 12	18"	Same w/ traces of gravel	
90			14 13			
91		S - 46	8 14	21"	Fine gray sand w/ silt	
92			17 20			
93		S - 47	12 16	16"	Same	
94			17 24			
95		S - 48	13 13	17"	Same	
96			17 21			
97		S - 49	14 17	20"	Same	
98			28 23			
99		S - 50	13 18	24"	Same	
100			18 17			
101					E.O.B. - 100 feet	
102						
103						
104						
105						

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-22

PROJECT: Brookfield Landfill
CLIENT: Brookfield Construction Associates, LLC
LOCATION: Staten Island, New York

Ground Water						SAMP.	CORE	TUBE
DATE	TIME	DEPTH	CASING	TYPE	Augers	SS	NX	
12/3/2012		13'		DIA.	10"	2"		
				WT.		140		
				FALL		30"		

SHT. NO. 1 of 5	
JOB NO.	12 - 092
ELEVATION	
PERMIT NO.	
DATE START	11/30/2012
DATE FINISH	12/13/2012
DRILLER	M. Carire
INSPECTOR	J. Giordano

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION
1	10" Augers	1	7, 9, 10, 10	12"	Gravel, some sand
3		2	10, 9, 10, 14	10"	Same
5		3	5, 11, 10, 6	18"	Sandy silt, some gravel
7		4	7, 8, 11, 11	15"	Same
9		5	10, 9, 5, 6	18"	Silty sand, some gravel
11		6	6, 8, 8, 7	24"	Same
13		7	7, 10, 11, 10	23"	Same
15		8	11, 15, 19, 15	12"	Same
17	Mud	9	13, 13, 17, 17	11"	Same
19		10	15, 15, 10, 15	10"	Sand, some gravel & trace silt
21		11	15, 16, 20, 12	15"	Same
23		12	13, 15, 17, 16	16"	Same
25		13	15, 15, 19, 17	14"	Same
27		14	11, 15	15"	Same

REMARKS

BOREHOLE GROUTED

YES__X__ NO_____

Samples received in field by Client's Rep.

YES_____ NO_____

If YES, sign & print name

Signature

Print name

Materials used on Boring

Benseal	1
Quick Gel	
Hole Plug	2
Revert	
Well gravel	6
Concrete	3
Asphalt	
Spoons	
Traps	
Bits	
Well gravel	
Concrete	
Asphalt	
Spoons	
Traps	
Bits	

12 Drums used

Installed 125' 4" PVC
128' of 4" PVC
5' of 4" Screen
1 - 6" Standpipe

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-22
PROJECT: Brookfield Landfill		SHT. NO. 2 of 5
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
28	Mud	14	18 19	15"	Sand, some gravel & trace silt	
29 30		15	15 17 17 18	17"	Same	
31 32		16	10 14 16 21	15"	Sand, gravel & trace silt	
33 34		17	17 18 24 22	14"	Same	
35 36		18	19 15 19 20	18"	Gravel, some sand & trace silt	
37 38		19	16 21 22 25	16"	Sand, gravel & trace silt	
39 40		20	18 21 21 23	14"	Same	
41 42		21	18 19 25 23	20"	Sand, some gravel & trace silt	
43 44		22	18 17 22 23	18"	Sandy silt, some gravel	
45 46		23	19 20 28 33	15"	Same	
47 48		24	42 42 50 52	14"	Sand, gravel & some silt	
49 50		25	51 52 60 57	16"	Same	
51 52		26	51 55 26 16	10"	Sand, trace gravel & trace silt	
53	▼	27	14 12	8"	Same	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-22
PROJECT: Brookfield Landfill		SHT NO. 3 of 5
CLIENT: Brookfield Construction Associates, LLC		JOB NO. 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
54	Mud	28	14 15	8"	Sand, trace gravel & trace silt	Installed 8" Steel Casing to 55.5'.
55 56	↓	29	13 16 23 50	16"	Silty sand, trace gravel & some clay	
57 58		30	11 17 21 23	11"	Sand, silt & gravel	
59 60		31	15 23 23 25	9"	Same	
61 62		32	5 7 11 13	14"	Gray silty clay	
63 64		33	8 10 11 11	20"	Same	
65 66		34	7 9 11 14	24"	Same	
67 68		35	5 9 13 14	18"	Same	
69 70		36	8 8 13 13	21"	Same	
71 72		37	9 10 10 14	16"	Same	
73 74		38	7 12 10 11	17"	Same	
75 76		39	14 17 32 30	20"	Same	
77 78		40	13 18 24 37	18"	Same	
79		41	15 23	21"	Same	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-22
PROJECT: Brookfield Landfill		SHT. NO. 4 of 5
CLIENT: Brookfield Construction Associates, LLC		JOB NO 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
			37			
80		41	35	21"	Gray silty clay	
			23			
81		42	27	18"	Same	
			34			
82			35			
			19			
83		43	25	15"	Same	
			36			
84			36			
			11			
85		44	17	17"	Same with sand seams	
			27			
86			25			
			13			
87		45	18	16"	Same	
			21			
88			23			
			14			
89		46	16	21"	Same	
			17			
90			17			
			9			
91		47	13	20"	Same	
			12			
92			16			
			17			
93		48	26	11"	Same with more sand	
			30			
94			32			
			14			
95		49	12	21"	Silty clay with sand	
			15			
96			15			
			11			
97		50	12	18"	Same	
			12			
98			12			
			10			
99		51	14	12"	Same	
			17			
100			17			
			13			
101		52	17	11"	Same with trace of gravel	
			14			
102			20			
			12			
103		53	12	9"	Same	
			16			
104			18			
			9			
105		54	7	8"	Sand, silt & trace of gravel	

JERSEY BORING & DRILLING CO., INC.	TEST BORING LOGS	BORING NO. LTMW-22
PROJECT: Brookfield Landfill		SHT. NO. 5 of 5
CLIENT: Brookfield Construction Associates, LLC		JOB NO 12 - 092

DEPTH FEET	CASING BLOWS	SAMPLE NO.	BLOWS ON SAMPLE SPOON PER 6"	SAMPLE RECOVERY	IDENTIFICATION	REMARKS
106		54	14 18	8"	Sand, silt & trace of gravel	
107		55	14 20	14"	Silty sand, traces of clay	
108			17 18			
109		56	13 16	20"	Same	
110			16 16			
111		57	18 21	14"	Gray sand & silt	
112			20 23			
113		58	20 23	11"	Same	
114			23 21			
115		59	26 31	6"	Gray silt, traces of sand	
116			30 30			
117		60	24 34	7"	Same	
118			31 32			
119		61	25 28	9"	Same	
120			28 33			
121		62	36 34	9"	Same with traces of gravel	
122			28 31			
123		63	31 30	4"	Same	
124			31 31			
125		64	28 32	6"	Same	
126			30 36			
127					E.O.B. - 126 feet	
128						
129						
130						
131						

Table 3-1

Monitoring Well Construction Data Summary

Brookfield Avenue Landfill Remediation Investigation, Staten Island, New York

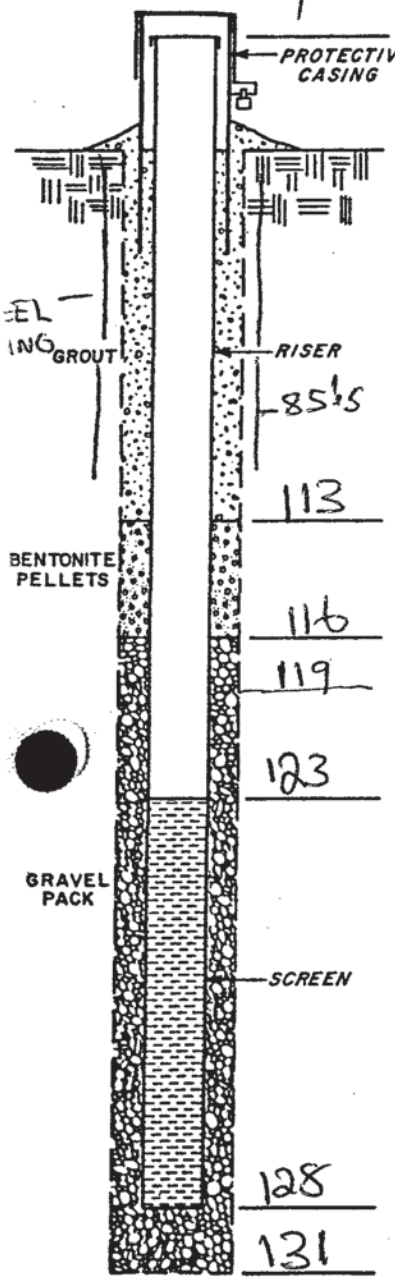
Well ID No.	Material	Diam. (in)	Top of Casing Elevation (ft MSL)	Surface Elevation (ft MSL)	Screened Interval (ft MSL)	Screened Interval (ft BLG)	Date Installed	Study	Hydrogeologic Unit	Current Status
GW-7S	PVC	4.00	10.19	8.19	6.2 to 1.2	2 to 7	01/31/94	F	Glacial Till with Sand (1h)	Active
GW-8S	PVC	4.00	7.32	5.32	3.8 to -1.2	1.5 to 6.5	02/03/94	F	Recent Sand (1d)	Active
GW-9S	PVC	4.00	7.59	5.59	1.6 to -3.4	4 to 9	02/01/94	F	Recent Sand (1d)	Active
GW-10S	PVC	4.00	10.06	8.06	6.1 to 1.1	2 to 7	01/31/94	F	Fill Material (1a)	Active
GW-10M	PVC	4.00	10.24	8.24	-16.8 to -21.8	25 to 30	02/04/94	F	Glacial Till with Sand (1h)	Active
GW-11M	PVC	4.00	11.47	9.47	-22.5 to -27.5	32 to 37	01/18/94	F	Glacial Till / Glaciolacustrine Clay Silt (1f)	Active
GW-12S	PVC	4.00	7.08	5.08	3.6 to -1.4	1.5 to 6.5	01/27/94	F	Meadow Mat (1b)	Active
GW-12M	PVC	4.00	9.45	7.45	-7.6 to -12.6	15 to 20	02/08/94	F	Recent Silt and Clay (1c)	Active
GW-13S	PVC	4.00	9.69	7.69	4.7 to -0.3	3 to 8	02/10/94	F	Glacial Till / Glaciolacustrine Clay Silt (1f)	Active
GW-13D	PVC	4.00	12.52	10.52	-22.5 to -27.5	33 to 38	05/02/94	F	Glacial Till w/Sand/Glaciolacustrine Clay Silt (1f/1h)	Active
LTMW-18c GW-13CS	PVC	4.00	11.97	9.97	-113 to -118	123 to 128	06/13/94	F	Fine to Med. Sand, Light Gray (5)	Active
GW-14S	PVC	4.00	10.04	8.04	6.5 to 1.5	1.5 to 6.5	01/25/94	F	Shallow Glacial Sand (1e)	Active
GW-15S	PVC	4.00	7.97	5.97	4.5 to -0.5	1.5 to 6.5	01/26/94	F	Meadow Mat (1b)	Active
GW-16S	PVC	4.00	8.95	6.95	5.5 to 0.5	1.5 to 6.5	01/27/94	F	Recent Silt and Clay (1c)	Active
GW-17S	PVC	4.00	10.38	8.38	6.9 to 1.9	1.5 to 6.5	12/30/93	F	Fill Material / Meadow Mat (1a/1b)	Active
GW-18S	PVC	4.00	9.87	7.87	5.4 to 0.4	2.5 to 7.5	12/10/93	F	Fill Material (1a)	Active
GW-19S	PVC	4.00	10.35	8.35	5.9 to 0.9	2.5 to 7.5	12/09/93	F	Fill Material (1a)	Active
GW-20S	PVC	4.00	17.52	15.52	6.5 to 1.5	9 to 14	02/16/94	F	Glacial Till / Glaciolacustrine Clay Silt (1f)	Active
GW-20M	PVC	4.00	17.48	15.48	-9.5 to -14.5	25 to 30	02/16/94	F	Glacial Till with Sand (1h)	Active
GW-21S	PVC	4.00	10.19	8.19	4.2 to -0.8	4 to 9	02/04/94	F	Glacial Till with Sand (1h)	Active
GW-22S	PVC	4.00	11.66	9.66	5.7 to 0.7	4 to 9	02/07/94	F	Glacial Till with Sand (1h)	Active
GW-23S	PVC	4.00	14.10	12.10	10.6 to 5.6	1.5 to 6.5	02/07/94	F	Fill / Recent Silt and Clay (1a/1c)	Active
GW-24S	PVC	4.00	15.17	13.17	8.7 to 3.7	4.5 to 9.5	12/05/93	F	Fill Material (1a)	Active
GW-25S	PVC	4.00	16.08	14.08	9.1 to 4.1	5 to 10	01/14/94	F	Fill Material / Meadow and Mat (1a/1b)	Active
GW-26S	PVC	4.00	11.49	9.49	6.0 to 1.0	3.5 to 8.5	12/08/93	F	Fill Material (1a)	Active
GW-27M	PVC	4.00	15.38	13.38	-2.6 to -7.6	16 to 21	02/14/94	F	Shallow Glacial Sand (1e)	Active
GW-27D	PVC	4.00	14.78	12.78	-24.2 to -29.2	37 to 42	02/11/94	F	Reworked:Glacial-Cret. Mix, Sand w/Fines (1i)	Active
GW-28S	PVC	4.00	12.40	12.40	-2.6 to -7.6	15 to 20	02/25/94	F	Glacial Till / Glaciolacustrine Clay Silt (1f)	Active
GW-28D	PVC	4.00	13.32	13.32	-26.7 to -31.7	40 to 45	02/24/94	F	Deep Glacial Sand/Reworked Sediment (1h)	Active
LW-1S	PVC	4.00	26.66	19.60	-1.4 to -6.4	21 to 26	02/01/94	F	Waste / Recent Sand (1a/1d)	Active
LW-2S	PVC	4.00	33.30	31.30	6.3 to 1.3	25 to 30	01/25/94	F	Waste (1a)	Active
LW-3S	PVC	4.00	30.23	28.23	-0.8 to -5.8	29 to 34	01/06/94	F	Waste / Recent Sand and Clay / Till (1a/1c)	Active
LW-4S	PVC	4.00	41.69	39.69	-1.3 to -6.3	41 to 46	12/21/93	F	Waste (1a)	Active
LW-5S	PVC	4.00	30.80	28.80	0.8 to -4.2	28 to 33	12/14/93	F	Waste (1a)	Active
PZ-1BR	PVC	2.00	12.40	10.40	-139.6 to -144.6	150 to 155	05/19/94	F	Weathered Bedrock - Manhattan Schist (8)	Active
PZ-2BR	PVC	2.00	18.40	16.40	-151.6 to -156.6	168 to 173	04/05/94	F	Weathered Bedrock - Manhattan Schist (8)	Active
SAC-1	PVC	4.00	27.33	24.83	-36.2 to -41.2	61 to 66	04/09/97	G	Reworked:Glacial-Cret. Mix, Sand w/Fines (1i)	Active

CDM

environmental engineers, scientists, planners & management consultants

WELL CONSTRUCTION SUMMARY

Project: Brookfield Ave LF Client: NYSDEP Well No: GW-13 CS



DRILLING SUMMARY

Drilling Co: Delta Well & Pump. Drillers: Rudy, R. (CABLE TOOL); Keith C & Conrad S.

Drill Rig Make/Model: PORTA DRILL, CABLE TOOL.

Borehole Diameters: 12" & 8" Drilling Fluid: Mud/water

Bits/Depths: 12" Tricone Roller Bit, 7 7/8

Total Depth: 128' Depth to Water:

Supervisory Geologist: Otis Ekpordin

WELL DESIGN

CASING MATERIAL STEEL

Casing Material:	PVC	Diameter:	8" 4"	Length:	85' 125'
Screen Material:	PVC	Diameter:	4"	Length:	5'
Slot Size:	010"	Setting:	128' - 123'		
Filter Material:	Morie #1 Sand (Morie SAND)	Setting:	131 - 119', Morie 119-116		
Seals Material:	Bentonite Slurry	Setting:	116 - 113		
Grout:	Bentonite/Cement Mix	Setting:	113 - 0		
Surface Casing Material:	STEEL	Setting:	0 - 2'		

STAND Pipe

TIME LOG

	Started	Completed
Drilling:	May 25, 1994	June 13, 1994
Installation:	June 13, 1994 16:00hrs	June 13, 1994, 21:00hrs
Development:		

WELL DEVELOPMENT

Method:

Static Depth to Water:

Pumping Depth to Water:

Pumping Rate: Specific Capacity:

Volume Pumped:

NY-5

Appendix H
Environmental Easement (2016)

ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

THIS INDENTURE made this 11th day of November, 2016 between Owner(s) City of New York through its Department of Environmental Protection ("NYC DEP"), having an office at 96-05 Horace Harding Expressway, County of Queens, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee."), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor, is the owner of real property located at the former Brookfield Avenue Landfill and having an address of 575 Arthur Kill Road in the City of New York, County of Richmond and State of New York, known and designated on the tax map of the New York City Department of Finance ("NYC DOF") as tax map parcel number: Block 4449 Lot 1; Block 4454 Lot 1; Block 4454 Lot 49; Block 5540 Lot 1; Block 5550 Lot 1; Block 5550 Lot 22; Block 5551 Lot 1; Block 5552 Lot 1; Block 5553 Lot 1; Block 5554 Lot 1; Block 5555 Lot 1; Block 5558 Lot 1; Block 5559 Lot 1; Block 5559 Lot 100; Block 5570 Lot 1, being the same as that property conveyed to Grantor by Condemnation Decree, dated May 25, 1953; Index No. City 503/53.

WHEREAS, Grantor, is the owner of real property located at the former Brookfield Avenue Landfill and having an address of 575 Arthur Kill Road in the City of New York, County of Richmond and State of New York, known and designated on the tax map of the NYC DOF as tax map parcel number: Block 5559 Lot 260, being a portion of the property conveyed to Grantor

2016 - 023619

by Condemnation Decree, dated March 2, 1953; Index No. City 494/53.

WHEREAS, Grantor, is the owner of real property located at the former Brookfield Avenue Landfill and having an address of 575 Arthur Kill Road in the City of New York, County of Richmond and State of New York, known and designated on the tax map of the NYC DOF as tax map parcel number: Block 5550 Lot 10, being the same as that property conveyed to Grantor by deed dated February 26, 2013 and recorded in the Richmond County Clerk's Office in Instrument No. 000000000497268.

WHEREAS, the property subject to this Environmental Easement (the "Controlled Property") comprises approximately 243.58 +/- acres, and is hereinafter more fully described in the Land Title Survey dated September 19, 2016 prepared by WSP Transportation and Infrastructure, which will be attached to the Site Management Plan ("SMP"). The Controlled Property description is set forth in and attached hereto as Schedule A. Excepting from the Controlled Property and excluded from the easement is the portion of Block 5550 Lot 1, containing the NYC HPD structures, as noted in Schedule A and the SMP; the portion of Block 5570 Lot 1, containing the NYC Parks structures, as noted in Schedule A and the SMP; the portion of Block 5590 Lot 260, containing the New York City Department of Environmental Protection ("NYC DEP") Eltingville Pump Station ("PS"), as noted in Schedule A and the SMP; and Block 5570 Lots 150 and 101 (as reflected on the current tax map (Effective Date: 2014/01/17) or as other records may show.

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of State Assistance Contract Number: C3044198, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement")

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The controls and requirements listed in the Department approved SMP including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the SMP;

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(7) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SMP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for Residential or Restricted Residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i) and (ii), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement. Excepting from the Controlled Property and excluded from the easement is the portion of Block 5550 Lot 1, containing the NYC HPD structures, as noted in Schedule A and the SMP; the portion of Block 5570 Lot 1, containing the NYC Parks structures, as noted in Schedule A and the SMP; the portion of Block 5590 Lot 260, containing the NYC DEP Eltingville PS, as noted in Schedule A and the SMP; and Block 5570 Lots 150 and 101 (as reflected on the current tax map (Effective Date: 2014/01/17) or as other records may show.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified

reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SMP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved b the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in

accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to:

Site Number: 243006
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

Remainder of Page Intentionally Left Blank

IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

City of New York through its Department of Environmental Protection:

By: _____

Print Name: Vincent Sapienza

Title: Acting Comm Date: 10/7/16

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF Queens)

On the 7 day of October in the year 2016 before me, the undersigned, personally appeared Vincent Sapienza personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

_____
Notary Public - State of New York

ALISON K. GILGORE
Notary Public, State of New York
No. 02GI6124110
Qualified In New York County
Commisison Expires March 21, 2017

APPROVED AS TO FORM
SCH
SEP 27 2016

2016-023619

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation as Designee of the Commissioner,

By: _____
Robert W. Schick, Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF ALBANY)

On the 11th day of November, in the year 2016 before me, the undersigned, personally appeared Robert W. Schick, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

David J. Chiusano
Notary Public, State of New York
No. 01CH5032146
Qualified in Schenectady County
Commission Expires August 22, 2016

SCHEDULE "A" PROPERTY DESCRIPTION

Block 5570 Lot 1

All that certain piece or parcel of land lying and being in Staten Island, County of Richmond, and State of New York and being more particularly bounded and described as follows:

Beginning at a point on the Easterly side of Richmond Ave, being the northwestern corner of the parcel thence;

Easterly along the existing waterline of Richmond Creek a distance of 955'± thence;
(Survey Tie: N 74°03'56" E a distance of 868.76 feet)

Along the lands now or formerly Parks and Recreation the following three courses
1. S 30°21'51" E a distance of 1031.77 feet to a point thence;
2. S 18°16'44" E a distance of 1193.82 feet to a point thence;
3. S 19°48'02" E a distance of 143.78 feet to a point thence;

Along Arthur Kill Rd the following ten courses
1. S 59°39'09" W a distance of 220.53 feet to a point thence;
2. Along a curve to the right with an arc length of 88.69 feet, a radius of 300 feet, and a delta angle of 16°56'19" thence;
3. S 76°35'29" W a distance of 208.49 feet to a point thence;
4. Along a curve to the right with an arc length of 150.86 feet, a radius of 300 feet, and a delta angle of 28°48'44" thence;
5. N 75°01'58" W a distance of 392.52 feet to a point thence;
6. Along a curve to the right with an arc length of 47.12 feet, a radius of 30 feet, and a delta angle of 89°59'58" thence;
7. N 75°01'58" W a distance of 85.00 feet to a point thence;
8. Along a concave curve to the left with an arc length of 47.12 feet, a radius of 30 feet, and a delta angle of 90°00'03" thence;
9. N 75°01'36" W a distance of 698.26 feet to a point thence;
10. Along a curve to the right with an arc length of 32.66 feet, a radius of 25 feet, and a delta angle of 74°51'06" thence;

Along Richmond Ave the following three courses
1. N 0°10'29" W a distance of 260.42 feet to a point thence;
2. N 02°12'54" E a distance of 1399.47 feet to a point thence;
3. N 01°46'08" E a distance of 103.19 feet to the existing waterline of Richmond Creek and the point of beginning.

Having an area of 69.8± Acres

The following portion of Block 5570 Lot 1 is excluded from the environmental easement to be recorded for site number 243006 pursuant to State Assistance Contract number C3044198.

Beginning at a point on the Northerly side of Arthur Kill Road, being the southeastern corner of the parcel thence;

Along Arthur Kill Road the following two courses;

1. N 75°01'36" W a distance of 414.56 feet to a point thence;
2. Along a curve to the right with an arc length of 32.66 feet, a radius of 25 feet, and a delta angle of 74°51`06" thence;

Along Richmond Ave the following three courses;

1. N 0°10'29" W a distance of 214.00 feet to a point thence;

Thence through the lands now or formerly parks and recreation the following twenty two courses;

1. N 76°56'15" E a distance of 26.07 feet to a point thence;
2. S 84°49`16" E a distance of 34.87 feet to a point thence;
3. N 82°25`30" E a distance of 29.03 feet to a point thence;
4. N 76°14`28" E a distance of 40.21 feet to a point thence;
5. S 53°09`45" E a distance of 22.48 feet to a point thence;
6. S 25°51`10" E a distance of 15.50 feet to a point thence;
7. S 15°33`06" E a distance of 20.10 feet to a point thence;
8. S 54°44`48" E a distance of 46.02 feet to a point thence;
9. S 30°44`39" W a distance of 20.92 feet to a point thence;
10. S 50°35`30" E a distance of 17.91 feet to a point thence;
11. S 31°55`24" E a distance of 34.21 feet to a point thence;
12. S 7°36`54" E a distance of 31.71 feet to a point thence;
13. S 17°18`09" E a distance of 56.50 feet to a point thence;
14. S 80°14`37" E a distance of 30.96 feet to a point thence;
15. N 89°26`48" E a distance of 18.57 feet to a point thence;
16. S 79°30`21" E a distance of 35.38 feet to a point thence;
17. S 11°31`56" W a distance of 8.66 feet to a point thence;
18. S 59°20`08" E a distance of 15.26 feet to a point thence;
19. S 53°03`39" E a distance of 31.25 feet to a point thence;
20. S 47°27`21" E a distance of 48.97 feet to a point thence;
21. S 31°19`12" E a distance of 49.21 feet to a point thence;
22. S 20°21`44" W a distance of 22.51 feet to the point or place of beginning.

Having an area of 71584± Square Feet, 1.64± Acres

Excepting there from, Tax Lots 150 and 101 from Block 5570, as reflected on the current tax map (Effective Date: 2014/01/17) or as other records may show.

Block 5559 Lot 1

All that certain piece or parcel of land lying and being in Staten Island, County of Richmond, and State of New York and being more particularly bounded and described as follows:

Beginning at a point on the Northerly side of Arthur Kill Rd, being the southwestern corner of the parcel thence;

Along the lands now or formerly Parks and Recreation the following three courses

1. N 19°48'02" W a distance of 143.78 feet to a point thence;
2. N 18°16'44" W a distance of 1193.82 feet to a point thence;
3. N 30°21'51" W a distance of 1031.77 feet to the existing waterline of Richmond creek thence;

Easterly along the waterline of Richmond Creek a distance of 1275`± thence;
(Survey Tie: N 46°56'24" E a distance of 436.08 feet)
(Survey Tie: S 19°26'36" E a distance of 722.23 feet)

Along the lands now or formerly Parks and Recreation N 32°31'37" E a distance of 216.78 feet to a point thence;

Along the unimproved Right of Way the following six courses
1. S 40°33'30" E a distance of 587.98 feet to a point thence;
2. S 71°31'55" W a distance of 276.28 feet to a point thence;
3. S 37°47'19" E a distance of 63.58 feet to a point thence;
4. S 18°28'04" E a distance of 573.94 feet to a point thence;
5. N 71°31'56" E a distance of 260.00 feet to a point thence;
6. S 18°28'04" E a distance of 670.00 feet to a point thence;

Along the northerly sideline of Arthur Kill Road the following three courses
1. S 71°31'56" W a distance of 91.49 feet to a point thence;
2. S 60°56'06" W a distance of 476.64 feet to a point thence;
3. S 59°39'09" E a distance of 31.73 feet to a point thence;

Having an area of 25.2± Acres

Block 5555 Lot 1

All that certain piece or parcel of land lying and being in Staten Island, County of Richmond, and State of New York and being more particularly bounded and described as follows:

Beginning at a point on the Northerly side of Arthur Kill Rd, being the southwestern corner of the parcel thence;

Along the unimproved Right of Way the following 3 courses
1. N 18°28'04" W a distance of 670.00 feet to a point thence;
2. N 71°31'56" E a distance of 828.51 feet to a point thence;
3. N 49°26'30" E a distance of 30.00 feet to a point thence;

Along the lands now or formerly Department of Sanitation the following four courses
1. S 40°23'35" E a distance of 120.69 feet to a point thence;
2. S 62°06'47" W a distance of 164.00 feet to a point thence;
3. S 42°33'44" E a distance of 66.00 feet to a point thence;
4. S 25°37'01" E a distance of 460.74 feet to a point thence;

Along Arthur Kill Rd the following two courses
1. S 65°57'58" W a distance of 258.48 feet to a point thence;
2. S 71°31'55" W a distance of 566.60 feet to the point of beginning;

Having an area of 537246± Square Feet, 12.33± Acres

Block 5552 Lot 1

All that certain piece or parcel of land lying and being in Staten Island, County of Richmond, and State of New York and being more particularly bounded and described as follows:

Beginning at a point on the Northerly side of Arthur Kill Rd, being the southwestern corner of the parcel thence;

Along the lands now or formerly Department of Sanitation the following four courses
1. N 25°37'01" W a distance of 460.74 feet to a point thence;
2. N 42°33'44" W a distance of 66.00 feet to a point thence;
3. N 62°06'47" E a distance of 164.00 feet to a point thence;
4. N 40°23'35" W a distance of 120.69 feet to a point thence;

Along the unimproved Right of Way the following three courses
1. N 49°26'30" E a distance of 230.00 feet to a point thence;
2. S 40°33'30" E a distance of 480.16 feet to a point thence;
3. S 18°27'59" E a distance of 196.55 feet to a point thence;

Along Arthur Kill Rd the following three courses
1. S 38°57'52" W a distance of 40.83 feet to a point thence;
2. Along a curve to the right with an arc length of 176.83 feet, a radius of 375.25 feet, and a delta angle of 26°59'59" thence;
3. S 65°57'58" W a distance of 227.20 feet to a point thence;

Having an area of 262835± square feet, 6.03± Acres

Block 5551 Lot 1

All that certain piece or parcel of land lying and being in Staten Island, County of Richmond, and State of New York and being more particularly bounded and described as follows:

Beginning at a point on the Northerly side of Arthur Kill Rd, being the southwestern corner of the parcel thence;

Along the unimproved Right of Way the following two courses
N 18°27'55" W a distance of 169.93 feet to a point thence;
N 40°33'29" W a distance of 524.26 feet to a point thence;

Along the lands now or formerly Department of Sanitation N 49°26'30" E a distance of 156.53 feet to a point thence;

Along the lands now or formerly Department of Sanitation the following three courses

1. S 42°43'06" E a distance of 265.65 feet to a point thence;
2. S 42°43'21" E a distance of 95.18 feet to a point thence;
3. S 37°06'04" E a distance of 281.50 feet to a point thence;

Along Arthur Kill Road S 38°57'59" W a distance of 220.76 feet to the point of beginning.

Having an area of 111142± Square Feet, 2.55± Acres

Block 5550 Lot 1

All that certain piece or parcel of land lying and being in Staten Island, County of Richmond, and State of New York and being more particularly bounded and described as follows:

Beginning at a point on the Northerly side of Arthur Kill Rd, being the southwestern corner of the parcel thence;

Along the lands now or formerly Department of Sanitation the following three courses
1. N 37°06'04" W a distance of 281.50 feet to a point thence;
2. N 42°43'21" W a distance of 95.18 feet to a point thence;
3. N 42°43'06" W a distance of 265.65 feet to a point thence;

Along the lands now or formerly Department of Sanitation the following two courses
1. N 42°43'06" W a distance of 5.28 feet to a point thence;
2. N 35°23'02" E a distance of 132.30 feet to a point thence;

Along the lands now or formerly Department of Environmental Protection S 54°35'51" E a distance of 315.58 feet to a point thence;

Along the land now or formerly Holtermann S 54°35'51" E a distance of 268.44 feet to a point thence;

Along Arthur Kill Rd the following two courses
1. S 25°19'26" W a distance of 219.78 feet to a point thence;
2. Along a curve to the right with an arc length of 76.20 feet, a radius of 320 feet, and a delta angle of 13°38`37`` thence to the point of beginning.

Having an area of 122870± Square Feet, 2.82± Acres

The following portion of Block 5550 Lot 1 is excluded from the environmental easement to be recorded for site number 243006 pursuant to State Assistance Contract number C3044198.

Beginning at a point on the Northerly side of Arthur Kill Road, being the northeastern corner of the parcel thence;

Along the northerly side of Arthur Kill Road S 25°19'26" W a distance of 175.43 feet to a point thence;

Through the lands now or formerly Department of Sanitation the following six courses
1. N 37°02'08" W a distance of 49.45 feet to a point thence;
2. N 75°45'43" W a distance of 66.09 feet to a point thence;
3. N 10°17'28" W a distance of 45.43 feet to a point thence;
4. N 5°55'13" W a distance of 24.39 feet to a point thence;
5. N 1°29'11" E a distance of 131.59 feet to a point thence;
6. N 2°11'48" W a distance of 28.29 feet to a point thence;

Along the land now or formerly Holtermann S 54°35'51" E a distance of 217.38 feet to the point of beginning.

Having an area of 29107± Square Feet, 0.67± Acres

Block 5550 Lot 10

All that certain piece or parcel of land lying and being in Staten Island, County of Richmond, and State of New York and being more particularly bounded and described as follows:

Beginning at a point the following course from the Southern corner of the parcel now or formerly Holtermann
1. N 54°35'51" W a distance of 268.44 feet to the TRUE POINT OF BEGINNING thence;

Along the lands now or formerly Department of Sanitation N 54°35'51" W a distance of 315.58 feet to a point thence;

Along the lands now or formerly Department of Sanitation the following two courses
1. N 35°23'02" E a distance of 41.21 feet to a point thence;
2. N 40°53'43" E a distance of 7.78 feet to a point thence;

Along the lands now or formerly Department of Sanitation S 59°22'48" E a distance of 309.67 feet to a point;

Along the lands now or formerly Holtermann S 30°36'57" W a distance of 75.04 feet to the point of beginning.

Having an area of 19358± Square Feet, 0.44± Acres

Block 5550 Lot 22

All that certain piece or parcel of land lying and being in Staten Island, County of Richmond, and State of New York and being more particularly bounded and described as follows:

Beginning at a point the following two courses from the Southern corner of the parcel now or formerly Holtermann
1. N 54°35'51" W a distance of 268.44 feet to a point thence;
2. N 30°36'57" E a distance of 75.04 feet to the TRUE POINT OF BEGINNING thence:

Along the lands now or formerly Department of Environmental Protection N 59°22'48" W a distance of 309.67 feet to a point thence;

Along the lands now or formerly Department of Sanitation the following two courses
1. N 32°46'03" E a distance of 31.51 feet to a point thence;
2. S 77°57'49" E a distance of 96.84 feet to a point thence;

Along the lands now or formerly Department of Sanitation the following three courses
1. S 77°57'50" E a distance of 177.00 feet to a point thence;
2. S 56°57'45" E a distance of 25.11 feet to a point thence;
3. S 44°15'54" E a distance of 160.30 feet to a point thence;

Along the lands now or formerly Holtermann the following four courses
1. S 25°19'25" W a distance of 56.13 feet to a point thence;
2. N 59°22'48" W a distance of 63.08 feet to a point thence;
3. S 30°37'12" W a distance of 20 feet to a point thence;
4. N 59°23'09" W a distance of 73.02 feet to the point of beginning.

Having an area of 36448± Square Feet. 0.84± Acres

Block 4454 Lot 1

All that certain piece or parcel of land lying and being in Staten Island, County of Richmond, and State of New York and being more particularly bounded and described as follows:

Beginning at a point on the Northerly side of Arthur Kill Rd, being the southwestern corner of the parcel thence;

Along the lands now or formerly Holtermann the following two courses
1. N 64°40'35" W a distance of 120.01 feet to a point thence;
2. S 25°19'25" W a distance of 62.85 feet to a point thence;

Along the lands now or formerly Department of Sanitation the following three courses
1. N 44°15'54" W a distance of 160.30 feet to a point thence;
2. N 56°57'45" W a distance of 25.11 feet to a point thence;
3. N 77°57'50" W a distance of 177.00 feet to a point thence;

Along the lands now or formerly Department of Sanitation the following two courses
1. N 24°12'13" W a distance of 634.83 feet to a point thence;

Along the lands now or formerly Parks and Recreation N 24°12'13" W a distance of 817.21 feet to the existing waterline of Richmond Creek thence;

Easterly along the existing waterline of Richmond Creek a distance of 1575'± thence;
(Survey Tie: N 80°54'32" E a distance of 1050.37 feet)

Along the lands now or formerly Department of Sanitation S 38°08'20" E a distance of 1098.69 feet to a point thence;

Along Arthur Kill Rd the following two courses
1. S 34°55'55" W a distance of 257.64 feet to a point thence;
2. S 45°02'58" W a distance of 60.10feet to a point thence;

Along the lands now or formerly Department of Sanitation the following three courses
1. N 33°41'31" W a distance of 100.02 feet to a point thence;
2. S 45°02'58" W a distance of 50.51 feet to a point thence;
3. S 33°41'31" E a distance of 100.02 feet to a point thence;

Along Arthur Kill Rd the following four courses
1. S 45°02'58" W a distance of 151.83 feet to a point thence;
2. S 50°29'15" W a distance of 273.93 feet to a point thence;

3. Along a curve to the left with an arc length of 136.15 feet, a radius of 310 feet, and a delta angle of 25°09'50" thence;
4. S 25°19'25" W a distance of 120.21 feet to the point of beginning.

Having an area of 37.9± Acres

Block 4454 Lot 49

All that certain piece or parcel of land lying and being in Staten Island, County of Richmond, and State of New York and being more particularly bounded and described as follows:

Beginning at a point on the Northerly side of Arthur Kill Rd, being the southwestern corner of the parcel thence;

Along the lands now or formerly Department of Sanitation the following three courses
1. N 33°41'31" W a distance of 100.02 feet to a point thence;
2. N 45°02'58" E a distance of 50.51 feet to a point thence;
3. S 33°41'31" E a distance of 100.02 feet to a point thence;

Along Arthur Kill Rd S 45°02'58" W a distance of 50.51 feet to the point of beginning.

Having an area of 4955± Square Feet, 0.11± Acres

Block 5559 Lot 260

All that certain piece or parcel of land lying and being in Staten Island, County of Richmond, and State of New York and being more particularly bounded and described as follows:

Beginning at a point on the Northerly side of Glencoe Street (unimproved paper street) and the Easterly side of Cicero Street (unimproved paper street), being the southwestern corner of the parcel thence;

Along the unimproved Right of Ways the following four courses
1. N 18°28'04" W a distance of 513.94 feet to a point thence;
2. N 71°31'55" E a distance of 460.00 feet to a point thence;
3. S 18°28'04" E a distance of 513.94 feet to a point thence;
4. S 71°31'55" W a distance of 460.00 feet to the point of beginning.

Having an area of 236415± Square Feet, 5.43± Acres

The following portion of Block 5559 Lot 260 (a/k/a New York City Department of Environmental Protection Eltingville Pump Station) is excluded from the environmental easement to be recorded for site number 243006 pursuant to State Assistance Contract number C3044198.

Excluding there from a portion of the lot beginning at a point on the Northerly side of Glencoe Street (unimproved paper street) and the Westerly side of Brookfield Avenue (unimproved paper street), being the southeastern corner of the parcel thence;

Along the unimproved Right of Ways the following four courses

1. S 71°31'55" W a distance of 204.44 feet to a point thence;
2. N 18°28'04" W a distance of 166.34 feet to a point thence;
3. N 71°31'55" E a distance of 204.44 feet to a point thence;
4. S 18°28'04" E a distance of 166.34 feet to the point of beginning.

Having an area of 34,007± Square Feet, 0.78± Acres

Block 5558 Lot 1

All that certain piece or parcel of land lying and being in Staten Island, County of Richmond, and State of New York and being more particularly bounded and described as follows:

Beginning at a point on the Northerly side of Glencoe Street (unimproved paper street) and the Easterly side of Brookfield Ave (unimproved paper street), being the southwestern corner of the parcel thence;

Along the unimproved Right of Way N 18°28'04" W a distance of 543.94 feet to a point thence;

Along the lands now or formerly Department of Sanitation the following two courses
1. N 71°31'56" E a distance of 195.00 feet to a point thence;
2. N 51°29'16" E a distance of 149.06 feet to a point thence;

Along the lands now or formerly Department of Sanitation S 40°33'30" E a distance of 630.00 feet to a point thence;

Along the unimproved Right of Way the following two courses
1. S 49°26'30" W a distance of 30.00 feet to a point thence;
2. S 71°31'56" W a distance of 544.16 feet to the point of beginning.

Having an area of 257485± Square Feet, 5.91± Acres

Block 5559 Lot 100

All that certain piece or parcel of land lying and being in Staten Island, County of Richmond, and State of New York and being more particularly bounded and described as follows:

Beginning at a point being the Northerly corner of Block 5558 Lot 1 now or formerly Department of Sanitation, also being the southeastern corner of the parcel thence;

Along the lands now or formerly Department of Sanitation the following two courses
1. S 51°29'16" W a distance of 149.06 feet to a point thence;
2. S 71°31'56" W a distance of 195.00 feet to a point thence;

Along the unimproved Right of Way the following three courses
1. N 18°28'04" W a distance of 30.00 feet to a point thence;
2. S 71°31'55" W a distance of 260.00 feet to a point thence;
3. S 40°33'30" W a distance of 630.58 feet to a point thence;

Along the lands now or formerly Parks and Recreation the following four courses;
1. N 32°31'37" E a distance of 26.00 feet to a point thence;

2. Along a curve to the right with an arc length of 494.04 feet, a radius of 800 feet, and a delta angle of 35°22'58" thence;
3. N 67°54'35" E a distance of 50.85 feet to a point thence;
4. S 40°33'30" E a distance of 819.68 feet to a point thence;

Having an area of 436685± Square Feet, 10.02± Acres

Block 5540 Lot 1

All that certain piece or parcel of land lying and being in Staten Island, County of Richmond, and State of New York and being more particularly bounded and described as follows:

Beginning at a point being the Northerly corner of Block 5558 Lot 1 now or formerly Department of Sanitation, also being the southern corner of the parcel thence;

Along the lands now or formerly Department of Sanitation the following four courses
1. N 40°33'30" W a distance of 819.68 feet to a point thence;
2. S 67°54'35" W a distance of 50.85 feet to a point thence;
3. Along a curve to the left with an arc length o f 494.04 feet, a radius of 800 feet, and a delta angle of 35°22'58" thence;
4. S 32°31'37" E a distance of 305.49 feet to the existing waterline of Richmond Creek thence;

Along the existing waterline of Richmond Creek a distance of 2990± thence;
(Survey Tie: N 19°26'36" W a distance of 722.23 feet)
(Survey Tie: N 51°30'44" E a distance of 760.03 feet)
(Survey Tie: N 86°01'29" E a distance of 1154.67 feet)

Along the lands now or formerly Department of Sanitation S 24°12'13" E a distance of 817.21 feet to a point thence;

Along the lands now or formerly Department of Sanitation the following three courses
1. S 65°47'47" W a distance of 32.25 feet to a point thence;
2. N 67°59'45" W a distance of 77.51 feet to a point thence;
3. S 49°26'30" W a distance of 566.23 feet to a point thence;

Along the lands now or formerly Department of Sanitation S 49°26'30" W a distance of 260.00 feet to the point of beginning.

Having an area of 36.1± Acres

Block 5554 Lot 1

All that certain piece or parcel of land lying and being in Staten Island, County of Richmond, and State of New York and being more particularly bounded and described as follows:

Beginning at a point being the Northerly corner of Block 5558 Lot 1 now or formerly Department of Sanitation, also being the northwestern corner of the parcel thence;

Along the lands now or formerly Parks and Recreation N 49°26'30" E a distance of 260.00 feet to a point thence;

Along the lands now or formerly Department of Sanitation S 40°33'30" E a distance of 630.00 feet to a point thence;

Along the unimproved Right of Way S 49°26'30" W a distance of 260.00 feet to a point thence;

Along the lands now or formerly Department of Sanitation N 40°33'30" W a distance of 630.00 feet to the point of beginning.

Having an area of 163800± Square Feet, 3.76± Acres

Block 5553 Lot 1

All that certain piece or parcel of land lying and being in Staten Island, County of Richmond, and State of New York and being more particularly bounded and described as follows:

Beginning at a point being the Northerly corner of Block 5554 Lot 1 now or formerly Department of Sanitation, also being the easterly corner of the parcel thence;

Along the lands now or formerly Parks and Recreation the following three courses
1. N 49°26'30" E a distance of 566.23 feet to a point thence;

2. S 67°59'45" E a distance of 71.51 feet to a point thence;
3. N 65°47'47" E a distance of 32.25 feet to a point thence;

Along the lands now or formerly Department of Sanitation S 24°12'13" E a distance of 634.83 feet to a point thence;

Along the lands now or formerly Department of Sanitation the following two courses
1. N 77°57'49" W a distance of 96.84 feet to a point thence;
2. S 32°46'03" W a distance of 31.51 feet to a point thence;

Along the lands now or formerly Department of Environmental Protection the following two courses
1. S 40°53'43" W a distance of 7.78 feet to a point thence;
2. S 35°23'02" W a distance of 41.21 feet to a point thence;

Along the lands now or formerly Department of Sanitation the following two courses
1. S 35°23'02" W a distance of 132.30 feet to a point thence;
2. S 42°43'06" E a distance of 5.28 feet to a point thence;

Along the lands now or formerly Department of Sanitation S 49°26'30" W a distance of 156.53 feet to a point thence;

Along the unimproved Right of Way the following two courses
N 40°33'29" E a distance of 32.38 feet to a point thence;
S 49°26'30" W a distance of 30.00 feet to a point thence;

Along the lands now or formerly Department of Sanitation N 40°33'30" W a distance of 630.00 feet to the point of beginning.

Having an area of 354722± Square Feet, 8.14± Acres

Block 4449 Lot 1

All that certain piece or parcel of land lying and being in Staten Island, County of Richmond, and State of New York and being more particularly bounded and described as follows:

Beginning at a point on the Northerly side of Arthur Kill Road, also being the southwesterly corner of the parcel thence;

Along the lands now or formerly Department of Sanitation N 38°08'20" W a distance of 1098.69 feet to the existing waterline of Richmond Creek thence;

Easterly along the existing waterline of Richmond Creek a distance of 1395'± thence;
(Survey Tie: N 63°25'50" E a distance of 594.68 feet)

Along the lands now or formerly Colonial Square the following four courses
1. S 76°15'36" E a distance of 421.70 feet to a point thence;
2. S 3°44'24" W a distance of 294.36 feet to a point thence;
3. N 73°49'32" E a distance of 88.68 feet to a point thence;
4. S 46°42'21" E a distance of 294.39 feet to a point thence;

Along the Northerly side of Arthur Kill Road the following two courses
1. S 42°34'05" W a distance of 0.61 feet to a point thence;
2. S 47°37'32" W a distance of 396.16 feet to a point thence;
3. S 40°37'23" W a distance of 384.20 feet to the point of beginning.

Having an area of 16.2± Acres

Appendix I
Blank Institutional and Engineering Controls and Certification Form

Enclosure 2
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form

Site Details **Box 1**

Site No. 243006

Site Name: Brookfield Avenue Landfill

Site Address: 575 Arthur Kill Road Zip Code: 10308
City/Town: Staten Island
County: Richmond
Site Acreage: 132 landfill, 272 total

Reporting Period:

	YES	NO
1. Is the information above correct?	☐	☐
If NO, include handwritten above or on a separate sheet.		
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	☐	☐
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	☐	☐
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period?	☐	☐
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form. Note: A copy of the above-referenced updated permit is included in the Periodic Review Report.		
5. Is the site currently undergoing development?	☐	☐

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below?	☐	☐
7. Are all ICs/ECs in place and functioning as designed?	☐	☐

IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Not Applicable

Signature of Owner, Remedial Party or Designated Representative Date

SITE NO. 243006

Box 3

Description of Institutional Controls

Parcels	Owner	Institutional Controls
Block 5570, Lot 1; Block 5559, Lots 1, 100, 260; Block 5555, Lot 1; Block 5550, Lots 1, 10, 22; Block 5551, Lot 1; Block 5552, Lot 1; Block 4454, Lots 1, 49; Block 5558, Lot 1; Block 5540, Lot 1; Block 5554, Lot 1;Block 5553, Lot 1; Block 4449, Lot 1 with exclusions identified in the EE.	City of New York	Ground Water Use Restriction (1) Land Use Restriction (1) O&M Manual & Monitoring Plan (2)

(1) Environmental Easement (EE) executed 11/11/16.

(2) 6NYCRR Part 360 O&M Manual with Monitoring Plan serve as the 6NYCRR Part 375 Site Management Plan (SMP) for this Site as approved by NYSDEC.

Description of Engineering Controls

Box 4

Parcel	Engineering Controls
Brookfield Avenue Landfill (Parcels identified above)	6NYCRR Part 360 Landfill Cap/Cover System Active Landfill Gas Collection System Leachate Collection/Pre-treatment System with Barrier Wall Surface Water Collection System

SITE NO. 243006

Box 5

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

   a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

   b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and compete.

YES	NO
☐	☐

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

   (a) the Institutional Control and/or Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

   (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

   (c) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

   (d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

   (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES	NO
☐	☐

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Not Applicable

Signature of Owner, Remedial Party or Designated Representative

Date

IC CERTIFICATIONS
SITE NO. 243006

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 1,2, and 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____at _____

print name print business address

am certifying as _____(Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

_____ _____

Signature of Owner, Remedial Party, or Designated Representative Rendering Certification Date

IC/EC CERTIFICATIONS

Box 7

Qualified Environmental Professional

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I _____at _____
print name print business address

am certifying as a Qualified Environmental Professional for the _____
(Owner or Remedial Party)

_____ _____ _____
Signature of Qualified Environmental Professional, for the Owner or Remedial Party, Rendering Certification | Stamp (Required for PE) | Date

Appendix J
BAL Permits:
FDNY Methane Recovery Operations Permit for Flare Station
and
Leachate Management System Industrial Wastewater Discharge Permit

FIRE DEPARTMENT, CITY OF NEW YORK - BUREAU OF FIRE PREVENTION

PERMIT IS NOT TRANSFERABLE TO ANY OTHER PERSON, FIRM OR CORPORATION AND MAY BE REVOKED AT ANY TIME BY THE FIRE COMMISSIONER

PERMIT SHALL BE PROMINENTLY DISPLAYED ALL TIMES ON PREMISES

FIRE DEPARTMENT, CITY OF NEW YORK **PERMIT** BUREAU OF FIRE PREVENTION

ACCOUNT NUMBER	TYPE	A.P.	D.O.	ADM. CO.	ISSUANCE DATE	PERMIT EXPIRES
33247701	10	S	26	E666	10/10/18	09/19

PREMISES ADDRESS	ACCOUNT NAME
BROOKFIELD AVE LANDFILL 575 ARTHUR KILL RD STATEN ISLAND, NY 10308	NYC DEPT OF PARKS & RECR

ITEM CODE	SUB CODE	QTY	DESCRIPTION	FLOOR NO.	FEE
338	00	1	METHANE RECOVERY OPERATIONS		
345	07	1	COMP GSA ONLY STR/USE METH(P)		
338	12	1	METHANE REC INSTAL/ALTER$210/H		

PERMIT TYPE: 1

1=REGULAR
2=SUPPLEMENTAL
3=DUPLICATE

NYC DEPT OF PARKS & RECR
THE CAPITAL PROJECTS DIVISION
6 OLMSTEAD DR
CORONA NY 11368-4145

** NO FEE ** 0.00

3324770108999
20..8129242

1 FLARE STATION
ANNUAL ESD TEST REQUIRED
COF L-19 REQUIRED DURING FLARE OPS

BY ORDER OF THE COMMISSIONER

Industrial Wastewater Discharge Permit No. 18-P3149-1

NYC Environmental Protection

Vincent Sapienza, P.E.
Commissioner

Pamela Elardo, P.E.
Deputy Commissioner

Bureau of Wastewater Treatment
96-05 Horace Harding Expressway – 2nd Floor
Corona, NY 11368

Tel. (718) 595-6924
Fax (718) 595-4084

August 7, 2018

New York City Parks and Recreation
Environmental Remediation Unit
Brookfield Avenue Landfill Remediation
Olmsted Center, Flushing Meadows Corona Park
117-02 Roosevelt Avenue
Flushing, NY 11368

Re: Issuance of Industrial Wastewater Discharge Permit No. 18-P3149-1

Attention: Ms Kay Zias

Enclosed is your Industrial Wastewater Discharge Permit No. 18-P3149-1, authorizing the discharge of industrial wastewater from your facility located at 575 ARTHUR KILL ROAD, STATEN ISLAND, NY 10308 into the New York City sewerage system. This control mechanism is effective as of August 10, 2018, and expires at midnight on August 9, 2023 and is contingent upon the Industrial User's compliance with any other Federal, State or Local laws applicable to the permitted activity. In order to continue discharging after the expiration date of this Permit, an application must be filed for a new Permit at least 120 days prior to the expiration date. **Please note that you are required to submit a self-monitoring report four times a year. Your first self-monitoring report pursuant to this Permit is due on September 30, 2018.**

Your Permit contains applicable Federal Categorical Standards and New York City Sewer Use Limits, as well as self-monitoring, reporting and record keeping requirements. Failure to comply with all terms and conditions contained in the Permit and the New York City Sewer Use Regulations (available upon request) may result in issuance of Notices of Violation currently carrying civil penalties of up to $10,000 per violation per day and/or other enforcement proceedings.

Substantial changes have been made to the New York City Industrial Wastewater Discharge Permit. It is therefore vital that you read through your Permit carefully and become aware of the new requirements. Please make special note of the extensive changes in discharge limitations and monitoring requirements.

In order to facilitate your periodic self-monitoring and reporting, a standardized four-page Industrial Self-Monitoring Report Form and an Analytical Report Form are enclosed. Additional forms are always available upon request. When completing the forms, your Permit should be referred to for specific monitoring and reporting requirements.

The SMR must be submitted to:

Frances Leung, P.E., Chief
Industrial Inspections and Permitting Section
Bureau of Wastewater Treatment
New York City Department of Environmental Protection
96-05 Horace Harding Expressway
Corona, New York 11368

Please contact Ms. Kene Umeasor at (718) 595-4712, if you have any questions regarding this Permit.

Sincerely,

Frances Leung, P.E., Chief
Industrial Inspections and Permitting Section

enc: Industrial Wastewater Discharge Permit
Industrial User Self-Monitoring Report Form
Analytical Report Form

NEW YORK CITY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDUSTRIAL WASTEWATER DISCHARGE PERMIT

Permit No.:	**18-P3149-1**
Effective Date:	**August 10, 2018**
Expiration Date:	**August 9, 2023**

In accordance with the provision of Title 24, Chapter 5, Section 24-523 (c) (1) of the New York City Administrative Code (NYCAC)

Industrial User Name:	**NEW YORK CITY PARKS AND RECREATION**
	ENVIRONMENTAL REMEDIATION UNIT
	BROOKFIELD AVENUE LANDFILL REMEDIATION
Facility Address:	**575 ARTHUR KILL ROAD**
	STATEN ISLAND, NEW YORK 10308
Mailing Address:	**OLMSTED CENTER, FLUSHING MEADOWS CORONA PARK**
	117-02 ROOSEVELT AVENUE
	FLUSHING, NEW YORK 11368

is hereby authorized to discharge industrial wastewater from the above identified facility into the New York City sewerage system in accordance with the discharge limitations, monitoring requirements, and other conditions set forth in this Permit.

All discharges authorized herein shall be consistent with the terms and conditions of this Permit. The discharge of any pollutant not identified in this Permit, or any pollutant identified in this Permit more frequently than or at levels in excess of that authorized, shall constitute a violation of the Permit. This Permit is contingent upon the Industrial User's compliance with any other Federal, State or Local laws applicable to the permitted activity.

The Industrial User shall not discharge any process or regulated wastewater after the date of expiration. If the Industrial User wishes to continue to discharge after this expiration date, an application for reissuance of this Permit must be filed a minimum of 120 days prior to its expiration date.

By: _____

Leslie Lipton, Chief
Division of Pollution Control and Monitoring
Bureau of Wastewater Treatment

Issued this 7th day of August, 2018

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PART I - SPECIFIC CONDITIONS

SECTION A. DISCHARGE LIMITATIONS

1. Discharge Points

The Industrial User is authorized to discharge leachate from the Brookfield Avenue Landfill, subject to the conditions in this Permit, through the discharge point(s) listed below to the New York City sewerage system.

DISCHARGE POINT	DESCRIPTION
M1	A 6" diameter pipe discharging leachate into the sewer, located 54" below the ground in a 24" diameter manhole. The manhole is situated 192" from the facility driveway/walkway and 312" from a fence facing Entrance Road 1.

2. Sewer Use Limits

The discharge from point **M1** shall not exceed the New York City Sewer Use Limits, including but not limited to:

SEWER USE LIMITS
(15 R.C.N.Y. ch.19)

POLLUTANT	PERMISSIBLE MAXIMUM CONCENTRATION FOR ANY GIVEN TIME (MG/L)	DAILY AVERAGE MAXIMUM CONCENTRATION (MG/L)
pH	5.0-12.0 Standard Units	---
Cadmium	2.0	0.69
Chromium (Hexavalent)	5.0	---
Copper	5.0	---
Lead	2.0	---
Mercury	0.05	---
Nickel	3.0	---
Zinc	5.0	---
Cyanide (Amenable to Chlorination)	0.2	---
Non-Polar Material	50.0	---

The discharge of leachate with temperature above 150 degrees Fahrenheit and/or closed-cup flash point below 140 degrees Fahrenheit (using the test methods specified in 40 C. F. R. 261.21) at any time is prohibited.

The following limits shall also apply:

Pollutant	Permissible Maximum Concentration for any Given Time
Total Suspended Solids (TSS)	350 ppm
Maximum Flow Rate	288,000 GPD
Methyl-Tert-Butyl-Ether (MTBE)	50 ppb
Tetrachloroethylene (Perc)	20 ppb
Total PCB*	1 ppb

Pollutant	Daily Limit (ppb)	Monthly Limit (ppb)
Benzene	134	57
Ethylbenzene	380	142
Naphthalene	47	19
Toluene	74	28
Xylenes (Total)	74	28

* Total PCBs shall equal the sum of all concentrations of the 7 PCB compounds listed on pages I-4 and I-5 of this Permit.

SECTION B. MONITORING REQUIREMENTS

1. Sampling

The Industrial User shall monitor the specified discharge points for the pollutants listed below. All sampling shall take place on days representative of normal operations. Sampling shall be conducted in accordance with 40 C.F.R. § 403.12(g)(3) which states, in pertinent part, that grab samples must be used for pH, cyanide, total phenols, oil and grease, sulfide, and volatile organic compounds. For all other pollutants, 24-hour composite samples must be obtained through flow-proportional composite sampling techniques, unless time-proportional composite sampling or grab sampling is authorized by the [Department]. Where time-proportional composite sampling or grab sampling is authorized by the [Department], the samples must be representative of the discharge. Where the Industrial User batch discharges, the company must state how it will take representative samples.

POLLUTANT	SAMPLE LOCATION	FREQUENCY	SAMPLE TYPE
VOLATILE ORGANICS (VOC)			
Benzene	**M1**	Once a month	4 grab samples, taken at least 1 hour apart for 1 day. Each grab sample must be individually preserved and sent to a certified laboratory. The laboratory may then composite the grab samples.
Ethylbenzene	**M1**	" "	" "
Methyl-Tert-Butyl-Ether (MTBE)	**M1**	" "	" "
Tetrachloroethylene (Perc)	**M1**	" "	" "
Toluene	**M1**	" "	" "
Xylenes	**M1**	" "	" "
Carbon tetrachloride	**M1**	" "	" "
Chloroform	**M1**	" "	" "
1,1,1-trichloroethane	**M1**	" "	" "
SEMI-VOLATILE ORGANICS			
Naphthalene	**M1**	Once a month	A one-day composite sample.
1,4-dichlorobenzene	**M1**	" "	" "
Phenol	**M1**	" "	" "
1,2,4-trichlorobenzene	**M1**	" "	" "
PCB-1016[1] (Arochlor 1016)	**M1**	" "	" "
PCB-1242[1] (Arochlor 1242)	**M1**	" "	" "
PCB-1254[1] (Arochlor 1254)	**M1**	" "	" "
PCB-1221[1] (Arochlor 1221)	**M1**	" "	" "

POLLUTANT	SAMPLE LOCATION	FREQUENCY	SAMPLE TYPE
PCB-1232[1] (Arochlor 1232)	**M1**	Once a month	A one-day composite sample.
PCB-1248[1] (Arochlor 1248)	**M1**	" "	" "
PCB-1260[1] (Arochlor 1260)	**M1**	" "	" "
OTHER TOXIC ORGANICS OF CONCERN[2]			
1) Volatile Organics (VOC)	**M1**	Once a month	4 grab samples, taken at least 1 hour apart for 1 day. Each grab sample must be individually preserved and sent to a certified laboratory. The laboratory may then composite the grab samples. See Part II, Sect. C (1).
2) Semi-Volatile Organics	**M1**	" "	A one-day composite sample. See Part II, Sect. C (1).
OTHER POLLUTANTS, PH, AND FLOW			
Cadmium	**M1**	Once a month	A one-day composite sample.
Chromium (Total)	**M1**	" "	" "
Chromium (Hexavalent)[3]	**M1**	" "	" "
Copper	**M1**	" "	" "
Lead	**M1**	" "	" "
Mercury	**M1**	" "	" "
Molybdenum	**M1**	" "	" "
Nickel	**M1**	" "	" "
Silver	**M1**	" "	" "
Zinc	**M1**	" "	" "

POLLUTANT	SAMPLE LOCATION	FREQUENCY	SAMPLE TYPE
Carbonaceous Biochemical Oxygen Demand (CBOD)	**M1**	Once a month	A one-day composite sample.
Total Nitrogen	**M1**	" "	" "
Chloride	**M1**	" "	" "
Cyanide (Total)	**M1**	" "	4 grab samples, taken at least 1 hour apart for 1 day. Each grab sample must be individually preserved and sent to a certified laboratory. The laboratory should then composite the 4 grab samples.
Cyanide (Amenable)[4]	**M1**	" "	" "
Total Suspended Solids (TSS)	**M1**	" "	4 grab samples, taken at least 1 hour apart for 1 day. Each grab sample must be individually preserved and sent to a certified laboratory.
Non- Polar Material	**M1**	" "	" "
pH	**M1**	" "	Either by 4 in situ measurements or by 4 grab samples, each taken at least 1 hour apart.

FOOTNOTES TO MONITORING REQUIREMENTS

1. The analysis of PCB compounds must be done by EPA Method 608, with a method detection level less than or equal to 65 ppt.

2. Monitoring for Other Toxic Organics of Concern (OTOC) may not be required. See Part II, Sect. C(1). OTOC are comprised of two subcategories, volatile organic compounds (VOCs) and semi-volatile organic compounds. There are different sampling methods for each subcategory (See Part 1, Sect. B. Monitoring Requirements).These compounds include:

	(1)	acenaphthene
VOC	(2)	acrolein
VOC	(3)	acrylonitrile
	(4)	benzidine
VOC	(5)	chlorobenzene
	(6)	hexachlorobenzene
VOC	(7)	1,2-dichloroethane
	(8)	hexachloroethane
VOC	(9)	1,1-dichloroethane
VOC	(10)	1,1,2-trichloroethane
VOC	(11)	1,1,2,2-tetrachloroethane
VOC	(12)	chloroethane

(13) bis (2-chloroethyl) ether
VOC (14) 2-chloroethylvinyl ether (mixed)
(15) 2-chloronaphthalene
(16) 2,4,6-trichlorophenol
(17) parachlorometa cresol
(18) 2-chlorophenol
(19) 1,2-dichlorobenzene
(20) 1,3-dichlorobenzene
(21) 3,3-dichlorobenzidine
VOC (22) 1,1-dichloroethylene
VOC (23) 1,2-trans-dichloroethylene
(24) 2,4-dichlorophenol
VOC (25) 1,2-dichloropropane
VOC (26) 1,3-dichloropropylene (1,3-dichloropropene)
(27) 2,4-dimethylphenol
(28) 2,4-dinitrotoluene
(29) 2,6-dinitrotoluene
(30) 1,2-diphenylhydrazine
(31) fluoranthene
(32) 4-chlorophenyl phenyl ether
(33) 4-bromophenyl phenyl ether
(34) bis (2-chloroisopropyl) ether
(35) bis (2-chloroethoxy) methane
VOC (36) methylene chloride (dichloromethane)
VOC (37) methyl chloride (chloromethane)
VOC (38) methyl bromide (bromomethane)
VOC (39) bromoform (tribromomethane)
VOC (40) dichlorobromomethane
VOC (41) chlorodibromomethane
(42) hexachlorobutadiene
(43) hexachlorocyclopentadiene
(44) isophorone
(45) nitrobenzene
(46) 2-nitrophenol
(47) 4-nitrophenol
(48) 2,4-dinitrophenol
(49) 4,6-dinitro-o-cresol
(50) n-nitrosodimethylamine
(51) n-nitrosodiphenylamine
(52) n-nitrosodi-n-propylamine
(53) pentachlorophenol
(54) bis (2-ethylhexyl) phthalate
(55) butyl benzyl phthalate
(56) di-n-butyl phthalate
(57) di-n-octyl phthalate
(58) diethyl phthalate
(59) dimethyl phthalate
(60) 1,2-benzanthracene (benzo(a)anthracene)
(61) benzo(a)pyrene (3,4-benzopyrene)
(62) 3,4-benzofluoranthene (benzo(b)fluoranthene)
(63) 11,12-benzofluoranthene (benzo(k)fluoranthene)
(64) chrysene
(65) acenaphthylene
(66) anthracene
(67) 1,12-benzoperylene (benzo(ghi)perylene)
(68) fluorene
(69) phenanthrene
(70) 1,2,5,6-dibenzanthracene (dibenzo(a,h)anthracene)
(71) indeno (1,2,3-cd) pyrene (2,3-o-phenylene pyrene)
(72) pyrene
VOC (73) trichloroethylene
VOC (74) vinyl chloride (chloroethylene)
(75) aldrin
(76) dieldrin
(77) chlordane (technical mixture and metabolites)
(78) 4,4-DDT
(79) 4,4-DDE (p,p-DDX)
(80) 4,4-DDD (p,p-TDE)
(81) alpha-endosulfan
(82) beta-endosulfan
(83) endosulfan sulfate
(84) endrin
(85) endrin aldehyde
(86) heptachlor
(87) heptachlor epoxide (BHC-hexachlorocyclohexane)
(88) alpha-BHC
(89) beta-BHC

(90) gamma-BHC
(91) delta-BHC
(PCB-polychlorinated biphenyls)
(92) toxaphene
(93) 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)
(94) azinophos-methyl
(95) chlorpyrifos
(96) demeton
VOC (97) dichloropropene
(98) halomethanes
(99) manganese (inorganic element)
(100) methoxychlor
(101) pentachlorinated ethane
(102) 2,3,4,6-tetrachlorophenol

3. If the Chromium (Total) level at discharge point **M1**, is less than or equal to 5.0 mg/L, then analyzing for Chromium (Hexavalent) at that point is not required. The Chromium (Total) level can be submitted in lieu of analyzing for Chromium (Hexavalent).

4. If the Cyanide (Total) level at discharge point **M1**, is less than or equal to 0.2 mg/L, then analyzing for Cyanide (Amenable) at that point is not required. The Cyanide (Total) level can be submitted in lieu of analyzing for Cyanide (Amenable).

2. Additional Monitoring Requirements

See Part II, Sect. C for additional monitoring requirements.

SECTION C. REPORTING REQUIREMENTS

1. Periodic Reports Concerning Continued Compliance

The Industrial User shall implement a self-monitoring program, as required in Part I, Sect. B of this Permit. Reports are due on a quarterly basis as follows:

Monitoring Period	Report Due Date
June 1 to August 31	**September 30**
September 1 to November 30	**December 31**
December 1 to February 28	**March 31**
March 1 to May 31	**June 30**

Reports must be received by the Department on or before the due dates specified above.

2. Additional Reporting Requirements

See Part II, Sect. D for additional reporting requirements.

3. Submission of Reports and Notices

The self-monitoring report and all other reports and notices required by this Permit shall be submitted to the Department at the following address, unless otherwise indicated:

Frances Leung, P.E., Chief
Industrial Inspections and Permitting Section
Bureau of Wastewater Treatment
New York City Department of Environmental Protection
96-05 Horace Harding Expressway
Corona, New York 11368

It is recommended that you send all reports and notices by certified mail in the event that you are required to prove that such reports or notices were submitted in a timely manner.

4. Reporting Format

a. Periodic reports shall be submitted on the Department's Industrial User **Self-Monitoring Report Form**.

b. Analytical results submitted to the Department for any reason, including but not limited to self-monitoring reports, split sampling, and pursuant to Commissioner's Orders, shall be reported by the certified laboratory performing the analysis in a format consistent with the Department's **Analytical Report Form**. The sampling points referenced on the Analytical Report Form must be identified exactly as they are in the Industrial User's Permit.

c. Copies of the Self-Monitoring Report Form and the Analytical Report Form are enclosed with this Permit. Additional copies are also available from the Department upon request.

SECTION D. SPECIAL CONDITIONS

1. The Industrial User must maintain a logbook on daily volume of discharge (in gallons per day). A copy of the logbook entries for the monitoring period must be submitted in each self-monitoring report.

PART II - GENERAL CONDITIONS

SECTION A. DEFINITIONS AND STANDARD CONDITIONS

1. Definitions

a. Biochemical Oxygen Demand - The laboratory determination of the quantity of oxygen utilized in the biochemical oxidation of organic matter in a given time and at a specified temperature. It is expressed in parts per million (ppm) or (mg/L) of oxygen used in a period of five days at 20 degrees Celsius.

b. Bypass - The intentional diversion of wastes from any portion of a treatment facility.

c. Commissioner - The Commissioner of the New York City Department of Environmental Protection.

d. Composite Sample - A sample composed of two or more discrete samples. The aggregate sample will reflect the average water quality covering the compositing or sample period.

e. Cooling Water -

i. Uncontaminated - Water used only for cooling purposes that has no direct contact with any raw material, intermediate or final product and that does not contain a level of contaminants higher than that of the intake water.

ii. Contaminated - Water used only for cooling purposes that may become contaminated either through the use of water treatment chemicals used for corrosion inhibitors or biocides or by direct contact with process materials and/or wastewater.

f. Daily Maximum - The maximum allowable discharge of a pollutant during a 24-hour period. Where daily maximum limitations are expressed in units of mass, the daily discharge is the total mass of the pollutant discharged over the course of the day. Where daily maximum limitations are expressed in terms of a concentration, the daily discharge is the arithmetic average measurement of the pollutant concentration derived from all measurements taken that day.

g. Department - The New York City Department of Environmental Protection.

h. Grab Sample - A sample which is taken from a wastestream on a one-time basis with no regard to the flow of the wastestream and without consideration of time. A single grab sample should be taken over a period of time not to exceed 15 minutes.

i. Indirect Discharge - The introduction of pollutants into a POTW from any non-domestic source regulated under section 307(b), (c), or (d) of the Clean Water Act.

j. Industrial User - A source of Indirect Discharge.

k. Instantaneous Maximum Concentration - The maximum concentration allowed in any single grab sample.

l. Interference - A discharge that alone or in conjunction with a discharge or discharges from other sources both:

i. Inhibits or disrupts the POTW, its treatment processes or operations or its sludge processes, use or disposal; and

ii. Causes a violation of any requirement of the POTW's SPDES Permit (including an increase in the magnitude or duration of a violation) or prevents the use or disposal of sewage sludge in compliance with the following statutory provisions and regulations or Permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA) and including State regulations contained in any State sludge management plan prepared pursuant to Subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act and the Marine Protection, Research and Sanctuaries Act.

m. Maximum Monthly Average - The maximum allowable value for the monthly average.

n. Monthly Average - The average of all samples taken during one calendar month. Thus, if only one sample is taken during a calendar month, the monthly average for that month will be based on only that one sample.

o. Pass Through - A discharge that exits the POTW into waters of the United States in quantities or concentrations that, alone or in conjunction with a discharge or discharges from other sources, cause a violation of any requirement of the POTW's SPDES Permit (including an increase in the magnitude or duration of a violation).

p. Publicly Owned Treatment Works (POTW) - A treatment works as defined by Section 212 of the Clean Water Act that is owned by the State or municipality. This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW treatment plant.

q. Resource Conservation and Recovery Act (RCRA) - A Federal statute regulating the management of hazardous waste from its generation through ultimate disposal. The Act contains requirements for waste generators, transporters and owners and operators of treatment, storage and disposal facilities.

r. Sewer Use Regulations - Rules of the City of New York relating to the "Use of the Public Sewers." 15 R.C.N.Y. ch. 19.

s. Shall - mandatory.

t. Slug Discharge - Any discharge of a non-routine, episodic nature, including but not limited to an accidental spill or a non-customary batch discharge, which has a reasonable potential to cause interference or pass through, or in any other way violate the POTW's regulations, local limits or permit conditions.

u. Toxic Organics - Either the organic compounds listed in the definition of Total Toxic Organics (TTO) in Part I, Sect. A(2), and the Other Toxic Organics of Concern (OTOC) listed in Part I, Sect. B(1); or the Toxic Organics of Concern listed in Part I, Sect. B(1).

v. Upset - An exceptional incident in which there is unintentional and temporary noncompliance with technology based Permit effluent limitations because of factors beyond the reasonable control of the Industrial User, excluding such factors as operational error, improperly designed or inadequate treatment facilities or improper operation and maintenance or lack thereof.

2. Severability

The provisions of this Permit are severable, and if any provision of this Permit or the application of any provision of this Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Permit, shall not be affected thereby.

3. Duty to Comply

The Industrial User must comply with the provisions of the New York City Administrative Code (NYCAC) and the Sewer Use Regulations promulgated pursuant thereto, and all conditions of this Permit. Failure to comply with these requirements may be grounds for administrative action, or enforcement proceedings including civil and/or criminal penalties, injunctive relief and summary abatements.

4. Duty to Mitigate

The Industrial User shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Permit, including, but not limited to, such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

5. Permit Action

This Permit may be modified, revoked and reissued, or terminated for good cause, including, but not limited to, the following:

a. Incorporation of any new or revised Federal, State, or local pretreatment standards or requirements;

b. Material or substantial alterations or additions to the discharger's operations that were not covered in the effective Permit;

c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge;

d. Information indicating that the Permitted discharge poses a threat to the New York City collection and treatment systems, POTW personnel or the receiving waters;

e. Violation of any terms or conditions of this Permit;

f. Obtaining this Permit by misrepresentation or failure to disclose fully all relevant facts;

g. Upon request of the Industrial User, provided such request does not create a violation of any existing applicable requirements, standards, laws, or rules and regulations; or

h. Correction of typographical or other errors in the Permit.

The filing of a request by the Industrial User for a Permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any Permit condition.

6. Property Rights

The issuance of this Permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private or public property or any invasion of personal rights, nor any violation of Federal, State or local laws or regulations.

7. Limitation on Permit Transfer

This wastewater discharge Permit is issued to the named Industrial User for the specific operation(s) described herein. It is not assignable to any other named individual or entity or transferable to any other location without the prior written approval of the Department. Any change in the name of the Industrial User shall be considered to be such an assignment. The sale of 50% or more of the stock of the Industrial User, if the Industrial User is a corporation, or the change of any partners, general or limited, if the Industrial User is a partnership, or the change in ownership, if the Industrial User

is a sole proprietorship, shall also be considered an assignment. In the event of such a sale, the Industrial User must inform the purchaser of all responsibilities and obligations under this Permit.

8. Duty to Reapply

If the Industrial User wishes to continue an activity regulated by this Permit after the expiration date of this Permit the Industrial User must apply for and obtain a new Permit. The application must be submitted at least 120 days before the expiration date of this Permit.

9. Dilution

The Industrial User shall not increase the use of process water or, in any way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the limitations contained in this Permit.

The Industrial User shall post a Dilution Notice in a conspicuous manner. The Dilution Notice shall state that the New York City Department of Environmental Protection is to be notified of the illegal dilution of any wastewater discharges or any illegal discharges by calling 311, New York City's General Information Number. You must ask for and record your complaint number for proof of compliance with your notification requirements. The Dilution Notice shall include the following definition of illegal dilution: Illegal dilution is an increase in the use of process water, or any other attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with a Pretreatment Standard or Requirement.

10. General Prohibitive Standards

The Industrial User shall comply with all of the general prohibitive discharge standards in the General Pretreatment Regulations, 40 C.F.R. pt. 403 and the Department's Sewer Use Regulations. Except as expressly allowed by this Permit, if the Industrial User discharges or causes to be discharged, including any run, leak, or escape into any public sewer, pipe, channel, pumping station, catch basins or any other sewer appurtenances, or waterway connecting with any public sewer, or into any private sewer connected with a public sewer any of the following described materials, substances or wastes, shall be strictly liable without regard to fault:

a. Construction materials, ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastic, wood, paunch manure, coffee grounds, fur, wax, or any solids or viscous substances capable of causing obstruction to the flow in sewers or other interference with the proper operation of the sewerage system;

b. Snow and ice at unauthorized locations;

c. Steam or wastewater above 150 degrees Fahrenheit;

d. Flammable or explosive liquids, solids or gases, including, but not limited to, gasoline, benzene and naphtha;

e. Oil sludges, waste oil, motor oil, diesel and other fuels, dielectric fluid, brake fluid, transmission fluid, hydraulic fluid, or other similar substances;

f. Non-polar material in concentrations greater than 50 mg/L for any given time;

g. Coal tar, its derivatives and waste;

h. Paints and related paint waste products from any source that tend to clog or otherwise interfere with the operation of the sewerage system;

i. Wastewater having a pH lower than 5.0 or higher than 12.0 or having any other corrosive property likely to cause damage to structures or equipment of the sewerage system or create a hazard to personnel;

j. Toxic substances in such quantities that the person knows or has reason to know may when discharged from a single source or in combination with other sources: (i) interfere with any sewage treatment process, including sludge digestion, (ii) limit the City's options for operating its sewerage system or disposing of the sewage sludge, grit or scum generated at water pollution control plants, (iii) be detrimental to the health of human beings, animals, or aquatic life, (iv) create any adverse effect in the receiving water, or (v) violate Federal or State laws or regulations or the requirements of a discharge Permit of a sewage treatment plant issued pursuant to Section 402 of the Federal Water Pollution Control Act, commonly referred to as the Clean Water Act, as amended, or any other Permit issued pursuant to Federal or State law;

k. Toxic substances in such quantities that, when discharged from a single source or in combination with other sources: (i) violate any Federal or State laws, regulations, rules or standards governing such discharge, or (ii) violate the toxic discharge limits to be set by the Commissioner contained in a list to be maintained by the Commissioner and which may be published from time to time in the City Record;

l. Any liquids or wastes containing pollutants of such quality and/or quantity that become burdensome in the operation and maintenance of a sewage treatment plant;

m. Any noxious or malodorous gas or substance capable of creating a public nuisance;

n. Any wastewater or substance, that in the opinion of the Commissioner, will result in a violation of any applicable Federal, State or local water quality standard concerning discoloration or other undesirable physical changes in the appearance of the receiving waters;

o. Radioactive material either directly or indirectly into the sewerage system, unless all restrictions, prohibitions, and requirements of Article 175 of the New York City Health Code are fully complied with;

p. Any still bottom or sludge residues resulting from dry cleaning processes, including dirt, lint, soils, perchloroethylene, tetrachloroethylene, solvents and any other deposits or residues extracted as a result of any dry cleaning processes;

q. Filters or filter media used in dry cleaning processes.

11. Compliance with Applicable Pretreatment Standards and Requirements

The Industrial User shall comply at all times with any and all applicable local, State and Federal pretreatment standards and requirements, including any such standards or requirements that may become effective during the term of this Permit.

12. Combined Sewer Overflow (CSO) Prevention

The Industrial User shall hold its process wastewater and non-contact cooling water to the maximum extent practicable during heavy rainfall.

13. Confidentiality

As provided in Section 19-09 of the Sewer Use Regulations, any information submitted to the Department, except for discharge and effluent data, may be claimed by the discharger to be confidential. Any such claim must be asserted at the time of submission of the information, and should contain a stamped legend or any other suitable form of notice on each page containing such information, employing language such as trade secret, proprietary or confidential business information. If no claim is asserted at the time of submission, the information may be made available to the public without further notice. If a claim is asserted, it will be treated in accordance with Section 19-09.

Effluent data shall be available to the public without restriction.

14. Duty to Provide Information

The Industrial User shall furnish to the Department within a reasonable time, any information that the Department may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Industrial User shall also furnish to the Department, upon request, copies of records required to be kept by this Permit.

15. Annual Publication

A list of all Industrial Users who, at any time during the previous twelve (12) months, were in significant noncompliance with applicable pretreatment requirements shall be annually published by the Department in a newspaper of general circulation that provides meaningful public notice within the city of New York. The Industrial User is hereby apprised that noncompliance with the provisions of this Permit may result in an enforcement action and publication of its name in an appropriate newspaper in accordance with Section 19-10(g) of the Sewer Use Regulations.

16. Civil and Criminal Liability

Nothing in this Permit shall be construed to relieve the Industrial User from civil and/or criminal penalties for noncompliance under Section 24-524(f) of the NYCAC.

17. Penalties for Violations of Permit Conditions

Section 24-524(f) of NYCAC provides that any person who fails to comply with any of the provisions of Sections 24-504 through 24-522 and 24-523 of the Code, the Sewer Use Regulations, Order of the Commissioner or Environmental Control Board or a Permit condition shall be liable for a civil penalty of up to $10,000.00 for each violation. In the case of a continuing violation, each day's continuance shall be a separate and distinct offense. In addition to civil penalties, any person who knowingly violates or fails to comply with any of the above-cited provisions shall be guilty of a misdemeanor and subject to a fine of up to $10,000.00 and/or to imprisonment not exceeding thirty days. The Industrial User may also be subject to sanctions under State and/or Federal law.

SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROL SYSTEMS

1. Proper Operation and Maintenance

The Industrial User shall at all times properly operate and maintain all facilities and systems for treatment, monitoring and control (and related appurtenances) that are installed or used by the Industrial User to achieve compliance with the conditions of this Permit. Proper operation and maintenance includes, but is not limited to, effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the Permit.

2. Duty to Halt or Reduce Activity

Upon reduction of efficiency of operation or loss or failure of all or part of the pretreatment facility, the Industrial User shall, to the extent necessary to maintain compliance with its Permit, control production or all discharges or both until operation of the pretreatment facility is restored or an alternative method of pretreatment is provided. This requirement applies, for example, when the primary source of power of the pretreatment facility fails or is reduced. It shall not be a defense for an Industrial User in an enforcement action to state that it would have been necessary to halt or reduce the Permitted activity in order to maintain compliance with the conditions of this Permit.

3. Bypass of Pretreatment Facilities

a. Bypass is prohibited unless

i. it is unavoidable to prevent loss of life, personal injury, or severe property damage, no feasible alternatives exist, and the Industrial User submits notification as required by subparagraph (b) of this paragraph; or

ii. it is for essential maintenance to assure efficient operation, it does not cause pretreatment standards or requirements to be violated, and the Industrial User submits notification as required by subparagraph (b) of this paragraph.

b. Notification of bypass:

i. Anticipated bypass - If the Industrial User knows in advance of the need for a bypass, it shall submit prior written notice, at least ten days before the date of the bypass, to the Department.

ii. Unanticipated bypass - The Industrial User shall immediately notify the Department by calling 311, New York City's General Information Number, and shall submit a written notice to the Department within 5 days after the bypass. This report shall specify:

(1) a description of the bypass, its cause and duration;
(2) whether the bypass has been corrected; and
(3) the steps being taken or to be taken to reduce, eliminate and prevent a recurrence of the bypass.

When calling 311, you must ask for and record your complaint number for proof of compliance with your notification requirements.

4. Disposal of Hazardous Wastes

All solids, sludges, resins or residues, filter backwash or other pollutants removed in the course of pretreatment or control of wastewater shall be handled and disposed of in accordance with all New York State hazardous wastes requirements and RCRA requirements including, but not limited to, subtitles C and D thereof.

SECTION C. MONITORING AND RECORDS

1. Toxic Organics

The Industrial User may not use the certifications provided below for any organic pollutants for which sampling is required under the Industrial User's applicable Federal Categorical Standards. The Industrial User must sample and analyze its wastewater for all such organic pollutants.

The Industrial User shall satisfy the following Toxic Organics requirements:

a. Indicate in each periodic report concerning continued compliance as required by Part I, Sect. C of this Permit which Toxic Organics, if any, were used or stored during the reporting period, and their amounts.

b. Sample and analyze its wastewater for those Toxic Organics that would reasonably be expected to be present.

c. In lieu of monitoring for Toxic Organics and upon scribed request, the Department may allow the Industrial User to make one of the following certifications in its periodic self-monitoring reports:

i. "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, no toxic organics were used or stored at my facility during the reporting period covered by this report. I certify that I am duly authorized by the establishment to make this statement on its behalf, and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

OR

ii. "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, there was no discharge to a public sewer of toxic organics during the reporting period covered by this report. I also certify that the explanations provided concerning the disposal of toxic organics from the facility are true, accurate and complete. I further certify that this facility is implementing a toxic organics management plan to protect against the release of such compounds to a public sewer. I certify that I am duly authorized by the establishment to make this statement on its behalf, and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

If certification **(ii)** is made, the facility must also submit a Toxic Organics Management Plan (TOMP) for approval by the Department. An acceptable TOMP must contain:

i. a list of all toxic organic compounds used or stored at your facility; and

ii. a description of the storage, handling and disposal practices for control of toxic compounds at your facility, including procedures for ensuring that toxic organics do not spill or leak into your wastewater.

2. <u>Sampling and Analysis</u>

a. Samples and measurements taken as required in this Permit shall be representative of the volume and nature of the monitored discharge. Samples shall be taken at the monitoring points specified in this Permit and, unless otherwise specified, before the effluent joins or is diluted by any other wastestream, body of water or substance. Monitoring points shall not be changed without prior written approval of the Department.

b. All handling and preservation of collected samples and laboratory analyses of samples shall be performed in accordance with 40 C.F.R. pt. 136. If 40 C.F.R. pt. 136 does not cover the pollutant in question, the handling, preservation, and analysis must be performed in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater." All analyses shall be performed using a detection limit less than the lowest applicable regulatory discharge limit.

c. All laboratory analyses must be conducted by a New York State Health Department certified wastewater laboratory. The results must be certified by the laboratory and submitted on the laboratory's letterhead. For each sample, the laboratory report must indicate the date of sampling, time sample was taken, sample location, chain of custody, sampling preservation procedures, analytical techniques used, date of analysis, units of measurement, and the laboratory's sample identification; where the analytical result reported is below the method detection level, the laboratory report must also indicate the method detection level.

3. Flow Measurements

If flow measurements are required by this Permit, the appropriate flow measurement devices and methods consistent with approved scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharge. The devices shall be installed, calibrated and maintained to ensure that the accuracy of the measurements are consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than 10% from true discharge rates throughout the range of expected discharge volumes.

4. Inspection and Entry

The Industrial User shall allow duly authorized representatives of the Department to:

a. Enter upon the Industrial User's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Permit;

b. Have access to and copy, at reasonable times, any records that must be kept by law or regulation and/or under the conditions of this Permit;

c. Inspect, videotape, photograph or otherwise record at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit;

d. Sample or monitor, for the purposes of assuring Permit compliance, any substance or parameters at any location; and

e. Inspect, videotape, photograph or otherwise record any production, manufacturing, fabricating or storage area where pollutants, regulated or required under this Permit could originate, be stored or be discharged to the public sewer.

The applicant, by accepting any Permit issued, does hereby consent and agree to entry upon the premises as described herein.

5. Retention of Records

a. The Industrial User shall retain records of all monitoring information, including all calibration and maintenance records and original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Permit, and records of all data used to complete the application for this Permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by order of the Commissioner at any time.

b. All records that pertain to matters that are the subject of special orders or any other enforcement or litigation activities brought by the Department shall be retained and preserved by the Industrial User until all enforcement activities have concluded and all periods of limitations with respect to any and all appeals have expired.

6. Record Contents

Records of sampling information shall include:

a. The date, exact place, time and methods of sampling or measurement, and sample preservation techniques or procedures;

b. Who performed the sampling or measurements;

c. The date(s) analyses were performed;

d. Laboratory that performed the analyses;

e. The analytical techniques or methods used;

f. The results of each analysis;

g. The chain of custody of each sample;

h. Method detection level where analytical result reported is non-detect;

i. Units of measurement for each analytical result; and

j. Laboratory's sample identification for each sample.

7. Falsifying Information

It is unlawful to make any false statement representation or certification in any application, report, plan or other document required by this Permit or to falsify, tamper with or knowingly render any monitoring device or method inaccurate.

SECTION D. ADDITIONAL REPORTING REQUIREMENTS

1. Additional Monitoring

If the Industrial User monitors any pollutant more frequently than required by this Permit, using test procedures prescribed in 40 C.F.R. pt. 136 or otherwise approved by EPA or specified in this Permit, the results of such monitoring shall be submitted to the Department in its next self-monitoring report.

2. Automatic Resampling

If the results of the Industrial User's wastewater discharge sampling indicates a violation, the Industrial User shall:

a. notify the Department within 24 hours of becoming aware of the violation; and

b. repeat the sampling and analysis and submit the results of the second analysis to the Department within 30 days after becoming aware of the violation.

3. Split Sampling Results

If the Industrial User requests and analyzes a split sample(s) during a Department sampling event, the results of such analysis shall be submitted to the Department within 45 days of the date the Industrial User received the sample(s) from the Department.

4. Accidental Discharge Notification

In the event of an accidental discharge in violation of any provision of the Sewer Use Regulations, the Industrial User shall immediately notify the Department, at any hour, by calling 311, New York City's General Information Number. You must ask for and record your complaint number for proof of compliance with your notification requirements.

Within five days following an accidental discharge, the Industrial User shall submit to the Department a detailed written report. The report shall specify:

a. the description of the accidental discharge, the cause thereof, and the impact on the Industrial User's compliance status, including the location of discharge, type, concentration and volume of waste;

b. the duration of noncompliance, including exact dates and time of noncompliance, and if the noncompliance continues, the time by which compliance is reasonably expected to occur; and

c. all steps taken to reduce, eliminate and prevent recurrence of such an upset, slug, accidental discharge, or other conditions of noncompliance.

5. Operating Upsets

Any Industrial User that experiences an upset in operations that places the Industrial User in a temporary state of noncompliance with the provisions of either this Permit or the Sewer Use Regulations, shall inform the Department immediately after becoming aware of the upset by calling 311, New York City's General Information Number. You must ask for and record your complaint number for proof of compliance with your notification requirements.

A written follow-up report thereof shall be filed by the Industrial User with the Department within five (5) days. The report shall specify:

a. the description of the upset or slug discharge, the cause(s) thereof and the upset's or slug discharge's impact on the Industrial User's compliance status;

b. the duration of noncompliance, including exact dates and times of noncompliance, and if the noncompliance continues, the time by which compliance is reasonably expected to occur; and

c. all steps taken or to be taken to reduce, eliminate and prevent recurrence of such an upset, slug discharge or other conditions of noncompliance.

6. Planned Changes

The Industrial User shall give written notice to the Department 90 days prior to any change in the Industrial User's name or address, or any facility expansion, production increase, or process modification that results in new or substantially increased discharges or a change in the nature of the discharge. The Industrial User shall also provide written notice 90 days prior to discontinuing any regulated process. The Industrial User shall notify the Department immediately of any changes at its facility affecting its potential for a slug discharge.

7. Anticipated Noncompliance

The Industrial User shall give a minimum of ten days advance notice to the Department of any planned changes in the Permitted facility or activity that may result in noncompliance with this Permit.

8. Signatory Requirements

All applications, reports or information submitted to the Department shall contain the following certification:

> "I certify under penalty of law that I have personally examined and am familiar with the information contained in this document and all attachments therein. Furthermore, based on my inquiry of those persons immediately responsible for obtaining the information contained in this document, I believe that this information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment."

This certification shall be signed by:

a. a responsible corporate officer if the Industrial User submitting the reports is a corporation. For the purpose of this paragraph, a responsible corporate officer means:

   i. president, secretary, treasurer or vice-president of the corporation in charge of a principal business function or any other person who performs similar policy or decision making functions for the corporation, or

   ii. the manager of one or more manufacturing, production or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit duty of making major capital investment recommendations, and initiate and direct other comprehensive measures to assure long-term environmental compliance with environmental laws and regulations; can ensure that the necessary systems are established or actions taken to gather complete and accurate information for control mechanism requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

b. a general partner or proprietor if the Industrial User submitting the report is a partnership or sole proprietorship, respectively.

c. a duly authorized representative of the individual designated in paragraph (a) or (b) of this section if:

   i. The authorization is made in writing by the individual described in paragraph (a) or (b);

   ii. The authorization specifies either an individual or a position having responsibility for the overall operation of the facility from which the industrial discharge originates, such as the position of plant manager, or a position of equivalent responsibility, or a position having overall responsibility for environmental matters for the company; and

iii. The written authorization is submitted to the Department.

If an authorization under this paragraph is no longer accurate because a different individual or position has responsibility for the overall operation of the facility or overall responsibility for the environmental matters of the company, a new authorization satisfying the requirement of this paragraph must be submitted to the Department prior to or together with any reports to be signed by an authorized representative.

1.	★ Establishment Information ★			
A.	Name:			
B.	Address:			
C.	Industrial Category:			
D.	Contact Official:		E.	Phone #:
F.	Reporting Period		G.	Date sampled
	Start / /	End / /	Start / /	End / /

Note: If the only wastewater discharges by your establishment into the public sewer system are sanitary or non-contact cooling water, do not address items in Tables 2, 3, 4, 5 and 6. In this case, check here [ ] and proceed directly to Table 7.

2.	★Flow Information ★	Average	Peak
A.	Total Plant Flow, gal/day		
B.	Regulated Flow, gal/day		
C.	Method of Flow Measurement:		

3.	★ Sample Collection Information ★
A.	Sampling Location:
B.	Sampling Procedures:
C.	Preservatives Used:

4.	This establishment's wastewater discharge DOES [ ] / DOES NOT [ ] exceed nationwide categorical standard (s) or 15 RCNY 19-04 (a).

8. ★ CERTIFICATIONS (CONTINUED) ★

B. TOXIC ORGANICS CERTIFICATION:

I. "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, no Toxic Organics are used or stored at my facility. I certify that I am duly authorized by the establishment to make this statement on its behalf, and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

Name (Print) Signature

Title Date Phone#

OR

II "Based upon my inquiry of the person or persons directly responsible for managing environmental affairs at my facility, I certify that, to the best of my knowledge and belief, there was no discharge to a public sewer of toxic organics during the reporting period covered by this report. I also certify that the explanations provided concerning the disposal of toxic organics from the facility are true, accurate and complete. I further certify that this facility is implementing a toxic organics management plan to protect against the release of such compounds to a public sewer. I certify that I am duly authorized by the establishment to make this statement on its behalf, and am fully aware that there are significant civil and criminal sanctions for submitting false information, including the possibility of a fine and/or imprisonment."

Name (Print) Signature

Title Date Phone#

C. AUTHORIZED FIRM REPRESENTATIVE CERTIFICATION:

I hereby certify, under penalty of law, that I have personally examined and am familiar with the information contained in this report and all attachments therein. Furthermore, based on my inquiry of those persons immediately responsible for obtaining the information contained in this report, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I further certify that the reported sampling results are representative of the facility's normal work cycles and expected pollutant discharges.

Name (Print) Signature

Title Date Phone#

9.	★ DESCRIPTION OF OPERATION ★

10.	★ ATTACHMENTS ★	Yes	No	N/A
A.	All laboratory analyses must be conducted by a New York State Health Department certified wastewater laboratory. The results must be certified by the laboratory and submitted on the laboratory's letterhead. For each sample, the laboratory report must indicate the date of sampling, time sample was taken, sample location, sampling preservation procedures, analytical techniques used, date of analysis, units of measurement, and the laboratory's sample identification; where the analytical result reported is below the method detection level, the laboratory report must also indicate the method detection level.			
B.	Chain of custody for all samples.			
C.	Explanation of non-compliance and what will be done to rectify it. A compliance schedule is to be included.			
D.	Amount of spent solvents generated and method of disposal. Explanation of zero discharges to be included.			
E.	Description of any major modifications or malfunctions in manufacturing or pretreatment operations.			
F.	Hazardous wastes manifests.			

Name of Company & Address (for which this report is made)

Report Date: _____

SAMPLES COLLECTED AT DISCHARGE POINT _____

(For example: E1, E2, or M1 As per DEP permit)

DATE SAMPLED	**00/00/00**	**00/00/00**	**00/00/00**	**00/00/00**
DATE ANALYZED	**00/00/00**	**00/00/00**	**00/00/00**	**00/00/00**
Metals (alphabetical)				
Cyanide (Amenable)				
Cyanide (Total)				
Non-Polar Material				
Volatile Organic Compounds (Alphabetical)				
Semi Volatile Organic Compounds (Alphabetical)				
Others				

EXAMPLE ONLY

All laboratory analyses must be conducted by a New York State Health Department certified wastewater laborato
The results must be certified by the laboratory and submitted on the laboratory's letterhead. For each sample, t
laboratory report must indicate the date of sampling, time sample was taken, sample location, chain of custoc
sampling preservation procedures, analytical techniques used, date of analysis, units of measurement, and t
laboratory's sample identification; where the analytical result reported is below the method detection level, t
laboratory report must also indicate the method detection level.

The certified laboratory may use their own analytical reporting form, and include additional information, howe
the reported pollutants **must** be in the above described order. Additionally the sampling point(s) referenced on t
form **must** be identified exactly as it appears in your permit or directive.

Appendix K
Health and Safety Plan Requirements

Appendix K
Health and Safety Plan Requirements

A Health and Safety Plan (HASP) will be prepared for each firm that performs OSHA-regulated work on-site at BAL. The HASP must be prepared by a qualified person in accordance with the most recently adopted and applicable general industry (29 CFR 1910) and construction (29 CFR 1926) standards of OSHA, the U.S. Department of Labor, as well as any other federal, state or local applicable statutes or regulations including NYSDEC's DER-10. At a minimum, the HASP will include a description of the health and safety procedures associated with both performance monitoring of the remedial system(s) and effectiveness monitoring. A copy of the HASP will be available at the site during the conduct of all activities to which it is applicable. A typical HASP for the BAL site is provided on the following pages for informational purposes.

SITE-SPECIFIC HEALTH AND SAFETY PLAN

Brookfield Park/Landfill
Staten Island, New York

Prepared for:

New York City Department of Parks & Recreation
Olmsted Center, Annex
Flushing Meadows-Corona Park
Flushing, NY 11368

Prepared by:

TRC Engineers, Inc.
1430 Broadway, 10th Floor
New York, NY 10018
Phone: (212) 221-7822

TRC Project No. 384968

April 2020
Revision 1

Nearest Hospital: Staten Island University Hospital South Campus: Emergency Room
375 Seguine Ave, Staten Island, NY
Emergency Department Phone Number: (718) 226-2000

Directions to Hospital:

Brookfield Avenue Landfill
Brookfield Park, Arthur Kill Rd &, Brookfield Ave, Staten Island, NY 10308

1. Continue to Arthur Kill Rd (0.8 mi)

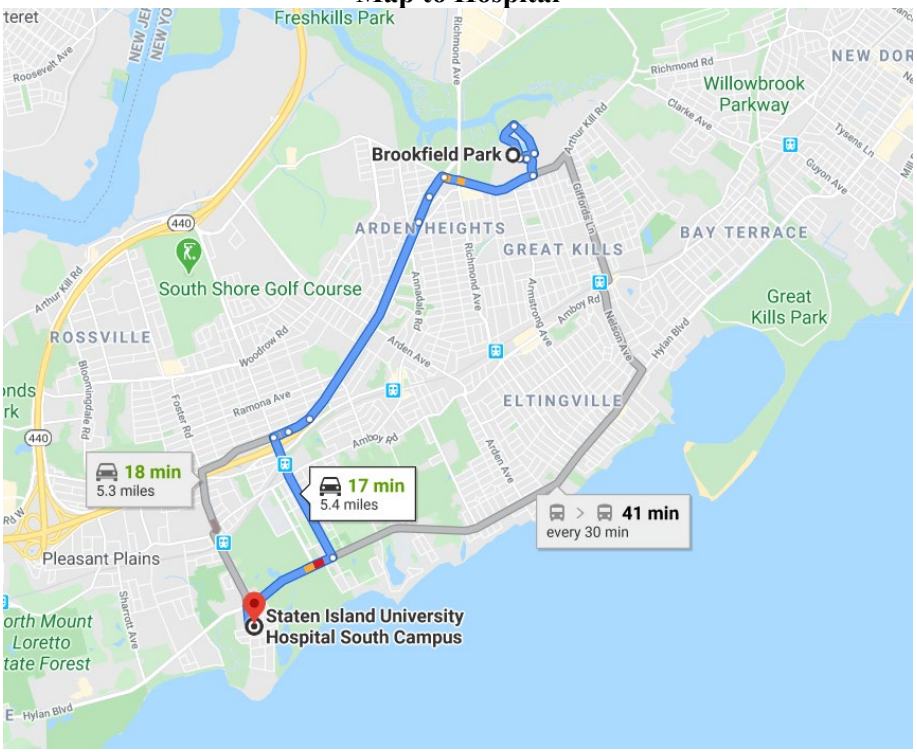
2. Take Korean War Veterans Pkwy, Huguenot Ave and Hylan Blvd to Seguine Ave (4.4 mi)

3. Turn left onto Seguine Ave (0.1 mi)

Staten Island University Hospital South Campus
375 Seguine Ave, Staten Island, NY 10309

The Hospital's Emergency Entrance is located on the **northeast side of Seaview Ave**

Map to Hospital



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1. Client/Personnel and Emergency Contact Information

Site Name/Location, Project Number, Client and Contractor Contact Information		
Site Name: Brookfield Park/Landfill	**TRC Project Number:** 384968	
Site Address: Staten Island, New York		
Client Contact/Title	**Office Phone Number**	**Cellular Phone Number**
Kay Zias / NYC Parks Dept. Director of Environmental Remediation	(718) 760-6748	NA
Arsheen Ehtesham / Project Manager	(718) 760-4025	(347) 920-0411
Rashaun Mitchell / District Manager and Parks Maintenance and Operations Contact	(646) 656-0983	(646) 656-0983
Contractor Contact/Title	**Office Phone Number**	**Cellular Phone Number**
Tom Lock / Vice President / SCS Engineers	(845) 357-1510	NA
Gary Hughes / Vice President / Innovative Recycling Technologies	(631) 225-3044	NA
David Wickliffe / Account Manager / Hampton-Clark	(973) 362-8710	NA
Edward Coppola / Sales Representative / Johnson Controls	(201) 462-5238	NA
Fred Nelson / Branch Manager / JMP Solutions	(973) 808-8550	NA

TRC Personnel and Project Role		
Name / Project Role	**Office Phone Number**	**Cellular Phone Number**
Jennifer Miranda / Program Manager	(917) 794-3248	(646) 285-8990
Barry Kline, PE / Senior Technical Advisor	(860) 298-9692	860) 306-1268
Kirsten Myers, PE/Project Manager	(917) 794-3722	(646)430-0582
Wes Lindemuth, CSP, CHMM / Health & Safety Coordinator (OHSC)	(917) 794-3107	(347) 738-1452
Edward Gerdts/ TRC Certified Industrial Hygienist (CIH)	(212) 221-8014	(917) 549-6197
Liam Bane / ECR East Safety Practice Lead	(860) 298-6305	(860) 918-1587
Dave Sullivan / Environmental Sector Safety Director	(978) 758-2809	(978) 758-2809
Mike Glenn / Health & Safety Director	(949) 727-7347	(949) 697-7418

Notes:
* The OHSO is 40-hour OSHA certified, is current on refresher training, and has OSHA 8-hour supervisor training. The OHSO can be Field Lead or a member of the Field Staff as suits the work at hand and/or the availability of qualified personnel.

Emergency Telephone Numbers		
Service	**Emergency Telephone Numbers**	**Direct Telephone Numbers**
Police: New York Police Department	**Emergency:** 911	**NYPD – 122nd Precinct** (718) 667-2211
Fire: Fire Department of New York		**FDNY Engine No. 167 & Ladder 87 –** 911
Ambulance: Priority One Ambulance		(718) 351-7012
Poison Control		800-222-1222 Local Number: (212) 764-7667
CHEMTREC: Hazardous Materials Exposure Response		800-424-9300 (Customer No. CCN 671126)
National Response Center		(800) 424-8802
Staten Island University Hospital South Campus – Emergency Room	**Emergency:** 911	Emergency Department: (718) 226-2000
DPR Central Communications (all hours)		(646)-613-1200

*In case of an accident, the incident must be reported to DPR Central Communications at (646) 613-1200).

2. Site Information

The Brookfield Park/Landfill is located near the Richmond and Great Kills section of Staten Island, New York. It is bounded to the south and east by Arthur Kill Road, to the west by Richmond Avenue, and to the north by Richmond Creek. The landfill was operated by the City of New York from 1966 through 1980. During that period, it received approximately 5.1 million cubic yards of municipal solid waste. Industrial and hazardous waste dumping may have also occurred at the site. Approximately 132 acres of the 272-acre site are occupied by solid waste. The waste pile rises to an elevation of 45 feet above mean sea level. In 1980, New York City designated 38 acres in the eastern section of the site for closure. The closure included regrading/capping (24 inches of clay and topsoil), seeing and the installation of 10 passive vertical methane gas vents. Other City facilities have been added to the site since this landfill closure, including centralized wastewater collection system (I.e., interceptor), the Eltingville wastewater pump station, and a number of storm sewer outfalls. Between 2010 through 2014, the Brookfield Avenue Landfill Remediation and Closure project (LF-BAL-1G) was complete by BCA, LLC. Site security is provided 24 hours a day by FJC Security, their trailer is located immediately inside the entrance to the Site. The Site is also occupied by Parks Maintenance and Operations (M&O) which has offices on-site adjacent to the office TRC was provided access to. Park M&O has personnel and heavy equipment moving in and out of the parking lot area where the offices and equipment are located.

This Health and Safety Plan covers the field activities to be performed at the Site during implementation of the following activities:

- Leachate Management: Routine data collection, maintenance, and repair of the leachate pumps, leachate collection piping, sump structures and flow meters, and oil/water separators;
- Landfill Gas Management: Landfill gas management system operation, maintenance and monitoring services;
- Landfill Final Cover: Conducting monthly inspections;
- Stormwater Management: Conducting monthly inspections; and

- Sampling and Analysis.

The nearest hospital to the Site is the Staten Island University Hospital South Campus, located at 375 Seguine Ave, Staten Island, NY. A hospital route map with directions is included on the page preceding the table of contents and within Section 14- Emergency/Contingency Plan.

3. Work Scope Summary

Environmental Engineer and Operations and Maintenance Services

This Health and Safety Plan covers the field activities to be performed at the Site during implementation of the following activities:

- Leachate Management: Routine data collection, maintenance, and repair of the leachate pumps, leachate collection piping, sump structures and flow meters, and oil/water separators;
- Landfill Gas Management: Landfill gas management system operation, maintenance and monitoring services;
- Landfill Final Cover: Conducting monthly inspections;
- Stormwater Management: Conducting monthly inspections; and
- Sampling and Analysis.

4. Hazard Assessment

This Health and Safety Plan (HASP) assumes that an ongoing hazard assessment process with Project Management, On-Site Health and Safety Officer (OHSO), and TRC Office Safety Coordinator (OSC) will take place regularly (via meetings/teleconferences), to ensure the project work is conducted at a high level of technical excellence both safely and efficiently. Certain tasks are not covered by this HASP, including vacuum excavation, confined space entry, respiratory protection upgrades of Level C or greater, radioactive materials, or other hazards as determined by the Project Manager and OSC. Where the hazard assessment indicates the presence of these tasks and potential impact on the work involved, supplemental planning will be conducted and documented in a revised or higher-level HASP document.

Chemical Hazards: Based on previous investigations completed at the Site and Site conditions, the presence of volatile organic compounds (VOCs) may be encountered in soil and groundwater. Other chemical hazards associated with landfills are arsenic, benzene, carbon monoxide, chlorobenze, hydrogen sulfide, and methane.

In addition, TRC anticipates using deionized water, and Alconox during decontamination procedures. Safety Data Sheets (SDS) for preservatives and decontamination products that will be used on-Site are provided in Appendix B.

Isobutylene will be used during a short time period at the beginning of each work day to calibrate the photoionization detector (PID). 100 parts per million (ppm) isobutylene will be primarily contained in a tedlar bag. Any gas that is released to the air will quickly disperse and will not pose a threat to on-Site workers. No monitoring is required for isobutylene.

Physical Hazards: Outlined below.

Water Hazards – Persons working on or near water will be wearing Coast Guard approved life vests. Life rings will be available near such work.

Edges/Material Handling – Kevlar gloves are required to be worn at all times while performing tasks that have the potential for hand injuries. A glove selection guideline is presented in Appendix C.

Weather – Both heat and cold stress is a potential concern for on-site workers. As needed, breaks will be permitted to cool down and rehydrate or warm up. Please refer to Appendix D for the signs, symptoms and precautions for cold and heat stress. If thunder or lightning is noted by on-Site personnel, work will cease until the storm passes (thunder and/or lightning ceases and is not observed over at least a 15-minute period). Personnel will seek shelter in buildings or vehicles. Site activities will be limited to daylight hours, or when suitable artificial light is provided, and acceptable weather conditions prevail. The OHSO, in consultation with the PM, will determine the need to cease field operations or observe daily weather reports and evacuate, if necessary, in case of severe inclement weather conditions.

Flare Compound – The Site includes a fence in enclosure which includes the oil/water separators, M1 Discharge location, flow meter, and the flare station and associated control panels and alarms. In addition, compressed gases are stored in the flare compound. TRC shall enter the flare compound to inspect the oil water separator vaults on a weekly basis as well as perform the monthly M1 discharge sampling. The Flare Station equipment and controls are inspected and serviced on a weekly basis by TRC's subcontractor SCS. TRC personnel shall not touch, inspect, or disturb the flare station equipment without authorization from the TRC project manager. The Flare Compound includes alarms and a central monitoring station that reports directly to the FDNY. If TRC personnel observe an alarm associated with the Flare Station the TRC project manager shall be notified immediatley.

Slips/Trips and Falls - Be aware of uneven ground, and buried debris (metal, plastic, etc.), to avoid potential slip/trip/fall hazards, and use caution near open excavations. Maintain good housekeeping practices to minimize physical hazards. Use proper lifting techniques to avoid injury. During winter months when the Site is covered in ice or snow TRC personnel and subcontractors shall wear traction cleats over their safety shoes to prevent slipping on ice and snow.

The Site also includes two wetland weirs which are typically covered with water and are very slippery to walk on due to sediments and algae. In addition, the weirs may be covered in ice during winter months. Walking on the weirs shall be minimized to the extent possible, when absolutely necessary extreme caution shall be used when walking on the weirs.

Working in Remote Areas – Due to size of the project Site, TRC will staff shall work in pairs when performing work in remote areas on-site. In general, the buddy system will be implemented during all on-site activities.

Manual lifting of heavy objects – Use caution when lifting heavy objects such as groundwater sampling equipment, sampling supplies, etc., is anticipated. Failure to follow proper lifting techniques can result in back injuries and strains. Back injuries are a serious concern, as they are the most common workplace injury, often resulting in lost or restricted work time, and long treatment and recovery periods. To prevent back strain and injury, bend from the knees when lifting heavy objects. If possible, use a teammate's help in spotting you and/or lifting the object with you.

Heavy Equipment/Drill Rigs – Use caution around heavy equipment and construction equipment. Ensure the equipment operator is always aware of the location of on-Site personnel to avoid potential injuries (e.g., maintain eye contact with the equipment operator). A spotter should be used to direct the movement of heavy equipment. Exercise caution and wear protective equipment as noted herein around the equipment to guard against crushing and pinching hazards. On-Site personnel will maintain a distance (approximately 10 feet) from mechanical hazards associated with heavy equipment.

Underground, Overhead, and Exposed Utilities – Various utilities currently exist at the Site. TRC has requested the NYC Parks provide all available drawings and site plans that show any on-site utilities. Prior to conducting work activities, the Site will be visually observed for potential overhead hazards (e.g., tree branches and wires), and drilling locations will be selected that are located at safe distances from the hazard. (The Dig Safe utility clearance ticket number is: 811). Use caution when heavy equipment may come in contact with utilities. Maintain a minimum distance of 10 feet from high voltage (up to 50 kV) overhead utilities at all times. Proceed cautiously and with due diligence to minimize the possibility of contacting underground utilities. When inspecting any electrical boxes, units, or electrified components, use caution and disconnect power prior to beginning any invasive work.

Driving/Traffic Hazards – TRC has rented a utility vehicle for on-site. Prior to operating the utility vehicle all personnel must receive an orientation. The utility vehicle must be operated in a safe manner at all times including the use of safety belts. The utility vehicle will only be operated on on-site roadways and pathways necessary for the performance of the work. Extreme caution shall be used when operating the utility vehicle. The vehicle shall not be operated on any surfaces that may create the potential for a roll over. The maximum speed the utility may be operated on-site is 5 mph. Refueling the vehicle shall be performed by TRC's subcontractor SCS under the supervision of TRC. Refueling operations shall be performed as needed under the supervision of TRC, with spill cleanup materials present. If any volume of gasoline is spilled TRC shall promptly notify DPR to discuss next steps. No gasoline storage will occur on-site.

Personal cars may be driven on the asphalt paved roadways at the Site. **The on-site speed limit is 5 mph. In addition, if driving a personal vehicle on-site your hazard lights must be used at all times. When parking on-site all personnel should use the first move forward parking rule. Always back into parking spots so your first move is always forward.** Driving to and from the Site each day is considered a physical hazard. Directions and travel time to the Site should be determined in advance and adequate time should be allocated to drive safely. The use of cellular phones is prohibited, and distracted driving should be avoided. Seatbelts should be worn at all times while the vehicle is moving. Use caution around traffic flow. Ensure proper traffic control (e.g., signs, traffic cones, jersey barriers, etc., or where jurisdictionally required, police details) are in place prior to and throughout the work day where work takes place in or near traffic. Work personnel must wear ANSI-rated class 3 reflective traffic vests at all times.

Pedestrians/Park-goers – Brookfield Park is open to the public. All unauthorized personnel without proper HAZWOPER training will not be permitted within the active work zone while sampling activities are underway. On-site TRC personnel will mark/cordon off the exclusion zone and actively scan the perimeter for anyone who may endanger themselves or interfere with operations.

Biological Hazards: Outlined below.

COVID-19 - The 2019 novel coronavirus, or COVID-19, is a new respiratory virus first identified in Wuhan, Hubei Province, China. It's called a "novel" — or new — coronavirus, because it is a coronavirus that has not been previously identified. Use the following precautions to avoid contracting COVID-19:

- Social distancing (at least 6 feet away from other individuals),
- Hand hygiene,
- Cover mouth and nose when coughing or sneezing,
- Avoid touching eyes, nose, or mouth,
- Frequently disinfect areas that are likely to have frequent hand contact.

Prior to the start of work each day at the Site, as part of the daily safety tool box talk, the COVID-19 Questionnaire for Onsite Workers must be completed. See Appendix A for TRC Document No. CP052.1, COVID-19 Guidelines for Field Activities. **The NYSDEC COVID Infection Prevention Poster and site**

Access Restriction Poster included in Appendix A will be posted at the Site. In addition, the NYSDEC Daily Health Checklist, NYSDEC COVID Log, and TRC COVID-19 Questionnaire included in Appendix F will be completed daily by all on-site personnel

Blood-Borne Pathogens - Injuries received in the field may require assistance from a field team member to perform first aid. Contact with blood and certain body fluids can contain pathogens that may be transmitted by contact with an open wound by the caregiver. The following precautions should be used when giving first aid:

- Use nitrile gloves to avoid contact with blood/fluids. Spent bandages and gloves used to perform first aid should be placed in a plastic bag and properly disposed.
- Blood/fluid should be cleaned from surfaces that may be contacted by other individuals.
- Use an appropriate barrier if required to perform rescue breathing.

Spiders - Spiders typically seek cover in dark protected areas. Common areas where spiders may be encountered are heavy vegetation and trees. Spider bites may cause swelling, pain and respiratory problems. If bitten, wash the area and use ice on the bite area to reduce swelling. If respiratory stress, significant pain or swelling is noted, or discoloration around the bite area occurs, seek immediate medical attention.

Ticks - Lyme disease is caused by infection from a deer tick that carries a spirochete. Ticks are more active between May and October and are generally found near the ground, in brushy or wooded areas. During the painless tick bite, the spirochete may be transmitted into the bloodstream, which could lead to the worker contracting Lyme disease. Symptoms can include a stiff neck, chills, fever, sore throat, headache, fatigue and joint pain. Early signs may include an expanding skin rash and joint pain. If left untreated, Lyme disease can cause serious nerve or heart problems as well as a disabling type of arthritis. It is recommended that personnel check themselves when in areas that could harbor deer ticks, wear light color clothing and visually check themselves and their buddy when coming from wooded or vegetation-covered areas. If a tick is found biting an individual, the HSC should be contacted immediately. The tick can be removed by pulling gently at the head with tweezers. The affected area should then be disinfected with an antiseptic wipe.

Stinging Insects - Like spiders, wasps and yellow jackets often nest in dense vegetation and in the ground. A sting from these insects can cause pain, swelling, and respiratory problems that may be life-threatening to certain individuals. If stung, remove stinger if present using tweezers or similar, and wash the area and use ice on the sting area to reduce swelling. If respiratory stress, significant pain or swelling is noted, or discoloration around the sting area occurs, seek immediate medical attention.

Wild Animals - Bites from wild animals can cause infections or transmit disease. In general, wild animals should never be approached. If bitten, the area should be washed with soap and water. If the bite resulted in puncturing or tearing of the skin, the wound should be covered with a sterile dressing and medical attention should be sought immediately.

Radiological Hazards: None anticipated.

General Safety Rules: Outlined below

The general safety rules listed below apply to TRC personnel and subcontractors at the Site:

- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of materials is prohibited, except in the support zone after proper decontamination;
- All on-Site personnel must wear protective clothing appropriate for designated level of protection and decontaminate before entering clean areas;
- Avoid walking through puddles, pools, or mud;
- Maintain a position upwind from work activities whenever possible;
- Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking, or any other activities
- All equipment will be delivered to the Site free of any contamination, and decontaminated or discarded, as designated by the OHSO, before leaving the Site.

5. Air Monitoring

Air Monitoring Equipment and Use Recommendations: The following table outlines air monitoring equipment needs and rationale. Note that an upgrade to a higher level of respiratory protection (C or higher) will warrant revision or addendum to this HASP and consultation with a TRC Certified Industrial Hygienist (CIH) before work recommences.

Monitoring Equipment Use Recommendations

Instrument	Use Code	Action Levels	Notes/Rationale
PID	R	5 ppmv	Recommended for VOC screening to monitor airborne VOC concentrations in breathing zone levels. If PID readings are sustained above 5 ppmv in the breathing zone for at least 5 minutes, move to an upwind location for 15 minutes. After 15 minutes, measure again. If PID readings are still above 5 ppmv in the breathing zone, contact the OSC or TRC Safety Director to evaluate suitable response actions. Any upgrade in respiratory protection will be coordinated with the corporate health and safety director and/or the OSC. Withdraw from area if PID readings exceed 50 ppmv.
TSI DustTRAK™ (or equivalent)	C	> 150 µg/m^3; 15 minute average*	Used where contaminants could adhere to fugitive dust, and where fugitive dust migration could potentially serve as a significant exposure pathway.
4 Gas Landfill Monitor	R	LEL > 25% O_2 - <19.5% or >23.5% H_2S > 5 ppmv	Recommended for landfill work/confined space work. Stop work, evacuate area, and contact OSC at action level.
MINIRAM (or equivalent)	O		Supplement operation of DustTRAK™ stations for work near sensitive receptors.
Radiation meters	N/A		Not known or anticipated to be a Contaminant of Concern.
Other _____			Coordinate all additional instrumentation with the OSC.

Notes:
Instrument code: PID – Photoionization detector LEL – Lower Explosive Limit O_2 – Oxygen H_2S – Hydrogen Sulfide
Use code: R – Required, C – Condition specific, O – Optional, N/A – Not applicable
ppmv - parts per million by volume
* Above background upwind levels

Monitoring Procedures: The OHSO will periodically measure organic vapor concentrations in the breathing zone using the PID during investigative activities. When required, air monitoring will be performed using a combination of real-time dust monitoring upwind and downwind of the work area, and at a point near the closest receptor.

The OHSO will continuously monitor the typical breathing zone of workers for organic vapor concentrations (PID), fugitive dust emissions (TSI Dustrak™), and LEL, oxygen, hydrogen sulfide, and carbon monoxide (4 gas landfill monitor) during field activities.

Exposure Limits: The OSHA Permissible Exposure Limit (PEL), for benzene, which will be used to determine the appropriate respiratory protection, is 1 part per million (ppm) over an 8-hour time-weighted average or 5 ppm over 15 minutes. This value is based upon the OSHA PEL for benzene, which, of the VOC constituents of petroleum compounds, has the lowest PEL.

Preservatives and Decontamination Products		
Chemical of Concern	**On-Site Usage and Potential Exposures**	**Exposure Limit**
Hydrochloric Acid (HCl)	Hydrochloric Acid (HCl)	Hydrochloric Acid (HCl)
Less than 20 ml quantities used for	Less than 20 ml quantities used for	Less than 20 ml quantities used for
sample preservation. Air phase	sample preservation. Air phase	sample preservation. Air phase
Isobutylene	100 ppm gas for use during calibration of PID instruments	No specific exposure limits for isobutylene (simple asphyxiant). Maintain oxygen levels above 19.5%.
Alconox	For equipment decontamination, make a 1% solution (2.5 tbsp. per gallon) in cold or warm water.	No specific exposure limits for Alconox.
Table Notes: *Exposure and hazard data obtained from the NIOSH Pocket Guide to Chemical Hazards* Ppm – parts per million OSHA – Occupational Safety and Health Administration PEL – Permissible Exposure Limit mg/m^3 - milligrams per cubic meter		

The following table summarizes anticipated concentrations and accepted exposure limits of chemicals potentially present at the Site.

Known or Suspected Chemicals/Contaminants		
Chemical/Contaminant of Concern	**OSHA Permissible Exposure Limit (PEL)**	**On-Site Usage and Potential Exposures**
Arsenic	Time-weighted average: 0.5 mg/m^3	Contaminant of Concern
Benzene	Short-term exposure limit: 5 mg/m^3 Time-weighted average: 1 mg/m^3	Contaminant of Concern
Carbon Monoxide	Time-weighted average: 55 mg/m^3	Contaminant of Concern
Chlorobenzene	Time-weighted average: 350 mg/m^3	Contaminant of Concern
Hydrogen Sulfide	Ceiling: 28 mg/m^3 Maximum (10 minute) peak: 70 mg/m^3	Contaminant of Concern

Known or Suspected Chemicals/Contaminants		
Chemical/Contaminant of Concern	**OSHA Permissible Exposure Limit (PEL)**	**On-Site Usage and Potential Exposures**
Methane	None	Contaminant of Concern
Isobutylene	None	100 ppm gas for use during calibration of PID instruments

Table Notes: *Exposure and hazard data obtained from the NIOSH Pocket Guide to Chemical Hazards*

OSHA – Occupational Safety and Health Administration
PEL – Permissible Exposure Limit
mg/m^3 - milligrams per cubic meter

6. Work Zones and Site Control Measures

Site zones are intended to control the potential exposure to and the spread of contamination throughout the Site and to assure that only authorized individuals are permitted into potentially hazardous areas. The daily work zones and daily activities will be discussed in the daily job briefing. A three-zone approach will be utilized as the control measure and will include an Exclusion Zone (EZ), Contamination Reduction Zone (CRZ), and a Support Zone (SZ). Specific zones will be established on the property when operations begin. Generally, the EZ will be located in the immediate vicinity of the sampling activities, the CRZ will extend from the outer edge of the EZ approximately 20-feet in all directions, and the SZ will be located at the entrance/exit of the Site. Refer to Figure 2 for a visual depiction of the entrance/exit of the Site.

Support Zone (SZ) - The SZ is an uncontaminated area that will be the support area for most operations. The SZ provides for field team communications and staging for emergency response. Appropriate sanitary facilities and safety equipment are typically located in this zone. Potentially contaminated personnel/materials are not allowed in this zone. The only exception will be appropriately packaged/decontaminated and labeled samples.

Contamination Reduction Zone (CRZ) - The CRZ is established between the EZ and the SZ. The CRZ contains the contamination reduction area and provides for an area for decontamination of personnel and portable hand-held equipment, tools and heavy equipment. A personnel decontamination area will be set up at each CRZ. The CRZ will be used for EZ entry and egress in addition to access for heavy equipment and emergency support services.

Exclusion Zone (EZ) - All activities in an area that may involve exposure to contaminants and hazardous materials should be considered the EZ. This zone will be clearly delineated by cones, tapes or other means. The On-Site Health and Safety Officer (OHSO) may establish more than one EZ where different levels of protection may be employed or different hazards exist. The size of the EZ will be determined by the ESS allowing adequate space for the activity to be completed, field members and emergency equipment.

6.1 Site Security

The SSHO is responsible for monitoring the status of all consultant and subcontractor employees on-Site. The SSHO will greet any persons attempting to enter the CRZ or EZ to inform them of hazards and direct them elsewhere if they are not required on-site. All workers will sign in daily and provide appropriate photo identification if requested. Equipment and materials will be stored, during off-hours, within the Equipment Maintenance Building and will be locked, immobilized, and/or otherwise secured to prevent theft or unauthorized use or access. The site has 24 hour security provided by FJC.

7. Personal Protective Equipment (PPE)

Personnel will use Level D PPE as noted/modified below:

Level D Personal Protective Equipment	
Item	**Rationale/Notes**
Hardhat	Appropriately rated hard hats will be worn by personnel for protection against overhead hazards, including electrical.
Face Covering	**As required in response to COVID-19 TRC employees will wear a face covering (N95, half face, or other cloth covering) until it is no longer required.**
Hearing protection	Hearing protection will be worn by all personnel exposed to more than 85 dB of sound during the workday.
Safety boots	Safety boots will be worn by all personnel during project work described in this HASP and on site.
Eye protection (safety glasses)	Eye protection will be worn when personnel are exposed to flying debris, chemical vapors or particulates. Chemical splash goggles will be worn for protection against chemical gases, vapors or particulates. Safety glasses will be worn for protection against flying objects.
Safety vest	Utilize in areas in or near vehicular traffic of any kind on or off property.
Gloves	Gloves to be changed between samples to avoid cross-contamination. Nitrile chemically resistant gloves will be worn when handling sample bottles.
Kevlar work gloves	As indicated herein, use Cut and Abrasion Resistance Level 4 or Level 5 gloves when necessary for hand protection during field tasks. See Appendix C for a Glove Selection Guide***. Leather work gloves are expressly prohibited.***

TRC will place a basic first aid kit in the on-Site trailer for use by TRC and in the event of an emergency.

A fire extinguisher is present in the on-site utility vehicle. All personnel operating working on or around the utility vehicle should know the location of and how to operate the fire extinguisher.

8. Decontamination Procedures

8.1 Minimization of Contact with Contaminants

During the completion of all Site activities, personnel should attempt to minimize the degree of contact with contaminated materials. This involves a conscientious effort to keep "clean" during Site activities. All personnel should minimize kneeling, splash generation, and other physical contact with contamination. This may ultimately minimize the degree of decontamination required and the generation of waste materials from Site operations.

Field procedures will be developed to control dust generation, contact with Site soils, and to ensure that unprotected personnel working nearby are not affected.

8.2 Personnel Decontamination Sequence

Following the removal of PPE, pre-moistened towels or wipes, and/or waterless cleansers will be used by field personnel for decontamination of hands and faces.

Consideration will be given to prevailing wind directions so that the decontamination line, the SZ, and CRZ exit are upwind from the EZ. Personnel who are performing decontamination will remove all soiled PPE used in the EZ and place it within in drums/trash cans located within the CRZ.

8.3 Personnel Decontamination Procedures

The following describes procedures to be employed for personnel decontamination.

PERSONNEL DECONTAMINATION PROCEDURES FOR LEVEL D PROTECTION	
1.	Decontaminate equipment used on-Site (tools, sampling devices and containers, monitoring instruments, radios, clipboards, etc.) with moist towel.
2.	Use boot brush to remove soil from treads of shoes.
2.	Remove PPE and wipe down with moist towel.
3.	Remove gloves and deposit in waste container.
4.	If inner clothing has become contaminated, remove it and place it into a poly bag.
5.	Wash hands and face.

8.4 Equipment Decontamination Procedures

Decontamination of equipment may be accomplished using dry decontamination with brushes and shovels. All equipment decontamination will take place in the exclusion zone. Vehicles or equipment, which are brought into an EZ will be treated as contaminated and will be decontaminated prior to removal from the EZ. All liquids used in the decontamination procedure will be collected, stored, and disposed in accordance with federal, state, and local regulations.

Other decontamination equipment may include:

- Wash tubs (1 wash and 1 rinse);
- Several scrub brushes;
- Disposable towels; or
- Decontamination solution (e.g., non-phosphate detergent, Simple Green).

8.5 Emergency Decontamination

If circumstances dictate that contaminated clothing cannot be readily removed, then remove gross contamination and wrap injured personnel with clean garments/blankets to avoid contaminating other personnel or equipment.

If the injured person can be moved, he/she will be moved to the EZ boundary and decontaminated by Site personnel as described above before emergency responders handle the victim. If the person cannot be moved because of the extent of the injury (a back or neck injury), provisions will be made to ensure that emergency response personnel are able to respond to victim without being exposed to potentially hazardous atmospheric conditions. If the potential for inhalation hazards exist, such as with open excavation, this area will be covered with poly to eliminate any potential inhalation hazards. All emergency personnel are to be immediately informed of the injured person's condition, potential contaminants, and provided with all pertinent chemical data.

8.6 Hand Held Equipment Decontamination

Hand held equipment includes all monitoring instruments, samples, hand tools, and field logbooks. To aid in decontamination, monitoring instruments can be sealed in plastic bags or wrapped in polyethylene. This

will also protect the instruments against contaminants. The instruments will be wiped clean using wipes or paper towels if contamination is visually evident.

Decontamination procedures for sampling equipment, hand tools, etc. will include a moist towel wipe, as appropriate for the Site conditions.

9. Job Safety Analyses

A Job Safety Analysis (JSA) is a safety management tool in which the risks or hazards of a specific job in the workplace are identified, and then measures to eliminate or control those hazards are determined and implemented. More specifically, a JSA is a process of systematically evaluating certain jobs, tasks, processes or procedures and eliminating or reducing the risks or hazards to as low as reasonably practical (ALARP) in order to protect workers from injury or illness. The JSA process is documented and the JSA document is used in the workplace or at the job site to guide workers in safe job performance. The JSA document is also a living document that is adjusted as conditions warrant.

The JSA process begins with identification of the potential hazards or risks associated with a particular job. Once the hazards are understood, the consequences of those hazards are then identified, followed by control measures to eliminate or mitigate the hazards.

Please refer to Appendix E for the Job Safety Analyses for Soil Borings.

10. Required Personnel Training

TRC field personnel will have the training outlined below before on-Site work activities:

Project Training Requirements				
(* required for all sites; but minimum recommended) Check "A" if training required for everyone, and check "T" if training required for specific task or per notations.				
A	**T**	**SUBJECT**	**REFERENCE**	
			29 CFR 1910	**29 CFR 1926 or Other**
☒	☐	HAZWOPER 40 hour	1910.120	1926.65
☒	☐	3-Day HAZWOPER Supervised On-site	1910.120	1926.65
☒	☐	8-Hour HAZWOPER Refresher	1910.120	1926.65
☐	☒	8-Hour Supervisor HAZWOPER*	1910.120	1926.65
☐	☒	First Aid, CPR[1]	1910.151	1926.23,.50
☒	☐	Hazard Communication (HAZCOM)	1910.1200	1926.59
☐	☒	DOT / IATA Shipping Training	1910.1201	49 CFR 172.704
☒	☐	TRC Hand Protection Policy	1910.138	TRC Policy[2]
☒	☐	Defensive Driving	N/A	White Paper[3] TRC Manual[4]
Client-specific training: ☐ Not Applicable ☐ Specify				
Client-specific training: ☐ Not Applicable ☐ Specify				
Client-specific training: ☐ Not Applicable ☐ Specify				

Project Training Requirements
(* required for all sites; but minimum recommended)
Check "A" if training required for everyone, and check "T" if training required for specific task or per notations.

Note:
***** The OHSO shall have OSHA 8-hour supervisor training, in addition to 40-hour HAZWOPER.
1 Per the TRC Health and Safety Policy and Procedure Manual, each TRC project will have at least one certified CPR/first aid trained person on- Site at all times. All Project Managers, and anyone acting as the on-site Health and Safety Officer, must be current in First Aid/CPR.
2 TRC RMD Hand Protection Policy, August 2012
3 Guidelines for Employers to Reduce Motor Vehicle Crashes (joint white paper by NETS, NHTSA and OSHA)
4 TRC Driver and Vehicle Management Policy and Procedure Manual, Rev 1 (April 2012)

Project training requirements beyond those provided in the above table will require a HASP revision/upgrade or concurrence of the TRC Safety Director or Practice Safety Manager.

Note: The following subcontractors are anticipated to perform possible work on Operations, Maintenance, and Monitoring (OM&M) work activities:

- Pest control,
- Electricians,
- Sampling, and
- Landscaper.

These personnel anticipated to work on their related OM&M work activities do not require HAZWOPER training per CFR 29 1910.120 because their duties are limited and will not be required to person any potential intrusive work.

Some types of additional training may be required prior to workers performing specific duties on site. This includes, but is not limited to safe equipment (tools) operation, fire extinguisher, emergency response, confined space entry, ladder safety, electrical safety, fall protection, evacuation drills, and Certificate of Fitness from the FDNY.

11. Medical Monitoring

Medical monitoring will apply routinely to all employees who are or may be exposed to hazardous substances or health hazards at or above the established permissible exposure limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year (40 CFR 1910.120[f][2][i]). Said TRC field personnel will have the medical surveillance outlined in the table below prior to commencing on-site work activities.

Medical Surveillance Required			
*Baseline is minimum recommended.			
	29 CFR 1910	**29 CFR 1926 or Other**	**Notes**
☒ HAZWOPER Physical - Baseline	1910.120	1926.65	
☒ HAZWOPER Physical - Annual	1910.120	1926.65	
☐ HAZWOPER Physical - Biennial	1910.120	1926.65	
Client-specific drug testing[1]	☒ Not Applicable ☐ Specify		

Client-specific medical monitoring[1]	☒ Not Applicable ☐ Specify
Site-specific medical monitoring:	☒ Not Applicable ☐ Specify

Note:
[1] Client required drug testing or medical monitoring should be coordinated through the Project Manager.

TRC has a Drug and Alcohol-Free Workplace Policy. TRC may require employees or subcontractors to be tested upon reasonable suspicion, following accidents or incidents during work activities, or during travel to or from a project Site. Client policies may be stricter in regard to procedures following an accident. Project Managers must be aware of these and inform employees and subcontractors of any additional requirements.

12. General Safety Requirements

The general safety rules listed below apply to all TRC personnel present at the Site.

- A tailgate health and safety meeting will be held with all field team members each day prior to the start of work.
- Air monitoring equipment will be calibrated each day prior to the start of work. The equipment serial number and calibration results will be recorded in the field log book.
- Adhere to all requirements of this HASP.
- Wear protective clothing appropriate for the designated level of protection and decontaminate before entering clean areas, when applicable.
- Use safety equipment in accordance with OSHA guidance and labeling instructions.
- Maintain safety equipment in good condition and proper working order and make sure that all air sampling equipment is calibrated prior to use.
- Immediately report unsafe acts or conditions to the Project Manager and OHSC.
- Eating, drinking, and smoking are prohibited on site, except in designated areas.
- Maintaining a position upwind from intrusive activities is encouraged.
- An adequately stocked first-aid kit will be maintained at the work site.

13. Tailgate Safety Meetings

A tailgate safety meeting will be conducted daily prior to commencement of the work day (see checklist provided in Appendix F) or if site conditions change.

Topics covered by the tailgate safety meeting will include, but not be limited to:

- Scope of work and who will conduct each task
- Potential hazards for the scope of work
- Weather forecast
- PPE
- Emergency procedures and the route to the medical facility
- Site conditions and features
- Communication guidelines related to stakeholder engagement and visitors

Safety meetings will be held to address modifications to this HASP and any addenda prepared to supplement the HASP. Subcontractors and personnel present at the tailgate safety meeting shall be required to sign an acknowledgement form after each meeting.

14. Emergency/Contingency Plan

Before commencing any on-Site operations, the TRC OHSO will advise all personnel of potential emergencies. Personnel will be advised on their roles in the event of an emergency, and the steps to take for a timely and controlled response.

Communication networks/chain of command - All on-Site personnel will communicate any accident, injury or near miss to the TRC OHSO who will provide instruction on how to proceed further. In the event of an incident,

First Aid / Safety Equipment - First aid equipment should be readily available in the event of an emergency. First aid equipment should include a well-stocked first aid kit, fire extinguisher and emergency eye wash. TRC shall place a new first aid kit and emergency eye wash in the on-site trailer.

Evacuation Plans and Refuge Area - All personnel should safely remove themselves from danger in the event of an emergency and safely access the refuge area. The refuge area should be in an upwind location a safe distance from the work zone. The refuge area will be determined during the daily safety briefing.

Notifications of Fire, Police and Emergency Facilities - In the event of an emergency that cannot be controlled by on-Site personnel, the appropriate emergency contact shall be notified. All personnel shall remove themselves from the area of danger and wait for the arrival of help in the predetermined refuge area. The following is a list of local emergency contacts:

Non-Emergency Medical Assistance - If an injury does occur and it is not life threatening, then the employee or employee's supervisor/project manager should contact WorkCare as soon as possible, but within the first hour after an injury. WorkCare information is proved in Appendix G. This information will help assist the injured employee by connecting them with instant access to a medically qualified professional in order to provide guidance on appropriate first aid measures and medications.

Non-Emergency Telephone Number		
Service	**Telephone Numbers**	**Notes**
TRC WorkCare	888-449-7787	See Appendix G

Emergency Telephone Numbers		
Service	**Emergency Telephone Numbers**	**Direct Telephone Numbers**
Police: New York Police Department	**Emergency:** 911	**NYPD – 122nd Precinct** (718) 667-2211
Fire: Fire Department of New York		**FDNY Engine No. 167 & Ladder 87** 911
Ambulance: Priority One Ambulance		(718) 351-7021
Poison Control		800-222-1222 Local Number: (212) 764-7667
CHEMTREC: Hazardous Materials Exposure Response		800-424-9300 (Customer No. CCN 671126)

Emergency Telephone Numbers		
Service	**Emergency Telephone Numbers**	**Direct Telephone Numbers**
National Response Center		(800) 424-8802
Staten Island University Hospital South Campus – Emergency Room	**Emergency:** 911	Emergency Department: (718) 226-2000
DPR Central Communications (all hours)		(646)-613-1200

*In case of an accident, the incident must be reported to DPR Central Communications at (646) 613-1200).

Nearest Hospital: Staten Island University Hospital South Campus: Emergency Room
375 Seguine Ave, Staten Island, NY
Emergency Department Phone Number: (718) 226-2000

Directions to Hospital:

Brookfield Park, Arthur Kill Rd &, Brookfield Ave, Staten Island, NY 10308

1. Continue to Arthur Kill Rd, 7 min (0.8 mi)

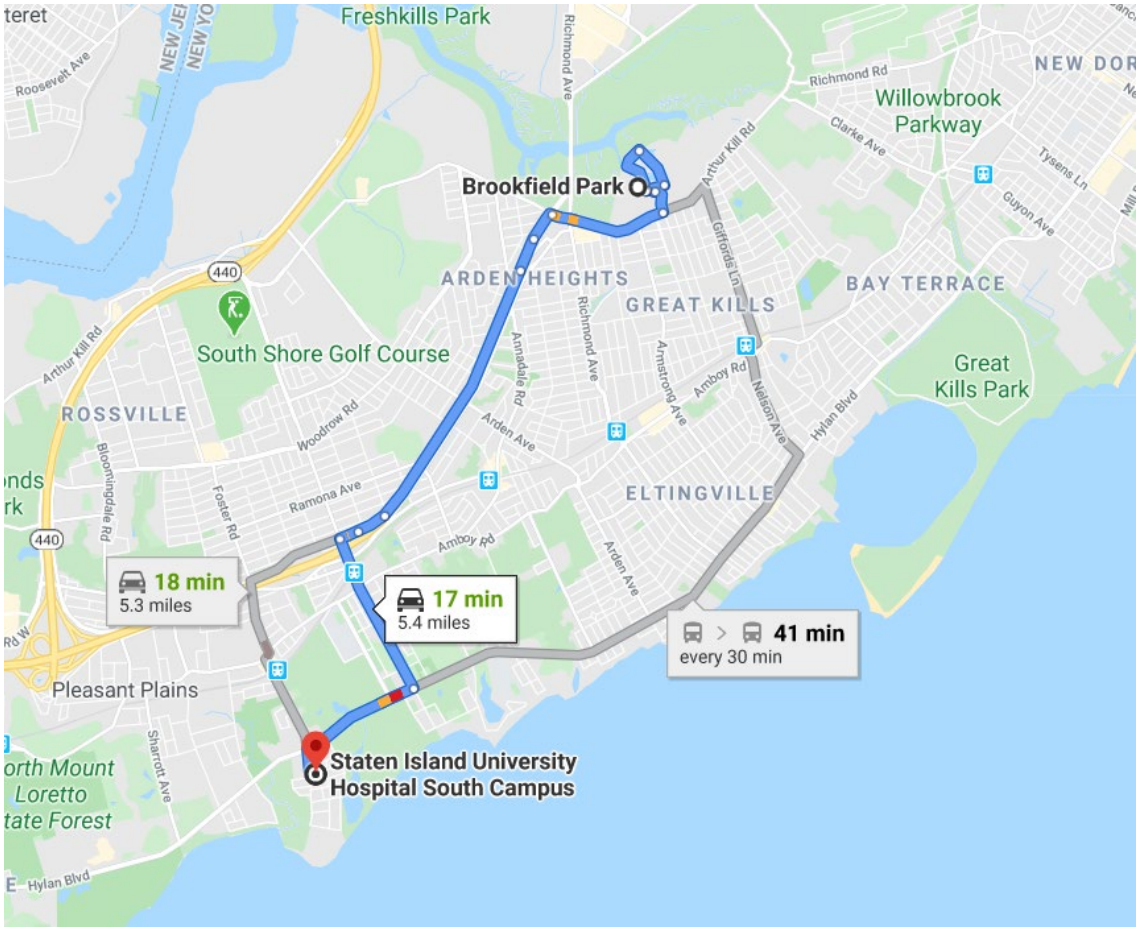
2. Take Korean War Veterans Pkwy, Huguenot Ave and Hylan Blvd to Seguine Ave, 11 min (4.4 mi)

3. Turn left onto Seguine Ave, 35 s (0.1 mi)

Staten Island University Hospital South Campus
375 Seguine Ave, Staten Island, NY 10309

The Hospital's Emergency Entrance (for walk-in patients) is located on the **northeast side of Seaview Ave**

Map to Hospital



15. Observations

Note that the Project Manager and/or OSC may notify field staff that their site activities may be the subject of Safety Observation, an integral part of the continuous improvement safety culture promoted at TRC. If subject to an observation, please note the following:

- The Observation will tend to focus on the highest risk activity (as a general example, slip trip falls).
- Follow-up observations may be required, depending on prior data collected.
- The observer's preparation before visiting the site will be a review of the HASP, JSAs, client-specific requirements, etc., and a review of the work scope with the Project Manager to ensure the context of the work is well understood in advance.
- Review items may include PPE, body use and positioning, work environment, operating procedures, and tools and equipment.
- The observation should last between 30 and 60 minutes.

Observations will be documented using the Safe Catch Report in the Intelex application or the paper form included in Appendix I. Both positive and negative observations are candidates for documentation and later discussion. The overarching goals are to identify and correct questionable practices, and to identify and promote good, safe and efficient practices. It is a data gathering process that will allow TRC safety specialists to identify root causes for safety issues in both categories to better inform policy decisions.

16. Incident Reporting

In case of an accident, TRC personnel must report the incident immediately to their project manager/supervisor and/or OHSC, and client's representative, and follow the TRC Incident Response and Reporting Process (see Appendix H). Required forms must be completed using the Intelex application or hard copy forms included in Appendix H within 24 hours following the incident. In addition, in case of an accident, the incident must be reported to DPR Central Communications.

17. Acknowledgement

All TRC personnel operating under this HASP must read the HASP and sign the acknowledgment page in Appendix J.

18. Subcontractors and Health and Safety Planning

TRC personnel must provide the complete HASP to all subcontractors for their reference in advance of the work. Subcontractors must prepare their own site-specific HASP and provide evidence of HASP preparation before the start of site work to ensure that the subcontractor has an understanding of the safety hazards associated with the work that they are performing. Subcontractor HASPs are not required to be included unless contractually/client required or is so desired by the Project Manager or OSC.

Figures



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FEET



MAP INCLUDES INFORMATION FROM THE FOLLOWING MAP SHEET(S): TP, ARTHUR KILL, NY-NJ, 7.5 MINUTE DATED 2019.

MAP OBTAINED THROUGH USE OF TOPOVIEW WITH THE INTERFACE CREATED BY THE NATIONAL GEOLOGIC MAP DATABASE PROJECT (NGMDB), IN SUPPORT OF THE TOPOGRAPHIC MAPPING PROGRAM, MANAGED BY THE USGS NATIONAL GEOSPATIAL PROGRAM (NGP).

TRC
1430 Broadway, 10th Floor
New York, NY 10018
Phone: 212.221.7822
www.TRCcompanies.com

PROJECT:
NEW YORK CITY DEPARTMENT OF PARKS AND RECREATION
SITE-SPECIFIC HEALTH AND SAFETY PLAN
BROOKFIELD AVENUE LANDFILL - 375 ARTHUR KILL ROAD
STATEN ISLAND, NEW YORK 10308

TITLE:

SITE LOCATION MAP

DRAWN BY:	H. DELGADO
CHECKED BY:	C. LAMBERT
APPROVED BY:	K. MYERS
DATE:	APRIL 2020
PROJ. NO.:	384968
FILE:	Figure 1 - Site Location Map (Brookfield LF).dwg

FIGURE 1

8.5x11 --- ATTACHED XREFS: --- ATTACHED IMAGES: BAL OMNI Figures (002): NJ, Elizabeth, 20191101, TM: NJ Jersey City, 20191029, TM: NY, Arthur Kill, 20190913, TM: NY, The Narrows, 20190913, TM:
DRAWING NAME: I:\Projects\NYC Parks Contract 2016\620018138\4968.0000 - Brookfield Avenue Landfill\HASP\Figures\TRC Working Drawings\ Figure 1 - Site Location Map (Brookfield LF).dwg --- PLOT DATE: April 16, 2020 - 5:31PM --- LAYOUT: 8.5x11P



LEGEND (SYMBOL NOT TO SCALE):

SITE BOUNDARY

NOTE:

1. AERIAL IMAGERY SOURCE: GOOGLE EARTH PRO 2019 DATED JUNE 7, 2019.

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SCALE: 1"= 400'
SHEET SIZE: 11" X 17"

PROJECT:
NEW YORK CITY DEPARTMENT OF PARKS AND RECREATION
SITE-SPECIFIC HEALTH AND SAFETY PLAN
BROOKFIELD AVENUE LANDFILL - 375 ARTHUR KILL ROAD
STATEN ISLAND, NEW YORK 10308

TITLE:
SITE ENTRY / EXIT LOCATION

DRAWN BY:	H. DELGADO	PROJ NO.:	384968
CHECKED BY:	E. EBERT		
APPROVED BY:	W. LINDEMUTH	**FIGURE 2**	
DATE:	APRIL 2020		

TRC
1430 Broadway, 10th Floor
New York, NY 10018
Phone: 212.221.7822
www.TRCcompanies.com

FILE NO.: Figure 2 - Site Entry-Exit Location (Brookfie;ld LF).dwg

11x17 -- ATTACHED XREFS: -- ATTACHED IMAGES: GEPro-06-07 2019-8926FT:
DRAWING NAME: I:\Projects\NYC Parks Contract 20166200181\384968.0000 - Brookfield Avenue Landfill\HASP\Figures\TRC Working Drawings\Figure 2 - Site Entry-Exit Location (Brookfie;ld LF).dwg -- PLOT DATE: April 17, 2020 - 11:18AM -- LAYOUT: 11X17L

Appendix A
COVID-19 Guidelines for Field Activities

1. ASSESSING FIELD ACTIVITIES FOR COVID-19 RISK

Following TRC's health and safety management system, work activities should be assessed to identify possible hazards and the precautions necessary to mitigate risk to an acceptable level, including risks associated with COVID-19. TRC is following the US Occupational Safety and Health Administration's (OSHA) risk assessment guidance for COVID-19. Project-specific controls that are developed through the risk assessment process must be communicated to project employees and also listed in the project Health and Safety Plan.

1.1. Risk Assessment

To determine appropriate precautions, OSHA has divided job tasks into four risk exposure levels: very high, high, medium, and lower risk. The majority of TRC's work is considered Low risk.

- **Very High:** Exposure risk jobs are those with high potential for exposure to known or suspected sources of COVID-19 during specific medical, postmortem, or laboratory procedures. Workers in this category include healthcare workers and healthcare or laboratory personnel collecting or handling specimens from known or suspected COVID-19 patients.
  - **Precautions:** TRC does not engage in Very High-risk work.
- **High:** Exposure risk jobs are those with high potential for exposure to known or suspected sources of COVID-19. Workers in this category include healthcare delivery and support staff (e.g., doctors, nurses, and other hospital staff who must enter patients' rooms) exposed to known or suspected COVID-19 patients.
  - **Precautions:** TRC does not engage in High-risk work.
- **Medium:** Exposure risk jobs include those that require frequent and/or close contact with (i.e., within 6 feet of) people who may be infected with COVID-19, but who are not known or suspected COVID-19 patients. In areas without ongoing community transmission, workers in this risk group may have frequent contact with travelers who may return from international locations with widespread COVID-19 transmission. In areas where there is ongoing community transmission, workers in this category may have contact be with the general public (e.g., in schools, high-population-density work environments, and some high-volume retail settings).
  - **Precautions**
    - Continue to follow the CDC's guidelines for social distancing and hand hygiene.
    - Where appropriate, limit client and third-party access to the worksite or restrict access to only certain workplace areas.
    - Consider strategies to minimize face-to-face contact (e.g., drive through windows, phone-based communication, telework).

- Employees and Project Managers with medium exposure risk may need to wear some combination of gloves (i.e., nitrile), a face mask (or ½ mask tight-fitting respirator), and/or a face shield or goggles. PPE ensembles for workers in the medium exposure risk category will vary by work task, the results of the hazard assessment, and the types of exposures workers have on the job.

- **Lower:** Exposure risk (caution) jobs are those that do not require contact with people known to be, or suspected of being, infected with COVID-19 nor frequent close contact with (i.e., within 6 feet of) the general public. Workers in this category have minimal occupational contact with the public and other coworkers.
  - **Precautions** – While OSHA does not recommend specific controls for Low-risk work, TRC will continue to follow the CDC's primary precautions including social distancing and hand hygiene.

1.2. Best Practices

TRC has identified additional best practices that can be used to further mitigate potential exposure to COVID-19. In addition, the CDC's COVID-19 guidelines which include social distancing and hand hygiene, the following options should be considered.

- **Travel**
  - Drive in separate vehicles
  - Consider completing task alone
  - Have passenger sit in back seat
  - Sanitize your hands after using the fuel pump
  - Sanitize interior surfaces of rental vehicles
  - Driving instead of flying
- **Project Sites**
  - Use disposable chemical resistant gloves (i.e., nitrile) when disinfectant wipes are not available
  - Schedule work during "off hours" when less people are around
  - Wait until 3 days after last person left the area, if possible
  - Consider using a ½ mask tight-fitting respirator when N95 masks are not available (if deemed appropriate)
  - Contact clients via telephone or video conference instead of face-to-face meetings

- **Construction sites**
  - Avoid “tailgate meetings” or “water cooler meetings” without following social distancing protocols
  - Avoid sharing pens/pencils
  - Safety Meetings should be held in groups of 10 or less and should observe 6’ personal distance
  - Stager lunch times to minimize social gatherings; consider eating in separate areas
  - All lunch waste, bottles and cans should be disposed of immediately after use
  - Never share PPE (hard hats, high visibility vets, personal floatation device, safety glasses, etc.
  - Avoid community coffee pots in field offices
  - Provide disposable paper cups at drinking stations
  - Wear gloves when operating equipment and if possible, limit one operator to a piece of equipment. Sanitize controls after use
  - No sharing hand tools
  - Set up hand cleaning or sanitizing stations at various locations on the site, ideally near port-o-lets
  - Put your clothing directly in the washing machine at the end of shift
  - Limit number of workers in confined spaces as much as possible
  - Use telephones or Skype meetings to avoid face-to-face meetings when possible

2. SYMPTOMS AND PRECAUTIONS FOR COVID-19

2.1. Background

The 2019 novel coronavirus, or COVID-19, is a new respiratory virus first identified in Wuhan, Hubei Province, China. It’s called a “novel” — or new — coronavirus, because it is a coronavirus that has not been previously identified.

Both the COVID-19 and influenza (flu) are respiratory illnesses, which have similar symptoms. Both are contagious and both can be mild or severe, even fatal in rare cases. The key difference between the novel coronavirus and influenza is we know what to expect from the flu.

2.2. Symptoms of COVID-19

Initial symptoms of COVID-19 usually include fever greater than 100.4°F (38.0°C), cough, and shortness of breath. However, not all affected individuals will exhibit all symptoms. If you experience these symptoms or have been in recent close contact with someone with these symptoms, notify your doctor and stay home.

2.3. Steps to Follow If You Develop Symptoms

Symptoms and Warning Signs	**Take the following steps**
These symptoms may appear 2-14 days after exposure. • Fever, greater than 100.4°F (38.0°C) • Cough • Shortness of breath	1. Notify your field and direct supervisor that you feel ill. 2. Supervisor shall notify Office Practice Leader/Practice Leader, Mike Glenn (949-697-7418), and your HR Business Partner immediately. 3. Immediately isolate yourself and return to your place of lodging (return home if nearby). 4. Contact your personal healthcare provider asap (consider using the Cigna app) for evaluation and follow their instructions. 5. Update your field and direct supervisor of your health and work status (e.g., when do you expect to return to work). 6. If you're diagnosed with COVID-19 notify Mike Glenn (949-697-7418) and your HR Business Partner immediately. This communication will be treated as confidential.
If you develop any of the following **emergency warning signs:** • Difficulty breathing or shortness of breath, • Persistent pain or pressure in the chest, • New confusion or inability to arouse, • Bluish lips or face This list is not all inclusive so please consult with your medical provider for further guidance.	1. Get medical attention immediately. 2. If you're diagnosed with COVID-19, notify Mike Glenn (949-697-7418) and your HR Business Partner immediately. This communication will be treated as confidential.

Source: CDC COVID-19 Symptoms https://www.cdc.gov/coronavirus/2019-ncov/about/symptoms.html

2.4. Transmission

Both COVID-19 and the flu can be spread from person to person through droplets caused by an infected person coughing, sneezing or talking. Flu can be spread by an infected person for several days before their symptoms appear, and COVID-19 is believed to be spread in the same manner, but we don't yet know for sure.

2.5. Precautions

- Practice Social Distancing
  - Practice social distancing by avoiding large gatherings and maintaining distance (approximately 6 feet) from others when possible.
  - Do not share eating or drinking utensils, avoid close conversation, and other direct physical contact like hand shaking. "Close contact" does not include activities such as walking by a person or briefly sitting across an office.
- Hand Hygiene
  - According to the CDC, washing hands with soap and water is the best way to get rid of germs in most situations. If soap and water are not readily available, you can use an alcohol-based hand sanitizer that contains at least 60% alcohol. You can tell if the sanitizer contains at least 60% alcohol by looking at the product label.
- Practice good respiratory hygiene – covering mouth and nose when coughing or sneezing, using tissues and disposing of them correctly.
- Obtain immunizations recommended by healthcare providers to help avoid disease.
- Early self-isolation of those feeling unwell, feverish and having other symptoms of flu.
- Avoiding touching your eyes, nose or mouth.
- Frequently disinfect all areas that are likely to have frequent hand contact (like doorknobs, faucets, handrails).

2.6. Client Meetings/Interactions

Be aware of any restrictions or requirements that clients have in place regarding visiting client facilities or attending meetings. Verify with supervisor/project managers prior to visiting client facilities or meetings in person.

TRC HEALTH AND SAFETY MANAGEMENT SYSTEM

COVID-19 Guidelines for Field Activities Addendum

1. IDENTIFICATION OF LOCAL COVID-19 RESOURCES

- The NYSDOH COVID-19 Hotline is the local Health Department contact information and can be reached at 888-364-3065.
- The nearest drive-through COVID-19 testing center is South Beach Psychiatric Center located at 777 Seaview Avenue, Staten Island, New York. Testing is by appointment only.

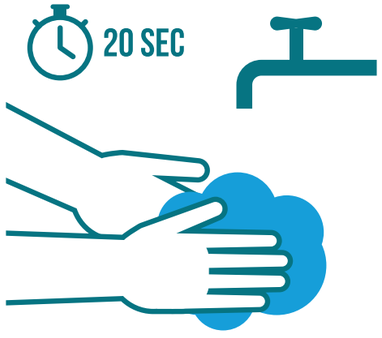
2. Personal Protective Equipment (PPE) and Measures

- In addition to Level D PPE as specified in Section 7 of the HASP, for the duration of the COVID-19 outbreak, the following additional PPE shall be used:
    - Face masks or cloth masks will be worn by personnel if social distancing (approximately 6 feet) is not possible.
- Practice Social Distancing by avoiding large gatherings and maintaining distance (approximately 6 feet) from others when possible.
- Wash hands with soap and water or use an alcohol-based hand sanitizer that contains at least 60% alcohol.
- Practice good respiratory hygiene by covering mouth and nose when coughing or sneezing, using tissues, and disposing of them correctly.
- Avoid touching your eyes, nose, or mouth.

3. Cleaning and Disinfection Procedures

- Should a suspected COVID-19 case(s) among site personnel be identified, TRC will contact DPR upon discovery to discuss appropriate cleaning and disinfection procedures.

PREVENT INFECTION



Wash your hands and use hand sanitizer

Wash your hands frequently and thoroughly, for a minimum of 20 seconds.

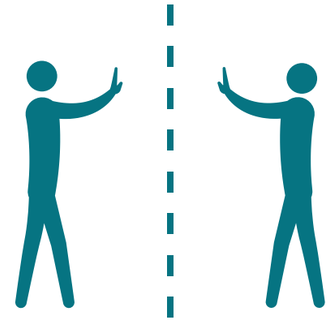
Use hand sanitizer, containing at least 60% alcohol when you are unable to wash you hands with soap and water.



Cover your cough or sneeze

Cover your mouth and nose when coughing or sneezing. Turn your head away from others, if possible, when sneezing.

Use a paper tissue or your sleeve and not your hand. Dispose of used tissues immediately.



Limit physical contact

Avoid handshakes, kisses and hugs.

Maintain at least 6 feet from all others persons when possible.



Keep clean

Regularly sanitize frequently touched and shared surfaces at home as well as at work.



Be considerate

Stay home whenever possible especially if you are experiencing symptoms.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

SITE ACCESS RESTRICTIONS



SITE ACCESS IS PROHIBITED FOR THE FOLLOWING PERSONS DUE TO COVID-19 RISK

- **You are experiencing flu-like symptoms including but not limited to:**

  Fever or feeling feverish/chills, cough, sore throat, diarrhea, vomiting, runny or stuffy nose, muscle or body aches, headaches, fatigue (tiredness)

- **You have traveled to CDC-restricted destinations during the last 2 weeks:**

  China, South Korea, Iran, United Kingdom & Ireland, all European Union countries, Switzerland and regions within the U.S. for which public health agencies have prohibited travel

- **You had direct contact with a person diagnosed with COVID-19 or suspected of having COVID-19 during the last 2 weeks**

  Immediately notify NYSDEC site management.

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Appendix B
Safety Data Sheets for Preservatives and Decontamination Products

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Prepared to U.S. OSHA, CMA, ANSI, Canadian WHMIS, Australian WorkSafe, Japanese Industrial Standard JIS Z 7250:2000, and European Union REACH Regulations

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SAFETY DATA SHEET

Version 4.6
Revision Date 12/29/2015
Print Date 02/08/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Arsenic

Product Number : 202657
Brand : Aldrich
Index-No. : 033-001-00-X

CAS-No. : 7440-38-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 3), H331
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H302 Harmful if swallowed.
H331 Toxic if inhaled.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.

P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P304 + P340 + P311	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	As
Molecular weight	:	74.92 g/mol
CAS-No.	:	7440-38-2
EC-No.	:	231-148-6
Index-No.	:	033-001-00-X

Hazardous components

Component	Classification	Concentration
Arsenic		
	Acute Tox. 4; Acute Tox. 3; Aquatic Acute 1; Aquatic Chronic 1; H302, H331, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Arsenic oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Arsenic	7440-38-2	TWA	0.01 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Lung cancer Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed human carcinogen		
		C	0.0020 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A 15 minute ceiling value		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Arsenic	7440-38-2	inorganic arsenic plus methylated metabolites	35µg As/l	In urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of the workweek (After four or five consecutive working days			

		with exposure)			
		inorganic arsenic plus methylated metabolites	35µg As/l	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of the workweek (After four or five consecutive working days with exposure)			

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: Pieces Colour: grey
b)	Odour	No data available
c)	Odour Threshold	No data available

d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 817 °C (1,503 °F) - lit.
f)	Initial boiling point and boiling range	613 °C (1,135 °F) - lit.
g)	Flash point	Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	No data available
k)	Vapour pressure	No data available
l)	Vapour density	No data available
m)	Relative density	5.727 g/mL at 25 °C (77 °F)
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat Exposure to air may affect product quality.

10.5 Incompatible materials
Oxidizing agents, Halogens, Palladium undergoes a violent reaction with arsenic, Zinc, Platinum oxide, Nitrogen trichloride, Bromine azide

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 763 mg/kg
Remarks: Behavioral:Ataxia. Diarrhoea

LD50 Oral - Mouse - 145 mg/kg
Remarks: Behavioral:Ataxia. Diarrhoea

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

IARC:	1 - Group 1: Carcinogenic to humans (Arsenic)
NTP:	Known to be human carcinogen (Arsenic)
	Known to be human carcinogen (Arsenic)
OSHA:	OSHA specifically regulated carcinogen (Arsenic)

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: CG0525000

Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 9.9 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 3.8 mg/l - 48 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1558 Class: 6.1 Packing group: II
Proper shipping name: Arsenic
Reportable Quantity (RQ): 1 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1558 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: ARSENIC
Marine pollutant:yes

IATA
UN number: 1558 Class: 6.1 Packing group: II
Proper shipping name: Arsenic

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Arsenic	7440-38-2	2007-07-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Arsenic	7440-38-2	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Arsenic	7440-38-2	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Arsenic	7440-38-2	2007-07-01

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
Arsenic	7440-38-2	2008-10-10

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H302	Harmful if swallowed.
H331	Toxic if inhaled.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	0
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.6 Revision Date: 12/29/2015 Print Date: 02/08/2016

SAFETY DATA SHEET

Version 5.4
Revision Date 07/24/2015
Print Date 02/08/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Benzene

Product Number : 12540
Brand : Sigma-Aldrich
Index-No. : 601-020-00-8

CAS-No. : 71-43-2

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 2), H225
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319
Germ cell mutagenicity (Category 1B), H340
Carcinogenicity (Category 1A), H350
Specific target organ toxicity - repeated exposure (Category 1), H372
Aspiration hazard (Category 1), H304
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H304 May be fatal if swallowed and enters airways.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H340 May cause genetic defects.
H350 May cause cancer.

H372	Causes damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P331	Do NOT induce vomiting.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P337 + P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	C_6H_6
Molecular weight	:	78.11 g/mol
CAS-No.	:	71-43-2
EC-No.	:	200-753-7
Index-No.	:	601-020-00-8
Registration number	:	01-2119447106-44-XXXX

Hazardous components

Component	Classification	Concentration
Benzene		
	Flam. Liq. 2; Skin Irrit. 2; Eye Irrit. 2A; Muta. 1B; Carc. 1A; STOT RE 1; Asp. Tox. 1; Aquatic Acute 3; Aquatic Chronic 3; H225, H304, H315, H319, H340, H350, H372, H412	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Flash back possible over considerable distance., Container explosion may occur under fire conditions.

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Benzene	71-43-2	TWA	0.5 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Leukemia Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed human carcinogen Danger of cutaneous absorption		
		STEL	2.5 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Leukemia Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Confirmed human carcinogen Danger of cutaneous absorption		
		TWA	10 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.40-1969		
		CEIL	25 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.40-1969		
		Peak	50 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.40-1969		
		See 1910.1028. See Table Z-2 for the limits applicable in the operations or sectors excluded in 1910.1028 The final benzene standard in 1910.1028 applies to all occupational exposures to benzene except some subsegments of industry where exposures are consistently under the action level (i.e., distribution and sale of fuels, sealed containers and pipelines, coke production, oil and gas drilling and production, natural gas processing, and the percentage exclusion for liquid mixtures); for the excepted subsegments, the benzene limits in Table Z-2 apply.		
		TWA	0.1 ppm	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		
		ST	1 ppm	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Benzene	71-43-2	S-Phenylmercapturic acid	0.0300 mg/g	In urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			
		t,t-Muconic acid	0.5000 mg/g	In urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid Colour: clear, colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: 5.5 °C (41.9 °F)
f)	Initial boiling point and boiling range	80 °C (176 °F)
g)	Flash point	-10.99 °C (12.22 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 8 %(V) Lower explosion limit: 1.3 %(V)
k)	Vapour pressure	221.3 hPa (166.0 mmHg) at 37.7 °C (99.9 °F) 99.5 hPa (74.6 mmHg) at 20.0 °C (68.0 °F)
l)	Vapour density	No data available
m)	Relative density	0.874 g/mL at 25 °C (77 °F)
n)	Water solubility	ca.1.88 g/l at 23.5 °C (74.3 °F) - soluble
o)	Partition coefficient: n-octanol/water	log Pow: 2.13 at 25 °C (77 °F)
p)	Auto-ignition temperature	562.0 °C (1,043.6 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Vapours may form explosive mixture with air.

10.4 Conditions to avoid

Heat, flames and sparks.

10.5 Incompatible materials

acids, Bases, Halogens, Strong oxidizing agents, Metallic salts

10.6 Hazardous decomposition products

Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - male - > 5,960 mg/kg
(OECD Test Guideline 401)

LC50 Inhalation - Rat - female - 4 h - 43.7 mg/l
(OECD Test Guideline 403)

LD50 Dermal - Rabbit - 8,263 mg/kg

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Skin irritation - 4 h
(OECD Test Guideline 404)

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Eye irritation

Respiratory or skin sensitisation
Maximisation Test (GPMT) - Guinea pig
Result: Does not cause skin sensitisation.

Germ cell mutagenicity
Laboratory experiments have shown mutagenic effects.
In vivo tests showed mutagenic effects

Chinese hamster lung cells
Result: positive

OECD Test Guideline 475
Mouse - male
Result: positive

Carcinogenicity

Carcinogenicity - Human - male - Inhalation
Tumorigenic:Carcinogenic by RTECS criteria. Leukaemia Blood:Thrombocytopenia.

Carcinogenicity - Rat - Oral
Tumorigenic:Carcinogenic by RTECS criteria. Endocrine:Tumors. Leukaemia

This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Human carcinogen.

IARC:	1 - Group 1: Carcinogenic to humans (Benzene)
NTP:	Known to be human carcinogen (Benzene)
OSHA:	OSHA specifically regulated carcinogen (Benzene)

Reproductive toxicity

Reproductive toxicity - Mouse - Intraperitoneal
Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetal death.

Developmental Toxicity - Rat - Inhalation
Effects on Embryo or Fetus: Extra embryonic structures (e.g., placenta, umbilical cord). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

Developmental Toxicity - Mouse - Inhalation
Effects on Embryo or Fetus: Cytological changes (including somatic cell genetic material). Specific Developmental Abnormalities: Blood and lymphatic system (including spleen and marrow).

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
May be fatal if swallowed and enters airways.

Additional Information

Repeated dose toxicity	Rat - male and female - Oral - NOAEL : 100 mg/kg - OECD Test Guideline 408

RTECS: CY1400000

Nausea, Dizziness, Headache, narcosis, Inhalation of high concentrations of benzene may have an initial stimulatory effect on the central nervous system characterized by exhilaration, nervous excitation and/or giddiness, depression, drowsiness, or fatigue. The victim may experience tightness in the chest, breathlessness, and loss of consciousness. Tremors, convulsions, and death due to respiratory paralysis or circulatory collapse can occur in a few minutes to several hours following severe exposures. Aspiration of small amounts of liquid immediately causes pulmonary edema and hemorrhage of pulmonary tissue. Direct skin contact may cause erythema. Repeated or prolonged skin contact may result in drying, scaling dermatitis, or development of secondary skin infections. The chief target organ is the hematopoietic system. Bleeding from the nose, gums, or mucous membranes and the development of purpuric spots, pancytopenia, leukopenia, thrombocytopenia, aplastic anemia, and leukemia may occur as the condition progresses. The bone marrow may appear normal, aplastic or hyperplastic, and may not correlate with peripheral blood-forming tissues. The onset of effects of prolonged benzene exposure may be delayed for many months or years after the actual exposure has ceased., Blood disorders

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 15.00 - 32.00 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Ceriodaphnia dubia (water flea) - 17.2 mg/l - 48 h
Toxicity to algae	Growth inhibition EC50 - Pseudokirchneriella subcapitata (green algae) - 100 mg/l - 72 h (OECD Test Guideline 201)

12.2 Persistence and degradability

Biodegradability	aerobic - Exposure time 28 d Result: 96 % - Readily biodegradable (OECD Test Guideline 301F)

12.3 Bioaccumulative potential

Bioaccumulation	Leuciscus idus (Golden orfe) - 3 d - 0.05 mg/l Bioconcentration factor (BCF): 10

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Harmful to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1114 Class: 3 Packing group: II
Proper shipping name: Benzene
Reportable Quantity (RQ): 10 lbs

Poison Inhalation Hazard: No

IMDG
UN number: 1114 Class: 3 Packing group: II EMS-No: F-E, S-D
Proper shipping name: BENZENE

IATA
UN number: 1114 Class: 3 Packing group: II
Proper shipping name: Benzene

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Benzene	71-43-2	2007-07-01

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Benzene	71-43-2	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Benzene	71-43-2	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Benzene	71-43-2	2007-07-01

California Prop. 65 Components

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer. Benzene	71-43-2	2009-02-01
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Benzene	71-43-2	2009-02-01

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Asp. Tox.	Aspiration hazard
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H340	May cause genetic defects.
H350	May cause cancer.
H372	Causes damage to organs through prolonged or repeated exposure.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	*
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 5.4 Revision Date: 07/24/2015 Print Date: 02/08/2016

SAFETY DATA SHEET

Version 3.7
Revision Date 03/03/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Carbon monoxide

Product Number : 295116
Brand : Aldrich
Index-No. : 006-001-00-2

CAS-No. : 630-08-0

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable gases (Category 1), H220
Gases under pressure (Compressed gas), H280
Acute toxicity, Inhalation (Category 3), H331
Reproductive toxicity (Category 1A), H360
Specific target organ toxicity - repeated exposure, Inhalation (Category 1), H372

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.
H331 Toxic if inhaled.
H360 May damage fertility or the unborn child.
H372 Causes damage to organs through prolonged or repeated exposure if inhaled.

Precautionary statement(s)
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and

	understood.
P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P281	Use personal protective equipment as required.
P304 + P340 + P311	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	Eliminate all ignition sources if safe to do so.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P410 + P403	Protect from sunlight. Store in a well-ventilated place.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	CO
Molecular weight	:	28.01 g/mol
CAS-No.	:	630-08-0
EC-No.	:	211-128-3
Index-No.	:	006-001-00-2

Hazardous components

Component	Classification	Concentration
Carbon monoxide		
	Flam. Gas 1; Press. Gas Compr. Gas; Acute Tox. 3; Repr. 1A; STOT RE 1; H220, H280, H331, H360, H372	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Clean up promptly by sweeping or vacuum.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Contents under pressure.
Storage class (TRGS 510): Gases

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Carbon monoxide	630-08-0	TWA	50.000000 ppm 55.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Remarks	The value in mg/m3 is approximate.		
		TWA	25 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Carboxyhemoglobinemia Substances for which there is a Biological Exposure Index or Indices (see BEI® section)		

		TWA	25.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Carboxyhemoglobinemia Substances for which there is a Biological Exposure Index or Indices (see BEI® section)		
		TWA	35.000000 ppm 40.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		C	200.000000 ppm 229.000000 mg/m3	USA. NIOSH Recommended Exposure Limits

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Carbon monoxide	630-08-0	Carboxyhemoglobin	3.500 %	In blood	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift (As soon as possible after exposure ceases)			
		Carbon monoxide	20ppm	In end-exhaled air	ACGIH - Biological Exposure Indices (BEI)
		End of shift (As soon as possible after exposure ceases)			

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 480 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact
Material: Chloroprene
Minimum layer thickness: 0.6 mm
Break through time: 30 min
Material tested:Camapren® (KCL 722 / Aldrich Z677493, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: Compressed gas
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -205 °C (-337 °F) - lit.
f)	Initial boiling point and boiling range	-191.5 °C (-312.7 °F) - lit.
g)	Flash point	No data available
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 74 %(V) Lower explosion limit: 12.5 %(V)
k)	Vapour pressure	No data available
l)	Vapour density	0.97 - (Air = 1.0)
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Relative vapour density	0.97 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Sodium/sodium oxides, Potassium, Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LC50 Inhalation - Rat - 4 h - 1807 ppm

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
Known human reproductive toxicant

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
Inhalation - Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Additional Information
RTECS: FG3500000

Blood disorders

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1016 Class: 2.3 (2.1)
Proper shipping name: Carbon monoxide, compressed
Reportable Quantity (RQ):

Poison Inhalation Hazard: Hazard zone D

IMDG
UN number: 1016 Class: 2.3 (2.1) EMS-No: F-D, S-U
Proper shipping name: CARBON MONOXIDE, COMPRESSED

IATA
UN number: 1016 Class: 2.3 (2.1)
Proper shipping name: Carbon monoxide, compressed
IATA Passenger: Not permitted for transport
IATA Cargo: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Sudden Release of Pressure Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Carbon monoxide	630-08-0	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Carbon monoxide	630-08-0	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Carbon monoxide	630-08-0	1993-04-24

California Prop. 65 Components

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

	CAS-No.	Revision Date
Carbon monoxide	630-08-0	2007-09-28

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Flam. Gas	Flammable gases
H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
H331	Toxic if inhaled.
H360	May damage fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure if inhaled.
Press. Gas	Gases under pressure
Repr.	Reproductive toxicity
STOT RE	Specific target organ toxicity - repeated exposure

HMIS Rating

Health hazard:	3
Chronic Health Hazard:	*
Flammability:	4
Physical Hazard	0

NFPA Rating

Health hazard:	3
Fire Hazard:	4
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.7 Revision Date: 03/03/2015 Print Date: 02/07/2016

SAFETY DATA SHEET

Version 3.9
Revision Date 04/24/2015
Print Date 03/14/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Chlorobenzene

Product Number : 08650
Brand : Sigma-Aldrich
Index-No. : 602-033-00-1

CAS-No. : 108-90-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable liquids (Category 3), H226
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 4), H332
Skin irritation (Category 2), H315
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)
H226 Flammable liquid and vapour.
H302 + H332 Harmful if swallowed or if inhaled
H315 Causes skin irritation.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.

P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P332 + P313	If skin irritation occurs: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P391	Collect spillage.
P403 + P235	Store in a well-ventilated place. Keep cool.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	C_6H_5Cl
Molecular weight	:	112.56 g/mol
CAS-No.	:	108-90-7
EC-No.	:	203-628-5
Index-No.	:	602-033-00-1

Hazardous components

Component	Classification	Concentration
Chlorobenzene		
	Flam. Liq. 3; Acute Tox. 4; Skin Irrit. 2; Aquatic Acute 2; Aquatic Chronic 2; H226, H302 + H332, H315, H411	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Hydrogen chloride gas

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Chlorobenzene	108-90-7	TWA	10.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Liver damage Substances for which there is a Biological Exposure Index or Indices		

		(see BEI® section) Confirmed animal carcinogen with unknown relevance to humans		
		See Appendix D - Substances with No Established RELs		
		TWA	75.000000 ppm 350.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		The value in mg/m3 is approximate.		

Biological occupational exposure limits

Component	CAS-No.	Parameters	Value	Biological specimen	Basis
Chlorobenzene	108-90-7	4-Chlorocatechol	100mg/g Creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
	Remarks	End of shift at end of workweek			
		p-Chlorophenol	20mg/g Creatinine	Urine	ACGIH - Biological Exposure Indices (BEI)
		End of shift at end of workweek			

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.

If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: liquid, clear Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	neutral
e)	Melting point/freezing point	Melting point/range: -45 °C (-49 °F) - lit.
f)	Initial boiling point and boiling range	132 °C (270 °F) - lit.
g)	Flash point	27.0 °C (80.6 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 7.1 %(V) Lower explosion limit: 1.3 %(V)
k)	Vapour pressure	15.7 hPa (11.8 mmHg) at 25.0 °C (77.0 °F)
l)	Vapour density	No data available
m)	Relative density	1.106 g/mL at 25 °C (77 °F)
n)	Water solubility	0.207 g/l at 20 °C (68 °F)
o)	Partition coefficient: n-octanol/water	log Pow: 2.89
p)	Auto-ignition temperature	637.0 °C (1,178.6 °F)
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Solubility in other solvents	Alcohol - soluble Benzene - soluble Chloroform - soluble Ether - soluble
Surface tension	33.0 mN/m at 25.0 °C (77.0 °F)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
Vapours may form explosive mixture with air.

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 1,110 mg/kg
Remarks: Behavioral:Somnolence (general depressed activity). Behavioral:Tremor. Behavioral:Ataxia.

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
Skin - Rabbit
Result: Irritating to skin. - 4 h
(OECD Test Guideline 404)
Remarks: No data available

Serious eye damage/eye irritation
Eyes - Rabbit
Result: No eye irritation
(OECD Test Guideline 405)

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: CZ0175000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC100 - Leuciscus idus (Golden orfe) - 0.03 - 28 mg/l - 48.0 h
	LC50 - Cyprinodon variegatus (sheepshead minnow) - 10 mg/l - 96.0 h
	LC50 - Lepomis macrochirus (Bluegill) - 4.5 - 7.4 mg/l - 76.0 h
	NOEC - Cyprinodon variegatus (sheepshead minnow) - 6.2 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 4.30 - 16.00 mg/l - 24 h
	EC50 - No information available. - 7.60 mg/l - 24 h
	NOEC - Daphnia magna (Water flea) - < 1.4 mg/l - 11 d
	LC50 - Daphnia magna (Water flea) - 10.7 mg/l - 48 h
Toxicity to algae	EC50 - No information available. - 235.00 mg/l - 48 h
	EC50 - Pseudokirchneriella subcapitata (green algae) - 12.50 mg/l - 96 h

12.2 Persistence and degradability

Biodegradability: aerobic - Exposure time 28 d
Result: 15 % - Not readily biodegradable.
(OECD Test Guideline 301F)

12.3 Bioaccumulative potential

Bioaccumulation: Leuciscus idus (Golden orfe) - 3 d
- 0.05 mg/l

Bioconcentration factor (BCF): 75

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1134 Class: 3 Packing group: III
Proper shipping name: Chlorobenzene

Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: No

IMDG

UN number: 1134 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: CHLOROBENZENE
Marine pollutant:yes

IATA

UN number: 1134 Class: 3 Packing group: III
Proper shipping name: Chlorobenzene

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Chlorobenzene	108-90-7	2007-07-01

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Chlorobenzene	108-90-7	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Chlorobenzene	108-90-7	2007-07-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Chlorobenzene	108-90-7	2007-07-01

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Flam. Liq.	Flammable liquids
H226	Flammable liquid and vapour.
H302	Harmful if swallowed.
H302 + H332	Harmful if swallowed or if inhaled
H315	Causes skin irritation.
H332	Harmful if inhaled.

HMIS Rating

Health hazard:	2
Chronic Health Hazard:	
Flammability:	3
Physical Hazard	0

NFPA Rating

Health hazard:	2
Fire Hazard:	3
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.9 Revision Date: 04/24/2015 Print Date: 03/14/2016

SAFETY DATA SHEET

Version 3.7
Revision Date 12/29/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Hydrogen sulfide

Product Number : 295442
Brand : Aldrich
Index-No. : 016-001-00-4

CAS-No. : 7783-06-4

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable gases (Category 1), H220
Gases under pressure (Liquefied gas), H280
Acute toxicity, Inhalation (Category 2), H330
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.
H330 Fatal if inhaled.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P271 Use only outdoors or in a well-ventilated area.

P273	Avoid release to the environment.
P284	Wear respiratory protection.
P304 + P340 + P310	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P377	Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381	Eliminate all ignition sources if safe to do so.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P410 + P403	Protect from sunlight. Store in a well-ventilated place.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	H_2S
Molecular weight	:	34.08 g/mol
CAS-No.	:	7783-06-4
EC-No.	:	231-977-3
Index-No.	:	016-001-00-4

Hazardous components

Component	Classification	Concentration
Hydrogen sulphide		
	Flam. Gas 1; Press. Gas Liquefied gas; Acute Tox. 2; Aquatic Acute 1; Aquatic Chronic 1; H220, H280, H330, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Sulphur oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 Methods and materials for containment and cleaning up
Clean up promptly by sweeping or vacuum.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Moisture sensitive.
Storage class (TRGS 510): Gases

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Hydrogen sulphide	7783-06-4	CEIL	20.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
	Remarks	Z37.2-1966		
		Peak	50.000000 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.2-1966		

		TWA	1.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		TWA	1 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		STEL	5 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		STEL	5.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
		Central Nervous System impairment Upper Respiratory Tract irritation		
		C	10.000000 ppm 15.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
		10 minute ceiling value		
		See Table Z-2		
		CEIL	20 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.2-1966		
		Peak	50 ppm	USA. Occupational Exposure Limits (OSHA) - Table Z-2
		Z37.2-1966		

8.2 Exposure controls

Appropriate engineering controls
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 480 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

Splash contact
Material: butyl-rubber
Minimum layer thickness: 0.3 mm
Break through time: 480 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: Liquefied gas Colour: colourless
b)	Odour	Stench.
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -85 °C (-121 °F) - lit.
f)	Initial boiling point and boiling range	-60 °C (-76 °F) - lit.
g)	Flash point	Not applicable
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower flammability or explosive limits	Upper explosion limit: 46 %(V) Lower explosion limit: 4 %(V)
k)	Vapour pressure	17,369.8 hPa (13,028.4 mmHg) at 21 °C (70 °F)
l)	Vapour density	1.17 - (Air = 1.0)
m)	Relative density	No data available
n)	Water solubility	No data available
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Relative vapour density	1.17 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents, Strong bases

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

LC50 Inhalation - Mouse - 1 h - 634 ppm

LC50 Inhalation - Rat - 444 ppm
Remarks: Lungs, Thorax, or Respiration:Other changes. Diarrhoea Kidney, Ureter, Bladder:Urine volume increased.

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

Reproductive toxicity - Rat - Inhalation
Effects on Newborn: Physical.

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: MX1225000

Hydrogen sulfide is strongly bound to methemoglobin in a manner similar to cyanide. Toxicologically, its reaction with enzymes in the blood stream inhibits cell respiration resulting in pulmonary paralysis, sudden collapse, and death. It is recognized by its characteristic odor of "rotten eggs". The detectable, minimum perceptible odor occurs at 0.13ppm, rapid olfactory fatigue can occur at high concentrations (>100 ppm). At concentrations of 20ppm hydrogen sulfide begins acting as an irritant on the mucous membranes of the eyes and respiratory tract and increases with concentration and exposure time. Eye irritation is characterized by irritation of the conjunctiva with photophobia to keratoconjunctivitis and vesiculation of the cornea epithelium. Prolonged exposure to moderate concentrations (250ppm) may cause pulmonary edema. At concentrations over 500ppm, drowsiness, dizziness, excitement, headache, unstable gait, and other systemic symptoms occur within a few minutes. Sudden loss of consciousness without premonition, anxiety, or sense of struggle are characteristic of acute exposure at concentrations above 700ppm. At concentrations of 1000-2000ppm hydrogen sulfide is rapidly absorbed through the lung into the blood. In this range a single inhalation may cause coma and may be rapidly fatal. Initially hyperpnea occurs, followed by rapid collapse and respiratory inhibition. At higher concentrations, hydrogen sulfide exerts an immediate paralyzing effect on the respiratory centers. When concentration reaches 5000ppm, imminent death almost always results., Exposure to and/or consumption of alcohol may increase toxic effects.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 0.016 mg/l - 96.0 h

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Very toxic to aquatic life.

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1053 Class: 2.3 (2.1)
Proper shipping name: Hydrogen sulfide
Reportable Quantity (RQ): 100 lbs

Poison Inhalation Hazard: Hazard zone D

IMDG
UN number: 1053 Class: 2.3 (2.1) EMS-No: F-D, S-U
Proper shipping name: HYDROGEN SULPHIDE
Marine pollutant:yes

IATA
UN number: 1053 Class: 2.3 (2.1)
Proper shipping name: Hydrogen sulphide
IATA Passenger: Not permitted for transport
IATA Cargo: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Hydrogen sulphide	7783-06-4	1993-04-24

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Hydrogen sulphide	7783-06-4	1993-04-24

SARA 311/312 Hazards
Fire Hazard, Sudden Release of Pressure Hazard, Acute Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Hydrogen sulphide	7783-06-4	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Hydrogen sulphide	7783-06-4	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Hydrogen sulphide	7783-06-4	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
Flam. Gas	Flammable gases
H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
H330	Fatal if inhaled.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
Press. Gas	Gases under pressure

HMIS Rating
Health hazard: 2
Chronic Health Hazard:
Flammability: 4

Physical Hazard	3

NFPA Rating

Health hazard:	4
Fire Hazard:	4
Reactivity Hazard:	0

Further information

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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.7 Revision Date: 12/29/2015 Print Date: 02/07/2016

SAFETY DATA SHEET

Nonflammable Gas Mixture: Isobutylene / Nitrogen / Oxygen

Section 1. Identification

GHS product identifier : Nonflammable Gas Mixture: Isobutylene / Nitrogen / Oxygen

Other means of identification : Not available.

Product use : Synthetic/Analytical chemistry.

SDS # : 002103

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Emergency telephone number (with hours of operation) : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms :



Signal word : Warning

Hazard statements : Contains gas under pressure; may explode if heated.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction.

Prevention : Use and store only outdoors or in a well ventilated place.

Response : Not applicable.

Storage : Protect from sunlight. Protect from sunlight when ambient temperature exceeds 52°C/125°F. Store in a well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise classified : None known.

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Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Not available.

CAS number/other identifiers

CAS number : Not applicable.

Product code : 002103

Ingredient name	%	CAS number
Nitrogen	75 - 80.5	7727-37-9
oxygen	19.5 - 23.5	7782-44-7
2-methylpropene	0.0001 - 1.13	115-11-7

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

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Section 4. First aid measures

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

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Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Empty containers retain product residue and can be hazardous. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Keep container tightly closed and sealed until ready for use. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

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Section 8. Exposure controls/personal protection

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas.

Color : Not available.

Melting/freezing point : -140.7°C (-221.3°F) This is based on data for the following ingredient: 2-methylpropene. Weighted average: -211.14°C (-348.1°F)

Critical temperature : Lowest known value: -146.95°C (-232.5°F) (nitrogen).

Odor : Not available.

Odor threshold : Not available.

pH : Not available.

Flash point : Not available.

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : Highest known value: 1.94 (Air = 1) (2-methylpropene). Weighted average: 1.01 (Air = 1)

Gas Density (lb/ft ^{3}) : Weighted average: 0.07

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

SADT : Not available.

Viscosity : Not applicable.

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Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatibility with various substances : Extremely reactive or incompatible with the following materials: reducing materials and combustible materials.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

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Section 11. Toxicological information

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

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Section 12. Ecological information

Not available.

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1956	UN1956	UN1956	UN1956	UN1956
UN proper shipping name	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)	COMPRESSED GAS, N.O.S. (nitrogen, oxygen)
Transport hazard class(es)	2.2 	2.2 	2.2 	2.2 	2.2 
Packing group	-	-	-	-	-
Environment	No.	No.	No.	No.	No.
Additional information	-	**Explosive Limit and Limited Quantity Index** 0.125 **Passenger Carrying Road or Rail Index** 75	-	-	-

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

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Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): All components are listed or exempted.

Clean Air Act (CAA) 112 regulated flammable substances: 2-methylpropene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Sudden release of pressure

Composition/information on ingredients

No products were found.

State regulations

Massachusetts : The following components are listed: NITROGEN; OXYGEN (LIQUID); 2-METHYLPROPENE

New York : None of the components are listed.

New Jersey : The following components are listed: NITROGEN; OXYGEN; ISOBUTYLENE; 1-PROPENE, 2-METHYL-

Pennsylvania : The following components are listed: NITROGEN; OXYGEN; 1-PROPENE, 2-METHYL-

Canada inventory : All components are listed or exempted.

International regulations

International lists : **Australia inventory (AICS)**: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: Not determined.
Korea inventory: All components are listed or exempted.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.
Taiwan inventory (CSNN): Not determined.

Chemical Weapons Convention List Schedule I Chemicals : Not listed

Chemical Weapons Convention List Schedule II Chemicals : Not listed

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Section 15. Regulatory information

Chemical Weapons Convention List Schedule III Chemicals : Not listed

Canada

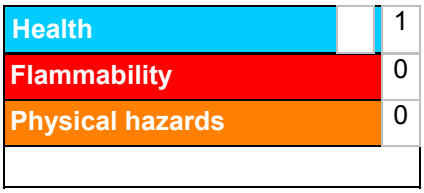
WHMIS (Canada) : Class A: Compressed gas.

CEPA Toxic substances: None of the components are listed.
Canadian ARET: None of the components are listed.
Canadian NPRI: The following components are listed: Butene (all isomers)
Alberta Designated Substances: None of the components are listed.
Ontario Designated Substances: None of the components are listed.
Quebec Designated Substances: None of the components are listed.

Section 16. Other information

Canada Label requirements : Class A: Compressed gas.

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing : 1/23/2015.

Date of issue/Date of revision : 1/23/2015.

Date of previous issue : No previous validation.

Version : 0.01

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Section 16. Other information

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United NationsACGIH – American Conference of Governmental Industrial Hygienists
AIHA – American Industrial Hygiene Association
CAS – Chemical Abstract Services
CEPA – Canadian Environmental Protection Act
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act (EPA)
CFR – United States Code of Federal Regulations
CPR – Controlled Products Regulations
DSL – Domestic Substances List
GWP – Global Warming Potential
IARC – International Agency for Research on Cancer
ICAO – International Civil Aviation Organisation
Inh – Inhalation
LC – Lethal concentration
LD – Lethal dosage
NDSL – Non-Domestic Substances List
NIOSH – National Institute for Occupational Safety and Health
TDG – Canadian Transportation of Dangerous Goods Act and Regulations
TLV – Threshold Limit Value
TSCA – Toxic Substances Control Act
WEEL – Workplace Environmental Exposure Level
WHMIS – Canadian Workplace Hazardous Material Information System

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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SAFETY DATA SHEET

Version 3.7
Revision Date 12/01/2015
Print Date 02/07/2016

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Methane

Product Number : 295477
Brand : Aldrich
Index-No. : 601-001-00-4

CAS-No. : 74-82-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Flammable gases (Category 1), H220
Gases under pressure (Compressed gas), H280
Simple Asphyxiant,

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal word Danger

Hazard statement(s)
H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statement(s)
P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 Eliminate all ignition sources if safe to do so.
P410 + P403 Protect from sunlight. Store in a well-ventilated place.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	CH_4
Molecular weight	:	16.04 g/mol
CAS-No.	:	74-82-8
EC-No.	:	200-812-7
Index-No.	:	601-001-00-4

Hazardous components

Component	Classification	Concentration
Methane		
	Flam. Gas 1; Press. Gas Compr. Gas; SA ; H220, H280,	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Clean up promptly by sweeping or vacuum.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid inhalation of vapour or mist.
Use explosion-proof equipment.Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

Contents under pressure.
Storage class (TRGS 510): Gases

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Methane	74-82-8	TWA	1,000.000000 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Central Nervous System impairment Cardiac sensitization		
		See Appendix F: Minimal Oxygen Content Asphyxia 2015 Adoption		
		TWA	0.100000 mg/m3	USA. NIOSH Recommended Exposure Limits
		'Ca' in the presence of formaldehyde, acetaldehyde, or malonaldehyde. See Appendices A & C (Aldehydes).		
		TWA	0.100000 mg/m3	USA. NIOSH Recommended Exposure Limits
		'Ca' in the presence of formaldehyde, acetaldehyde, or malonaldehyde. See Appendices A & C (Aldehydes).		
		See Appendix F: Minimal Oxygen Content Asphyxia		
		TWA	0.1 mg/m3	USA. NIOSH Recommended Exposure Limits
		'Ca' in the presence of formaldehyde, acetaldehyde, or malonaldehyde. See Appendices A & C (Aldehydes).		

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Fluorinated rubber
Minimum layer thickness: 0.7 mm
Break through time: 480 min
Material tested:Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 60 min
Material tested:Camatril® (KCL 730 / Aldrich Z677442, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Impervious clothing, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a)	Appearance	Form: gaseous Colour: colourless
b)	Odour	No data available
c)	Odour Threshold	No data available
d)	pH	No data available
e)	Melting point/freezing point	Melting point/range: -183 °C (-297 °F) - lit.
f)	Initial boiling point and boiling range	-161 °C (-258 °F) - lit.
g)	Flash point	-187.99 °C (-306.38 °F) - closed cup
h)	Evaporation rate	No data available
i)	Flammability (solid, gas)	No data available
j)	Upper/lower	Upper explosion limit: 15 %(V)

	flammability or explosive limits	Lower explosion limit: 5 %(V)
k)	Vapour pressure	No data available
l)	Vapour density	0.55 - (Air = 1.0)
m)	Relative density	0.716 g/cm3 at 25 °C (77 °F)
n)	Water solubility	3.5 g/l at 17 °C (63 °F)
o)	Partition coefficient: n-octanol/water	No data available
p)	Auto-ignition temperature	No data available
q)	Decomposition temperature	No data available
r)	Viscosity	No data available
s)	Explosive properties	No data available
t)	Oxidizing properties	No data available

9.2 Other safety information

Relative vapour density	0.55 - (Air = 1.0)

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Heat, flames and sparks.

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
No data available

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity
No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
No data available

No data available

Specific target organ toxicity - single exposure
No data available

Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Additional Information
RTECS: PA1490000

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1971 Class: 2.1

Proper shipping name: Methane, compressed
Reportable Quantity (RQ):

Poison Inhalation Hazard: No

IMDG
UN number: 1971 Class: 2.1 EMS-No: F-D, S-U
Proper shipping name: METHANE, COMPRESSED

IATA
UN number: 1971 Class: 2.1
Proper shipping name: Methane, compressed
IATA Passenger: Not permitted for transport

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Methane	74-82-8	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Methane	74-82-8	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Methane	74-82-8	1993-04-24

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

	May displace oxygen and cause rapid suffocation.
Flam. Gas	Flammable gases
H220	Extremely flammable gas.
H280	Contains gas under pressure; may explode if heated.
Press. Gas	Gases under pressure
SA	Simple Asphyxiant

HMIS Rating

Health hazard:	0
Chronic Health Hazard:	
Flammability:	4
Physical Hazard	3

NFPA Rating

Health hazard:	0
Fire Hazard:	4
Reactivity Hazard:	0

Further information

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Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 3.7 Revision Date: 12/01/2015 Print Date: 02/07/2016

Appendix C
Glove Selection Guideline

APPENDIX B: GLOVE SELECTION GUIDELINE

HAZARD	EXAMPLE TASKS	ANSI CUT/ABRASION RATING*	REPRESENTATIVE GLOVE
Medium Duty Cut/Puncture Gloves with Oily Surface Grip	Light materials handling, wet service	ANSI Cut and Abrasion Resistance **Level 3** **EN 388 44xx**	Ansell® Cut Protective Glove 97-505
Med/Heavy Duty Cut/Puncture	Light Materials Handling. System O&M. Use of Hand Tools. Hand Augering. Heavy Equipment Operator.	ANSI Cut and Abrasion Resistance **Level 2** **EN 388 33xx**	Ansell® Cut Protective Glove 97-505
Light Duty Cut/Puncture Abrasion Only (used chemically resistant under nitrile gloves)	Handling soil and Groundwater Samples. Opening spoons. Well construction.	ANSI Cut and Abrasion Resistance **Level 2 - 4** **EN 388 21xx**	Ansell® Cut Protective Glove 97-505
Chemicals (to be worn over ANSI gloves)	Handling soils, groundwater, sample jars	NA (worn over ANSI gloves)	Nitrile Chemical Resistant Gloves
* Reference to ANSI and EN 388 glove testing standards. Listed gloves meet the standards in the table but are not the only gloves that meet the standard.			
This selection chart is not intended to address all chemical hazards. Gloves used for chemical protection shall provide cut/puncture resistance or be used in tandem with cut/puncture protection. Nitrile gloves used for environmental sampling must be used in tandem with a cut/puncture resistant glove.			
Gloves available in high visibility colors have shown to be effective and are preferred.			

Appendix D
Heat & Cold Stress

COLD STRESS

Ambient air temperatures during site activities may create cold stress for on-site workers. Procedures for recognizing and avoiding cold stress must be followed. Cold stress can range from frostbite to hypothermia. The signs and symptoms of cold stress are listed below.

Frostbite is defined as the actual freezing of one or more layers of skin. In severe cases, organs and structures below the skin can become frozen. Usually, body areas exposed to the most cold, and least body warmth, are affected first. These areas include fingers, toes, ears, and the tip of your nose. Frostbite is characterized by pain and loss of dexterity in the affected limb. The tissue initially appears reddened, but may progress to white, blue, or black.

> **FIRST AID:** Bring the affected employee indoors and call the local emergency clinic. Rewarming of frostbitten parts is best left to a medical doctor in a controlled setting.

Hypothermia is the condition that occurs when the body's natural warming mechanisms (muscle activity and shivering) cannot counteract the loss of body heat to the environment. The onset of hypothermia is greatly hastened by being wet. Hypothermia is marked by severe, uncontrollable shivering. The patient will show signs of excessive fatigue, drowsiness, irritability, or euphoria. As hypothermia progresses, the patient will begin to lose consciousness, blood pressure will drop, shivering will cease, and the patient may slip into a coma and possibly die.

> **FIRST AID:** If these symptoms occur, remove the patient to a warm, dry place. If clothing is wet, remove and replace with dry clothing. Keep the patient warm, but not overheated. The patient should be gradually rewarmed to prevent shock. If the patient is conscious and alert, warm liquids should be provided. Coffee and other caffeinated liquids should be avoided because of diuretic and circulatory effects. Notify the emergency clinic if conditions worsen, the patient loses consciousness, or the patient has an altered mental status. Have the patient transported to an emergency facility.

General Precautions. The reduction of adverse health effects from cold exposure can be achieved by adopting the following work practices.

- Provide adequate insulating clothing to maintain core temperature at 98.6° F if work is to be performed in air temperatures below 40° F. Wind chill cooling rates and the cooling power of air are critical factors. The higher the wind speed and the lower the air temperature in the work area, the greater the insulation value of the protective clothing should be.
- If the air temperature is 32° F or less, hands should be protected by mittens/gloves.
- If only light work is involved and if the clothing on the worker may become wet on the job site, the outer layer of clothing should be impermeable to water. With more severe work under such conditions, the outer layer should be water repellent, and the outer layer should be changed as it becomes wet. The outer garments should include provisions for easy ventilation in order to prevent wetting of the inner layer by sweat.
- If available clothing does not give adequate protection to prevent cold injury, work should be modified or suspended until adequate clothing is available, or until weather conditions improve.
- For prolonged work, heated shelters should be available. Workers should be encouraged to use these at regular intervals, with the frequency depending on the severity of the environmental exposure. When

entering the shelter, the outer layer of clothing should be removed and the remainder of the clothing loosened to permit heat evaporation, or a change of work clothing should be provided.

- Warm, sweet drinks, such as hot cocoa or soup, should be available at the work site to provide caloric intake and fluid volume. The intake of coffee should be limited because of diuretic and circulatory effects.
- The weight and bulk of cold-weather gear should be included in estimating the required work performance and weights to be lifted in the field.

Workers should be instructed in safety and health procedures regarding cold work environments as part of the pre-work safety meeting. The training program should include instruction in preventing, recognizing, and treating cold stress conditions.

Wind Chill Chart

Wind (mph) \ Temperature (°F)	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	29	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes | 10 minutes | 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph) *Effective 11/01/01*

HEAT STRESS

There is a potential for heat stress from the use of protective clothing and climate conditions. One or more of the following procedures may be employed to alleviate potential heat stress problems in the event that site conditions warrant the use of personal protective equipment (PPE), or ambient temperatures exceed 85° F. Heat stress training must be emphasized during the daily safety meetings, and adequate supplies of potable water must be provided to workers each day.

General Precautions. Provide plenty of liquids. To replace body fluids (water and electrolytes) lost because of sweating, use a 0.1 percent saltwater solution, more heavily salted foods, or commercial drink mixes. The commercial mixes may be preferable for those employees on a low sodium diet. Employees

on low sodium diets, or other special diets, are advised to contact their personal physician for recommendations regarding appropriate electrolyte replacement fluids/beverages.

In extremely hot weather, conduct operations in early morning or evening and rotate shifts of workers wearing impervious clothing. Install mobile showers and/or hose-down facilities to reduce body temperature and cool protective clothing.

Ensure that adequate shelter is available for breaks to protect personnel against heat, which can decrease physical efficiency and increase the probability of accidents.

Acclimatization for workers not accustomed to working in elevated temperature environments will be considered and implemented as appropriate in accordance with American Conference of Governmental and Industrial Hygienists (ACGIH) Guidelines.

Heat Stress Monitoring.

For monitoring the body's recuperative ability toward excess heat, one or more of the following techniques should be used as a screening mechanism. Monitoring of personnel wearing impervious clothing should commence when the ambient temperature is 70° F or above. Frequency of monitoring should increase as the ambient temperature increases or as slow recovery rates are indicated. When temperatures exceed 80° F, regardless of the use of Personal Protective Equipment (PPE), workers will be monitored for heat stress after every work period.

Good hygienic standards must be maintained by the employee to aid in the prevention of heat stress illnesses. At a minimum, frequent changes of clothing and daily showering should occur with clothing being allowed to dry during rest periods. Persons who notice skin problems should immediately inform their supervisor.

Heart rate (HR) should be measured by the radial pulse for 30 seconds as early as possible in the resting period. The HR at the beginning of the rest period should not exceed 110 beats/minute. If the HR is higher, the next work period should be shortened by 25 percent. The HR is then measured again, once each minute for 2 minutes (a total of three measurements), after the initial rest period measurement. The HR should decrease by ten beats per minute between each measurement (a total reduction of 20 beats). If the HR does not decrease, the work period should be reduced by an additional 25 percent.

Body temperature can be measured orally with a clinical thermometer as early as possible in the resting period. Oral temperature (OT) at the beginning of the rest period should not exceed 99°F. If it is greater than 99°F, the next work period should be shortened by 25 percent. The OT should be measured again at the end of the rest period to make sure that it has dropped below 99° F.

Effects of Heat Street

If the body's physiological processes fail to maintain a normal body temperature because of excessive heat loading, a number of physical reactions can occur. The severity of these reactions ranges from mild (such as fatigue, irritability, anxiety, and decreased concentration, dexterity, or movement) to severe (fatal).

Heat-related illnesses include:

Heat rash (also known as prickly heat rash) is caused by continuous exposure to heat and humid air and aggravated by chafing clothes. Heat rash decreases the ability to tolerate heat as well as being a nuisance. Signs are not limited to, but may include, a red prickly rash.

Appendix E
Job Safety Analysis (JSA)

Park/Landfill OM&M Job Safety Analysis (JSA)

COMPANY/ PROJECT NAME or ID/ LOCATION (City, State)	DATE PREPARED FOR HASP: 04/07/2016	☐ NEW ☒ REVISED
TRC Engineers, Inc./Brookfield Landfill/ Staten Island, New York		
JSA WORK ACTIVITY (Description): **Operation, Maintenance and Monitoring**	List of Contractor(s) and key work activity: **SCS – Landfill Gas Consultant**	

SITE SPECIFIC JSA AUTHOR	POSITION / TITLE	DEPT	SIGNATURE
Kirsten Myers	**On-Site Health and Safety Officer**	**ECR**	

TRC HEALTH AND SAFETY MANAGEMENT	POSITION / TITLE	APPROVAL DATE
Barry Kline	**Project Manager**	

PERSONAL PROTECTION EQUIPMENT (PPE) QUICK SUMMARY
Required PPE (indicate with "R") vs. Must Have Available On-site (indicate "A")

__R__ REFLECTIVE VEST __R__ HARD HAT __R__ GLOVES: **ANSI Cut Level 4 & 5 Kevlar** __R__ SAFETY GLASSES _____GOGGLES _____FACE SHIELD	__R__ HEARING PROTECTION __R__ SAFETY SHOES: Protective Toe _____ 5pt.HARNESS / LANYARD PPE CLOTHING: ____Coveralls ____Tyvek Suit ____Nomex ____Other (specify):	RESPIRATORY PROTECTION: ☐ NA **__X__ Cloth Face Covering or N95 Mask** **or** **__X__ ½ face Air Purifying Respirator (APR)** ____ Cartridge: ☐ P100 ☐ Multigas_ _____Full face ARP; specify cartridge type: ____ Air Supplied Respirator ____SCBA ____Air-line	Additional PPE/Notes: Per COVID-19 guidelines a face covering must be worn on-site. As per defined in the job/site specific Health and Safety Plan (HASP) wear PPE at all times when performing site work.

Always perform a Safety Assessment (Hazard Hunt): 1) prior to starting work; 2) when changing tasks; and 3) throughout the day. Focus on each new task, procedures, and skill sets to be used.

[1] JOB TASKS	[2] POTENTIAL HAZARDS	[3] HAZARD CONTROLS (beyond wearing "Required" PPE)
1) Set-up	a. Lack of concentration or focus.	a1. Review all plans (HASP, Work, Utility, Site Plans, etc.), logs, and field notes prior to starting a new task. Identify daily tasks and required personnel actions. a2. Conduct safety tailgate meeting with subcontractor personnel prior to beginning work activities. Explain the site safety hazards and work precautions outlined in the HASP and obtain signatures indicating the HASP was discussed.
	b. Fire and explosion.	b1. No smoking or open flame. Continuously monitor ambient air concentrations with PID, 4 gas meter and dust meter. Shut down job and move personnel and equipment upwind if concentrations are detected at HASP defined action levels. b2. Deploy 2-20lb ABC Fire extinguishers in accordance site safety officer's direction.
	c. Electric shock/ electrocution.	c1. Have a qualified electrician cut all power connections to the site and remove main breaker from power panel. c2. De-energize all circuits/power sources and follow TRC's Lock-Out, Tag-Out (LOTO) procedures for circuits within 3 feet of work activity or 10 feet of overhead utilities.

Always perform a Safety Assessment (Hazard Hunt): 1) prior to starting work; 2) when changing tasks; and 3) throughout the day. Focus on each new task, procedures, and skill sets to be used.		
[1] JOB TASKS	[2] POTENTIAL HAZARDS	[3] HAZARD CONTROLS (beyond wearing "Required" PPE)
1) Cont'd	d. Malfunctioning heavy equipment safety devices.	d1. Observe contractor inspection of heavy equipment determine if in good condition. Ensure that all equipment and safety checks prior to event startup (per operating manual) are performed by contractor.
	e. Being struck by moving vehicles or equipment onsite.	e1. Always wear safety vest, establish eye contact with operators utilizing flag men wear appropriate. e2. Vehicles shall use reverse beepers or flagmen. e3. Create an exclusion zone at least 10-feet beyond the limits of the work to limit access to staging/work area using snow fencing, barricades, delineators, cones and/or caution tape. e4. Face the direction of oncoming traffic during work activities when possible.
	f. Bad organization creating confusion and hazard.	f1. Identify staging area with good lateral and vertical access for loading and unloading of trucks.
	g. Unauthorized personnel in exclusion zone.	g1. Use visitor check-in log and allow no-one in exclusion area without proper PPE (as defined on this JSA) and training documentation (e.g., HAZWOPER, other as defined in the HASP).
2) Landfill Gas Transmission Pipeline Repairs	a. Contact with subsurface water, gas, electrical, and/or fiber optic lines in the vicinity of work.	a1. If unknown lines or obstructions are encountered, stop work and notify PM. Do not undermine any utilities.
	c. Distracted operator.	c1. Always communicate with the operator before approaching any machinery.
	d. Slips, trips, and falls.	d1. Maintain a clean, unobstructed work area by good housekeeping and placing unused equipment away from work area. d2. Monitor surroundings for subsidence, cracks, and voids.
	e. Cut/pinched fingers or toes; and strained muscles.	e1. See PPE Quick Summary. e2. Use proper lifting techniques and 2-man rule as outlined in TRC's Employee IIPP Handbook and "Back Safety: A User's Guide" training module" handbook, when moving heavy objects (>50 lbs).
	f. Noise.	f1. All personnel will use hearing protection within work area while heavy machinery is operating at >85 dB.
	g. Flying particles, dust and hazardous	g1. See PPE Quick Summary.

Always perform a Safety Assessment (Hazard Hunt): 1) prior to starting work; 2) when changing tasks; and 3) throughout the day.

[1] JOB TASKS	[2] POTENTIAL HAZARDS	[3] HAZARD CONTROLS (beyond wearing "Required" PPE)
2) Cont'd	h. Exposure to impacted soil or groundwater.	h1. Wear latex or nitrile gloves during handling of soil or ground water.
	i. Toxic or explosive atmosphere.	i1. Continuously monitor ambient air concentrations with PID, 4 gas meter and dust meter. Shut down job and move personnel and equipment upwind if concentrations are detected above HASP defined action levels.
	j. Exposure to residual waste.	j1. Do not smoke, eat, or drink on the landfill. Clean all scrapes and cuts immediately.
	l. Inclement weather/ lightning.	l1. Monitor forecasted weather prior to and during work activities. Halt work activities if lightning is observed or anticipated and wait in personal/company vehicle until weather passes or until directed otherwise by the project manager.
	m. Heat illness.	m1. Refer to Activity Performed in Hot Illness Prevention JSA.
	n. Cold illness.	n1. Refer to Activity Performed in Cold Illness Prevention JSA.
3) Demob	i. Toxic or explosive atmosphere.	i1. Continuously monitor ambient air concentrations with PID, 4 gas meter and dust meter. Shut down job and move personnel and equipment upwind if concentrations are detected above HASP defined action levels.
	b. Moving heavy objects (>50-lbs).	b1. Get assistance for moving heavy objects.
	c. Slips, trips, falls and physical injury.	c1. Remove all unused material and equipment from working area immediately following use.
	LOCATION(S) WHERE HAZARD IS TO BE EXPECTED	**[3] HAZARD CONTROLS (beyond wearing "Required" PPE)**
1.	a.	a.
2.	a.	a.
3.	a.	a.

PID—photoionization detector; PPE—Personal Protective Equipment; ANSI—American National Standards Institute

Field Notes:

LIMITATION: As part of TRC's EHS Policy, a JSA is provided by TRC for its employees. The purpose of a JSA is NOT to identify all hazards associated with a task, but to identify key potential hazards to get TRC and other onsite personnel thinking about other potential safety hazards and mitigating actions for unsafe conditions and behavior during various works. TRC recognizes that JSA's may not cover every conceivable step or hazard that emerges during a job, so we've provided a "Field Change" section below to amend a JSA if required. The JSA does not supersede or replace any local, state or federal permit, regulation, statute or other entities policies and procedures but is simply a tool for enhancing the execution of safe work at a jobsite under TRC's supervision. Similarly, all subcontractors are required to provide their own JSA(s) for their specialty prior to performing any work for TRC or its customers in accordance with TRC's EHS Policy; however, any unsafe condition or hazard not covered in any JSA is ultimately the direct responsibility of the person or entity performing the work.

Appendix F
Tailgate Meeting/Checklist Froms

Daily Pre-Job Safety Briefing

Project Name: _____ Project Number: _____

Work Location: _____ Date: _____

Tasks Performed: _____ Time: _____ AM PM

Client Name: _____ Submitted By: _____

Weather: _____

Refuge Area: _____

First Aid/CPR Persons: _____

Potential Hazards: _____

For Emergencies Dial 911 **For Non-Emergencies Dial WorkCare (888) 449-7787**

Personal Protective Equipment Required

	Yes	No	Specify
Clothing	☐	☐	_____
FR, reflective vest, chemical, other (specify)			
Eye/Face	☐	☐	_____
Safety glasses, goggles, face shield, other (specify)			
Respirator	☐	☐	_____
1/2 face, full face, other (specify)			
Foot Protection	☐	☐	_____
Safety toe, EH rated, rubber boots, other (specify)			
Hand Protection	☐	☐	_____
Kevlar, chemical, EH, other (specify)			
Head Protection	☐	☐	_____
hard hat, electrical hazard, other (specify)			
Fall Protection	☐	☐	_____
body harness, lifelines, barricades, other (specify)			
Hearing Protection	☐	☐	_____
Other: _____			

Procedures/Programs Required	Yes	No
Confined Space	☐	☐
Hot Work	☐	☐
Signs/Barricades	☐	☐
LOTO/Energy Control	☐	☐
Scaffolds/Aerial Lifts	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐
Employee Certification/Training Required		
HAZWOPWER	☐	☐
Asbestos Awareness	☐	☐
Asbestos Inspector	☐	☐
XRF Trained	☐	☐
_____	☐	☐
_____	☐	☐
_____	☐	☐

Additional Considerations

Work Procedures: ☐ Dig Safe
☐ Working clearances ☐ _____
☐ _____

People: ☐ Worker fatigue ☐ Other site activities
☐ Public safety ☐ Pedestrian control ☐ Experience
☐ Traffic control ☐ Other utilities
☐ _____

Tools/Equipment: ☐ Eye wash ☐ First Aid Kit
☐ Inspection of tools/equipment
☐ Specialized tools/equipment
☐ Correct tool/equipment for the job
☐ _____

Special Precautions: ☐ Environmental
☐ Condition of structures ☐ Weather conditions
☐ Lighting conditions ☐ Terrain ☐ Water bodies
☐ Adjacent structures
☐ _____

If Conditions CHANGE…Stop Work, Review and Revise the Plan!!

Daily Pre-Job Safety Briefing

Hazards Associated with the Job				
☐ Hazardous Chemicals	☐ Heavy Equipment	☐ Slip/Trip and Falls	☐ Work in Active Rail ROW	☐ Confined space
☐ Biological Waste	☐ Hostile Individual(s)	☐ Traffic Hazards	☐ Work in Active Substation	☐ Hot Work
☐ Asbestos	☐ Ladder	☐ Trenches Excavations	☐Animals/Insects	☐ Radioactive Materials
☐ Dust	☐ Lighting	☐ Utilities	☐Plants	☐ Boom/Scissor Lift
☐ Edges/Material Handling	☐ Manual Lifting	☐ Water/Boat Safety	☐ _____	☐ _____
☐ Electricity	☐ Pressurized Fluids/Gases	☐ Weather (hot/cold)	☐ _____	☐ _____

List all hazards associated with this task	**Signature of Crew Members Present**	**Post Task Safety Analysis**
		Did any injuries or incidents occur today? If yes, explain.
		☐ Yes ☐ No
Barriers to eliminate/control above hazards?		Was the injury or incident reported the safety department?
		☐ Yes ☐ No ☐ N/A
		What problems did you have with today's work assignment?
		What can we do tomorrow to improve performance?
Supervisor Signature Date		

DAILY HEALTH CHECKLIST

Is social distancing being practiced?	Yes ☐	No ☐
Is the tail gate safety meeting held outdoors?	Yes ☐	No ☐
Are remote/call in job meetings being held in lieu of meeting in person where possible?	Yes ☐	No ☐
Were personal protective gloves, masks, and eye protection being used?	Yes ☐	No ☐
Are sanitizing wipes, wash stations or spray available?	Yes ☐	No ☐
Have any workers/visitors been excluded based on close contact with individuals diagnosed with COVID-19, have recently traveled to restricted areas or countries, or are symptomatic (fever, chills, cough/shortness of breath)?	Yes ☐	No ☐
Comments:		

REMEDIAL ACTIVITIES AT PROPERTIES

1. Have anyone at this location been tested and confirmed to have COVID-19?	Yes ☐	No ☐
2. Is anyone at this location isolated or quarantined for COVID-19?	Yes ☐	No ☐
3. Has anyone at this locaton had contact with anyone known to have COVID-19 in the past 14 days?	Yes ☐	No ☐
4. Does anyone at this locaton have any symptoms of a respiratory infection (e.g., cough, sore throat, fever, or shortness of breath)?	Yes ☐	No ☐
5. Does the Department and its contractors have your permission to enter the property at this time?	Yes ☐	No ☐
If Yes to <u>any</u> of 1-4 above: • If it is <u>not</u> critical that service/entry be carried out immediately and can be postponed until the risk of COVID-19 is lower, or can be accomplished remotely/without entry, postpone or conduct service without entry. • If it <u>is</u> critical that service/entry be carried out immediately, advise occupants that as a precaution and for our own protection, project personnel will be donning appropriate PPE* (including respiratory protection) - and do so prior to entry.	Yes ☐	No ☐
Comments:		

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

Entry/Exit Log with COVID-19 Acknowledgement

Project Name: _____

Project #: _____

New York State Department of Environmental Conservation's (DEC) objective is to provide a safe and healthy workplace. In response to COVID-19, DEC is prohibiting access to our work areas by those who pose an elevated risk of spreading COVID-19. By completing this site Entry/Exit log, you acknowledge your understanding of this policy and confirm that your health and travel history is NOT in one of the prohibited access groups listed below, and to the best of your knowledge, you do not pose an elevated risk of transmitting COVID-19 to others. Please leave the site immediately and follow recommendations from public health agencies and your healthcare provider if you fall into one of the prohibited access groups listed below:

- You are experiencing flu-like symptoms including but not limited to fever, chills, cough, sore throat, diarrhea, vomiting, runny/stuffy nose, muscle or body aches, headaches, fatigue.
- You have traveled to CDC-restricted destinations in the last 2 weeks including China, South Korea, Iran, United Kingdom & Ireland, all European Union countries, Switzerland and regions within the U.S. for which public health agencies have prohibited travel.
- You had direct contact with a person diagnosed with COVID-19 or suspected of having COVID-19 during the last 2 weeks.

Name	Initials	Affiliation	Date	Time In	Time Out

	TRC HEALTH AND SAFETY MANAGEMENT SYSTEM		EHS Policy Management System Procedures Compliance Programs Forms, Checklists, Permits, etc.
TRC	**DOCUMENT TITLE:** COVID-19 Questionnaire for Onsite Workers		
	DOCUMENT NUMBER: CP052.2	**Revision Number:** 2	
	APPROVED BY: Mike Glenn	Page **1** of **1**	

The safety of our employees and their families, subcontractors, clients, and visitors is TRC's highest priority. As the COVID-19 pandemic continues to evolve and spread, TRC will continue to monitor the CDC, WHO, and local agencies in order to provide up-to-date information to protect all of those in our community.

To prevent the spread of COVID-19 and reduce the potential risk of exposure to our employees, subcontractors, and visitors, we request all personnel involved with on-site project-related work complete this assessment questionnaire. This questionnaire will be completed upon arrival to the jobsite and prior to conducting any job-related tasks. Your participation is important to help us take precautionary measures to protect you and everyone on our team.

Date: _____

Name: _____

Company/Organization: _____

Email Address: _____

Phone Number: _____

Project Name: _____

1. Do you have signs of a fever or measured temperature above 100.4°F or greater, a dry cough, tiredness, or trouble breathing within the past 24 hours?
   ☐ Yes ☐ No
2. Have you had "close contact" with an individual diagnosed with COVID-19? "Close contact" means living in the same household as a person who has tested positive for COVID-19, caring for a person who has tested positive for COVID-19, being within 6 feet of a person who has tested positive for COVID-19 for 15 minutes or more, or coming in direct contact with secretions (for example, sharing utensils or being coughed on) from a person who has tested positive for COVID-19 while the person was symptomatic.
   ☐ Yes ☐ No
3. Have you, or anyone inside your residence been exposed to someone else who is currently being quarantined by a doctor or a local public health official?
   ☐ Yes ☐ No

Be aware that your client may have additional requirements as well. Please consult the COVID-19 Client Documents on TRCNet to review your client's guidance. Only personnel who answer "No" to all questions listed above will be granted site access. **Copies of completed questionnaires are to be maintained onsite with the HASP and project documents. If the answer is "Yes" to question 1, please contact your Supervisor, Office Practice Leader/OPL, Mike Glenn, and your HR Business Partner.**

Appendix G
WorkCare Program Information

EARLY INCIDENT INTERVENTION®

Immediate Access to Medical Advice for Work Related Incidents

(888) 449-7787

INTRODUCTION

WorkCare, Inc. (WorkCare) and TRC have partnered together to promote Incident Intervention®, a resource designed to support company safety goals/targets—while reducing runaway-costs associated with workplace injuries and illnesses.

PURPOSE

Early Incident Intervention provides TRC employees with **IMMEDIATE** telephonic access to WorkCare clinicians at the time of a presumed, non-emergency workplace injury or illness. Clinicians provide expert guidance on the evaluation of symptoms, appropriate first aid, and the need for additional medical evaluation or treatment.

When utilizing this service within the first hour of an incident, known as the "Golden Hour," licensed medical staff can guide the case so that medical evaluation and treatment are rendered appropriately.

> ***"…helps the worker traverse the unpredictable terrain of work-related injuries and illness."***

PRINCIPLES OF EARLY INCIDENT INTERVENTION

- Utilizes principles of the "Golden Hour."
- Provides workers immediate clinician support at the time of an incident.
- Focuses on providing the right care, at the right time in the proper setting.

BENEFITS FOR EMPLOYEES

- Instant access to a medically qualified professional for evaluation of symptoms and possible outcomes.
- Professional guidance on appropriate first aid measures and medications.
- Professional advice regarding the need for additional medical evaluation or treatment.

BENEFITS FOR TRC

- Point of contact for emergency and non-emergency medical clinicians.
- Triages the incident to determine risk and urgency, delivering interventions that are consistent with medical guidelines for the specified injury and illness.
- Maintains communication with clinicians to ensure accurate and timely reporting.

Appendix H
Incident Reporting

TRC Incident Reporting Guidelines

Incident Response:

1. For life threatening injuries and medical emergencies call 911 or go to the closest emergency room.
2. An injured worker must report an injury to their supervisor immediately.
3. Supervisor is required to complete The TRC Incident Report Form within 24 hours of the reported accident and forward to Bill Russell at Sargent & Associates with a copy to Mike Glenn.

   Bill Russell – Sargent &Associates
   Office: (978) 256-7459; Fax: (978) 256-4941
   bill@sargentandassociates.com

   Mike Glenn, National Safety Director
   Office: (949) 727-7347; Mobile: (949) 697-7418
   mglenn@trcsolutions.com

4. WorkCare can provide assistance in providing first aid advice and directing an injured worker to non-emergency medical care. WorkCare is a service that provides 24/7 access to an Occupational Healthcare physician or clinician.

   WorkCare Incident Intervention
   (888) 449-7787

Return to Work:

1. The injured worker is responsible for providing the Supervisor with a copy of the doctor's note detailing the injury and "return to work" status within 24 hours of the doctor's visit. The supervisor must email or fax the completed TRC Incident Report and Doctor's notes to Sargent & Associates.
2. Sargent & Associates will contact the injured worker and the Supervisor to confirm the facts surrounding the injury.
3. Sargent & Associates will report the injury to the workers' compensation insurance carrier, Zurich.

4. Zurich may contact the injured worker and supervisor to conduct an accident investigation.
5. Sargent & Associates will maintain communication with all parties in order to monitor the medical treatment, and the injured worker's return to work status. They will act as liaison between the injured worker, TRC, and Zurich.
6. Sargent & Associates will work with TRC's Health & Safety, Human Resources, and/or Supervisors to determine if modified duty work is an option, until the injured worker is able to return to full duty work activities.

Incident Investigation:

1. All incidents that result in injuries that require reporting for OSHA recordkeeping purposes and all high potential first aid and near miss events require an incident investigation.
2. The Supervisor with assistance from the National Safety Director and/or Safety Coordinator, must complete the incident investigation report/contributing cause analysis within 7 days of the incident and must develop a corrective action plan within 14 days of the incident.

Mobile Device Guide

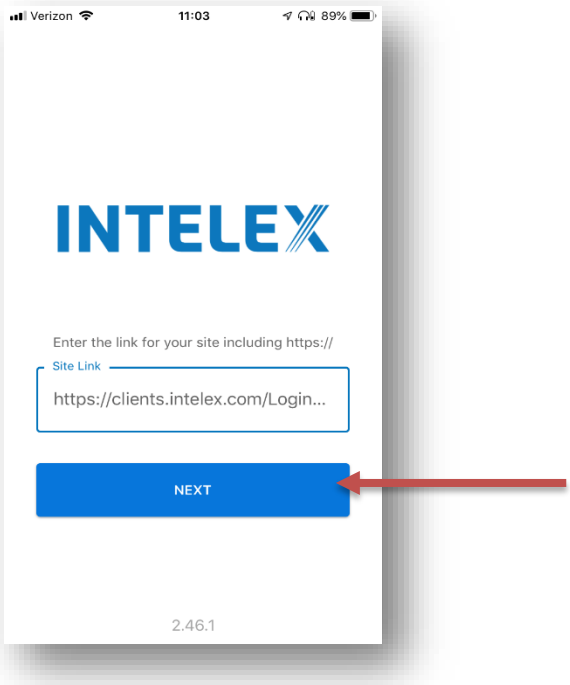
1. Download the app

   Click here

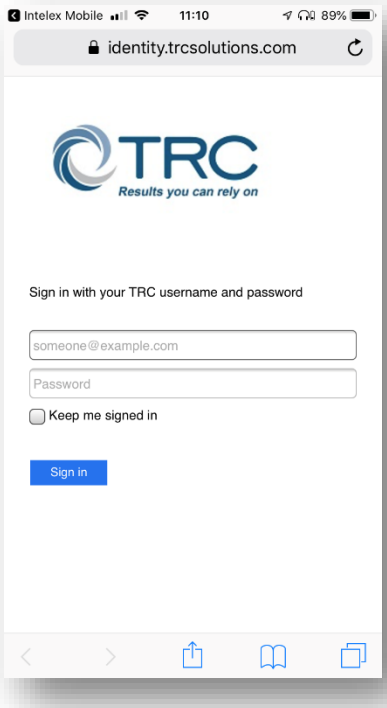
   Click here

2. Open the app and enter the site link

   Click on the 3 lines in the top left corner and enter the site link



   Click on the user name and password and enter your TRC credentials



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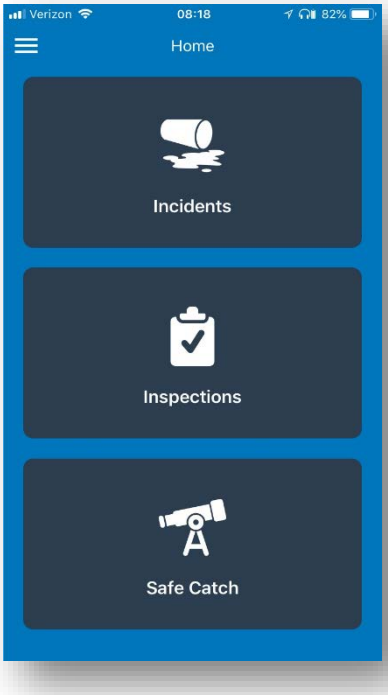
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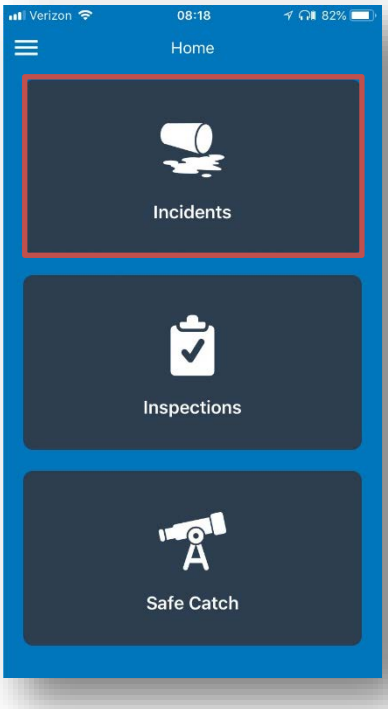
Home
Incidents
Inspections
Safe Catch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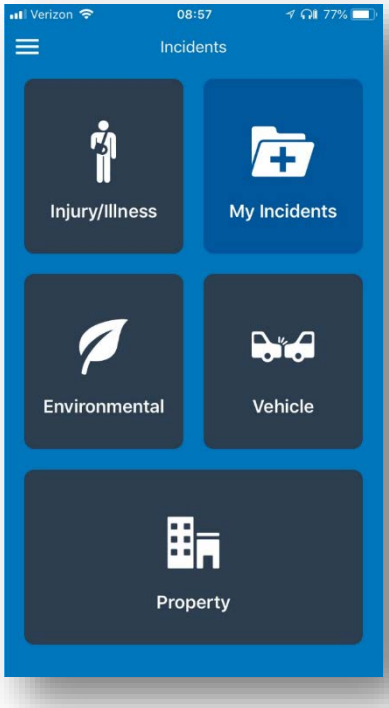
Incidents
Inspections
Safe Catch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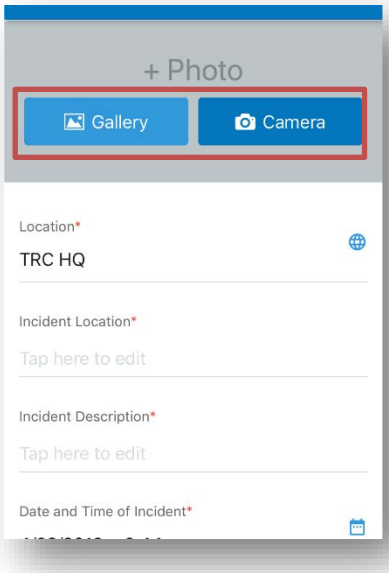
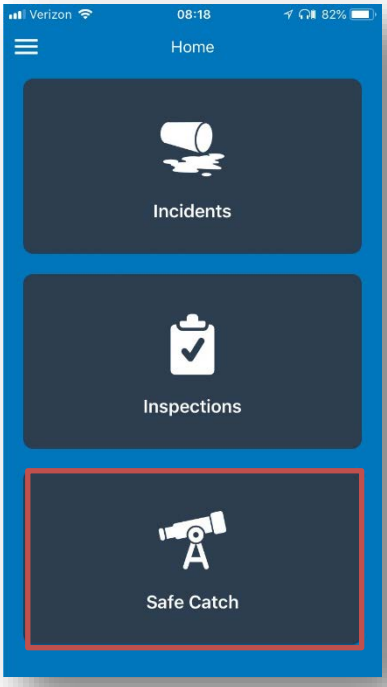
Incidents
Injury/Illness
My Incidents
Environmental
Vehicle
Property


+ Photo
Gallery
Camera
Location*
TRC HQ
Incident Location*
Tap here to edit
Incident Description*
Tap here to edit
Date and Time of Incident*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Inspections
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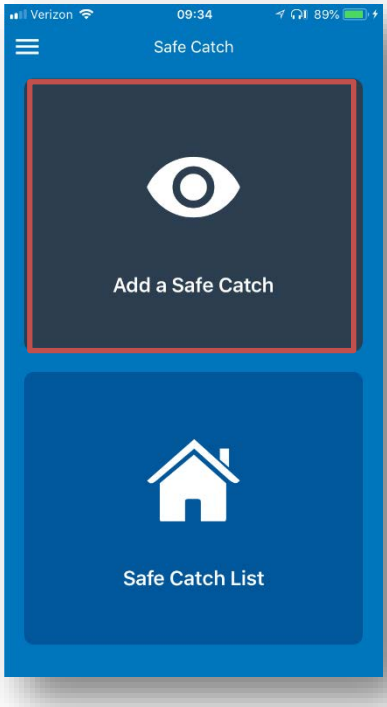
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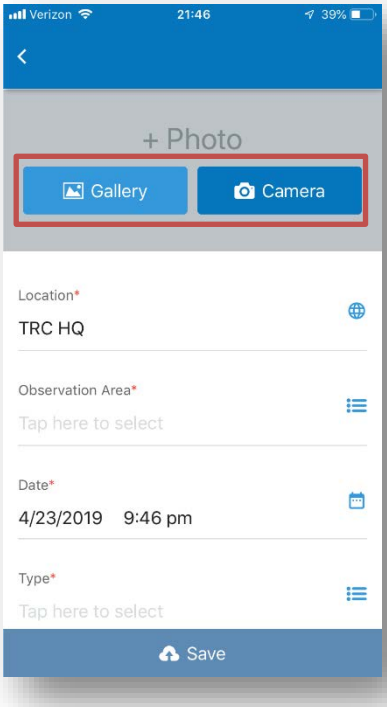
Safe Catch
Add a Safe Catch
Safe Catch List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+ Photo
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Location*
TRC HQ
Observation Area*
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Save

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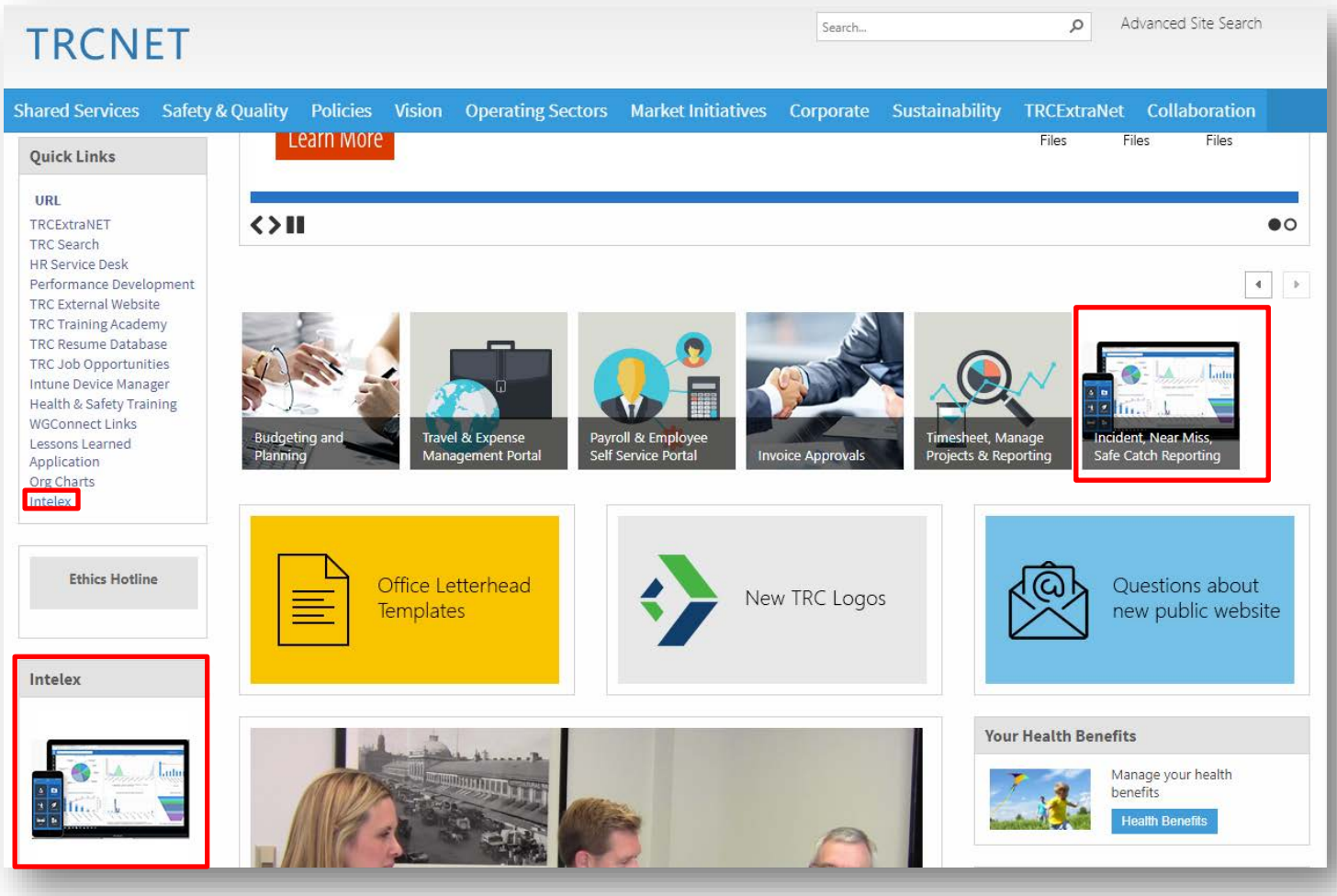
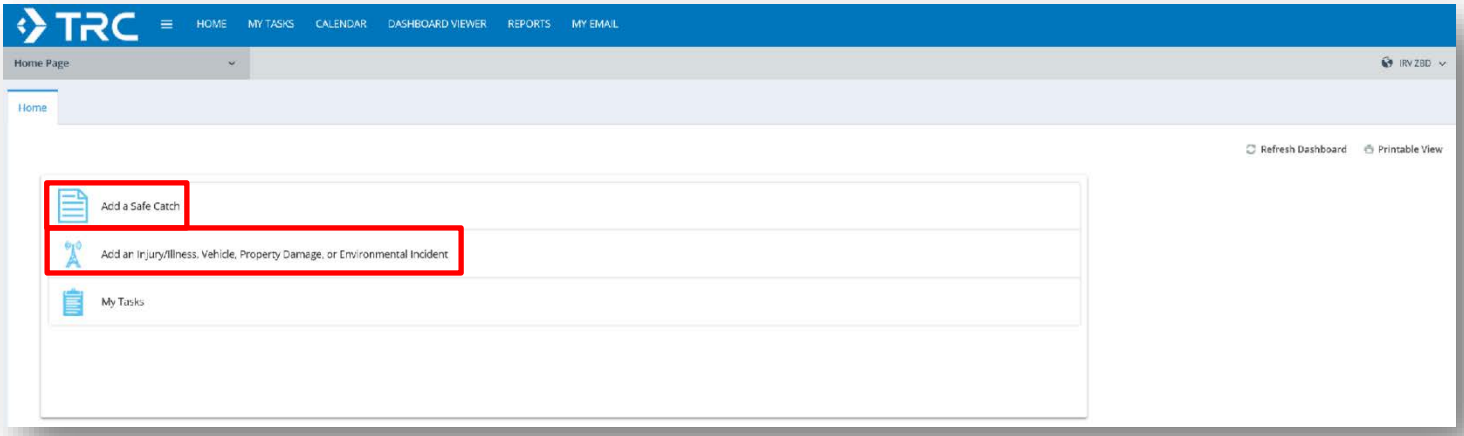
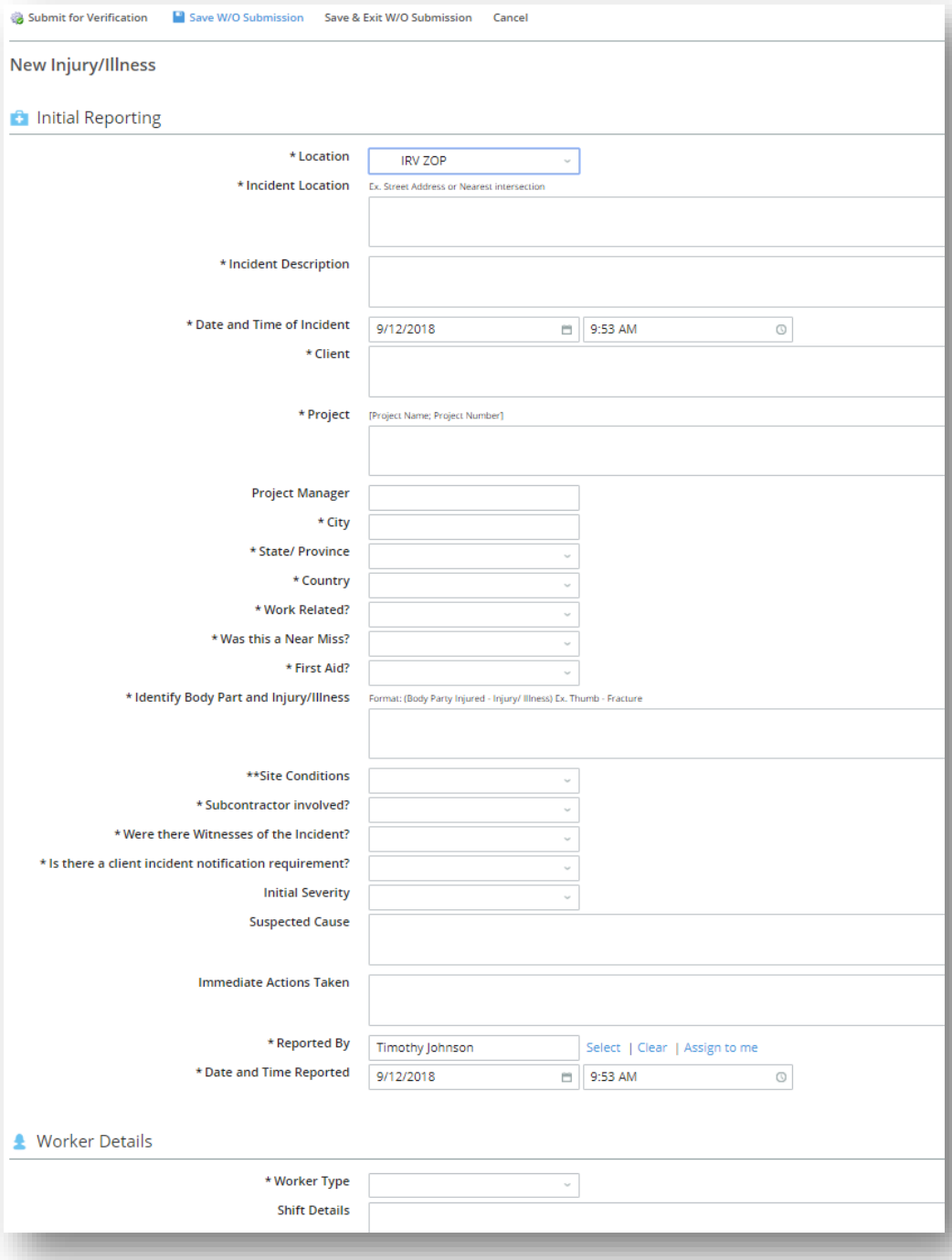
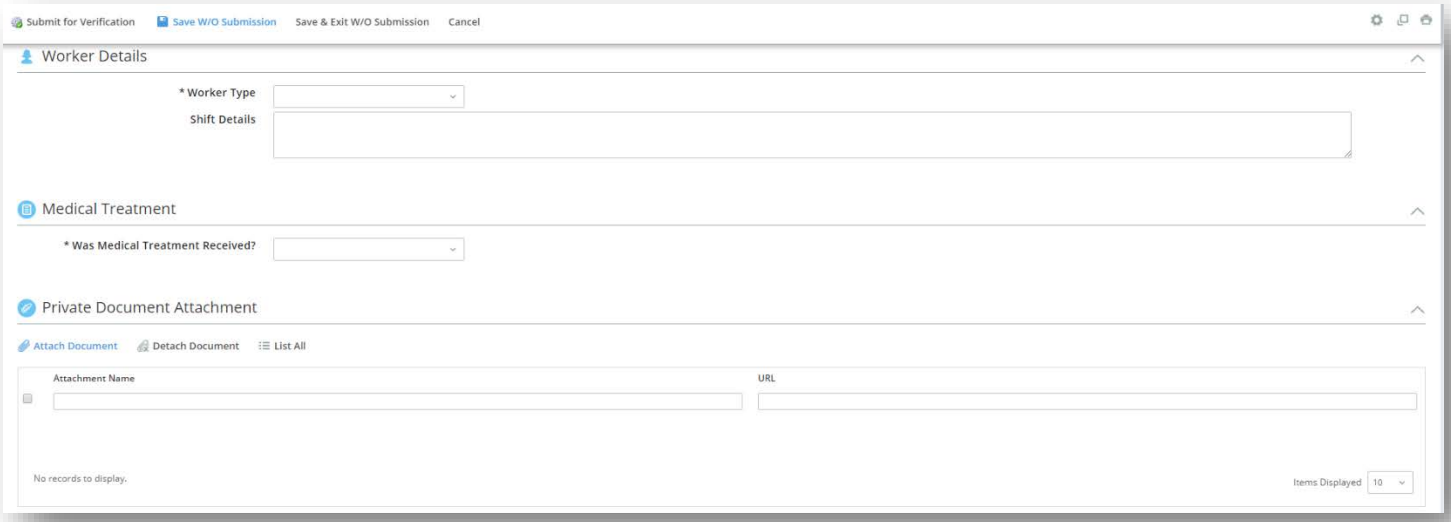

TRCNET
Search...
Advanced Site Search
Shared Services
Safety & Quality
Policies
Vision
Operating Sectors
Market Initiatives
Corporate
Sustainability
TRCExtraNet
Collaboration
Learn More
Files
Files
Files
Quick Links
URL
TRCExtraNET
TRC Search
HR Service Desk
Performance Development
TRC External Website
TRC Training Academy
TRC Resume Database
TRC Job Opportunities
Intune Device Manager
Health & Safety Training
WGConnect Links
Lessons Learned Application
Org Charts
Intelex
Ethics Hotline
Intelex
Budgeting and Planning
Travel & Expense Management Portal
Payroll & Employee Self Service Portal
Invoice Approvals
Timesheet, Manage Projects & Reporting
Incident, Near Miss, Safe Catch Reporting
Office Letterhead Templates
New TRC Logos
Questions about new public website
Your Health Benefits
Manage your health benefits
Health Benefits

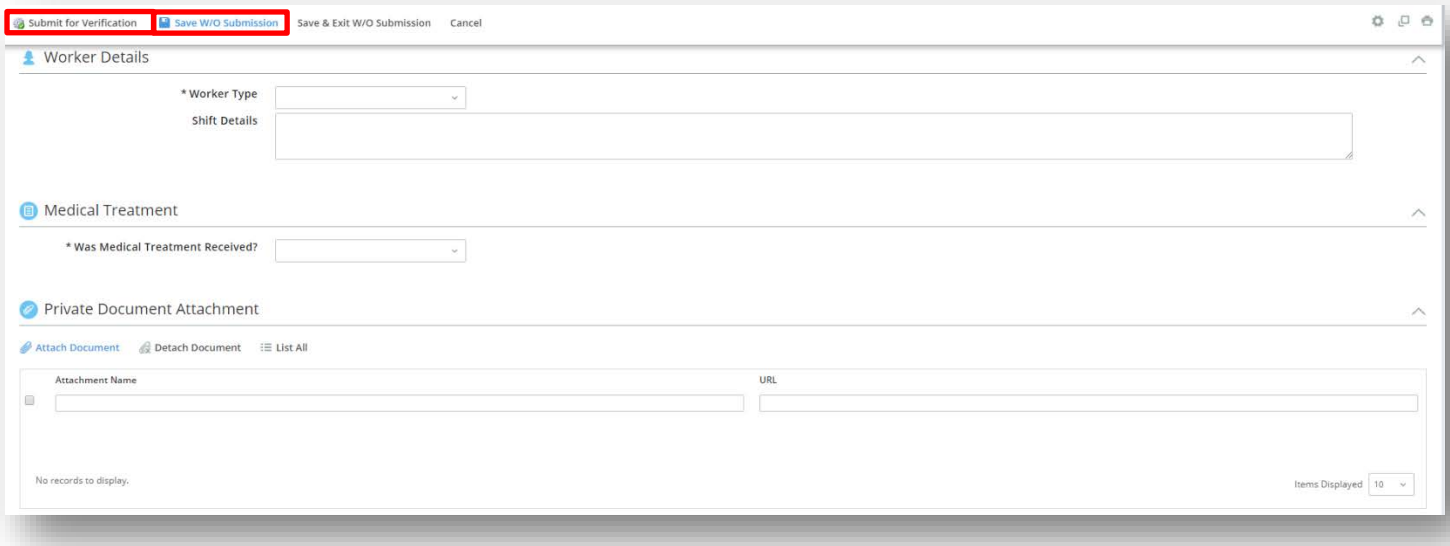
2. Click on the "Add a Safe Catch" or "Add an Injury/Illness, Vehicle, Property Damage, or Environmental Incident" button.



- Depending on the selection, you will be directed to the corresponding form.
- Fill out the required fields in the form.
- Click the "Submit" button to submit the form.
- You will receive a confirmation message once the form is submitted successfully.


Submit for Verification
Save W/O Submission
Save & Exit W/O Submission
Cancel
New Injury/Illness
Initial Reporting
* Location
IRV ZOP
* Incident Location
Ex. Street Address or Nearest intersection
* Incident Description
* Date and Time of Incident
9/12/2018
9:53 AM
* Client
* Project
[Project Name; Project Number]
Project Manager
* City
* State/ Province
* Country
* Work Related?
* Was this a Near Miss?
* First Aid?
* Identify Body Part and Injury/Illness
Format: (Body Party Injured - Injury/ Illness) Ex. Thumb - Fracture
**Site Conditions
* Subcontractor involved?
* Were there Witnesses of the Incident?
* Is there a client incident notification requirement?
Initial Severity
Suspected Cause
Immediate Actions Taken
* Reported By
Timothy Johnson
Select | Clear | Assign to me
* Date and Time Reported
9/12/2018
9:53 AM
Worker Details
* Worker Type
Shift Details


Submit for Verification
Save W/O Submission
Save & Exit W/O Submission
Cancel
Worker Details
* Worker Type
Shift Details
Medical Treatment
* Was Medical Treatment Received?
Private Document Attachment
Attach Document
Detach Document
List All
Attachment Name
URL
No records to display.
Items Displayed
10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Worker Details
* Worker Type
Shift Details
Medical Treatment
* Was Medical Treatment Received?
Private Document Attachment
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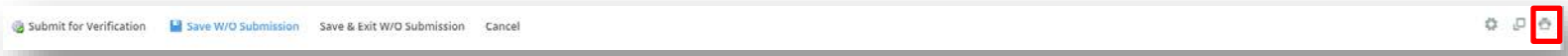
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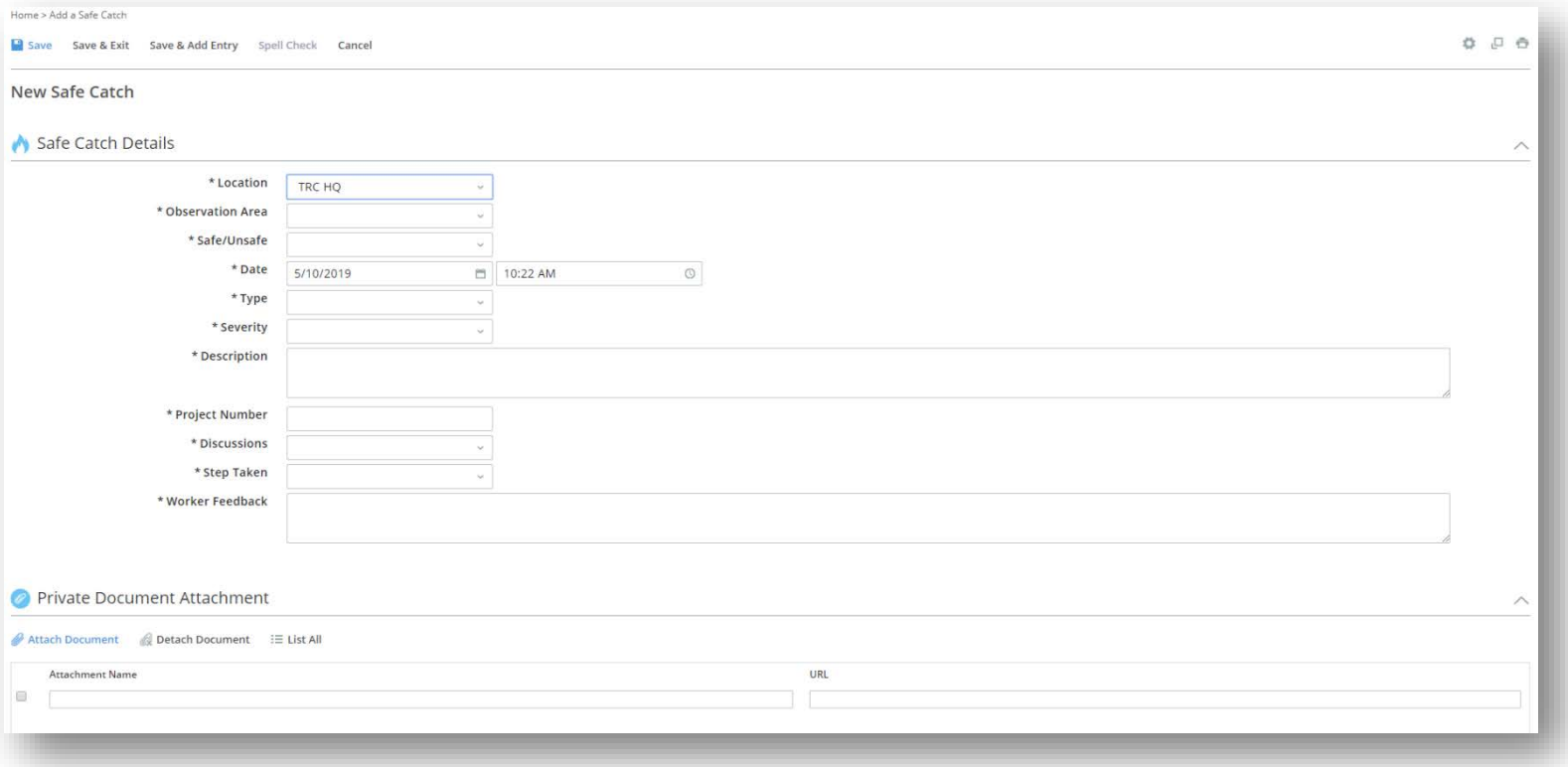
Cancel


Home > Add a Safe Catch
Save
Save & Exit
Save & Add Entry
Spell Check
Cancel
New Safe Catch
Safe Catch Details
* Location
TRC HQ
* Observation Area
* Safe/Unsafe
* Date
5/10/2019
10:22 AM
* Type
* Severity
* Description
* Project Number
* Discussions
* Step Taken
* Worker Feedback
Private Document Attachment
Attach Document
Detach Document
List All
Attachment Name
URL

AUTO INCIDENT REPORT

EMPLOYEE INFORMATION (V-1):

Name: _____ Phone: ( ) _____

Sector/Practice: _____ Office Location: _____

Supervisor's Name: _____ Supervisor's Phone: ( ) _____

Project #: _____ Client's Name: _____

Driver's License #: _____ State: _____

VEHICLE INFORMATION (V-1):

Year/Make/Model of Vehicle: _____

License Plate #: _____ Vehicle ID # (VIN): _____

Circle Point of Contact:



Was Vehicle Drivable? ☐ Yes ☐ No

Personal: ☐ Yes ☐ No Rental: ☐ Yes ☐ No Fleet: ☐ Yes ☐ No

Rental Company

INCIDENT INFORMATION:

Date of Incident: _____ Time of Incident: _____ A.M. _____ P.M. Photos Taken: ☐ Yes ☐ No

Location of Incident: _____ City/State: _____

Were The Authorities Contacted? Police: ☐ Yes ☐ No Ambulance: ☐ Yes ☐ No Fire: ☐ Yes ☐ No

Name of Police Dept: _____ Case #: _____ Officer Name: _____

Were Citations Issued? ☐ Yes ☐ No If Yes, To Whom? _____

Citation Number: _____

Were There Any Witnesses? ☐ Yes ☐ No If Yes, Please Provide Name, Address and Phone Below:

Witness Name: _____ Witness Phone: ( ) _____

Witness Address: _____

Traffic Conditions (i.e., heavy, light): _____ Weather Conditions (i.e., dry, wet, ice, fog): _____

WorkCare Contacted? ☐ Yes ☐ No

TRC Driver Injured? ☐ Yes ☐ No Medical Treatment Received? ☐ Yes ☐ No

Front Seat Passenger Injured? ☐ Yes ☐ No Medical Treatment Received? ☐ Yes ☐ No

Rear Driver Side Passenger Injured? ☐ Yes ☐ No Medical Treatment Received? ☐ Yes ☐ No

Rear Passenger Side Passenger Injured? ☐ Yes ☐ No Medical Treatment Received? ☐ Yes ☐ No

Describe Injuries:

Describe Damage to Property Other Than Motor Vehicles (i.e., guardrails, mailboxes, etc.):

AUTO INCIDENT REPORT

OTHER DRIVER & VEHICLE INFORMATION (V-2):

Driver's Name: _____ Driver's Phone: ( ) _____

Driver's Address: _____

Owner's Name (If different than driver): _____ Owner's Phone: ( ) _____

Owner's Address: _____

Year/Make/Model of Vehicle: _____ License Plate #: _____ State: _____

Circle Point of Contact: 

Was Vehicle Drivable? ☐ Yes ☐ No

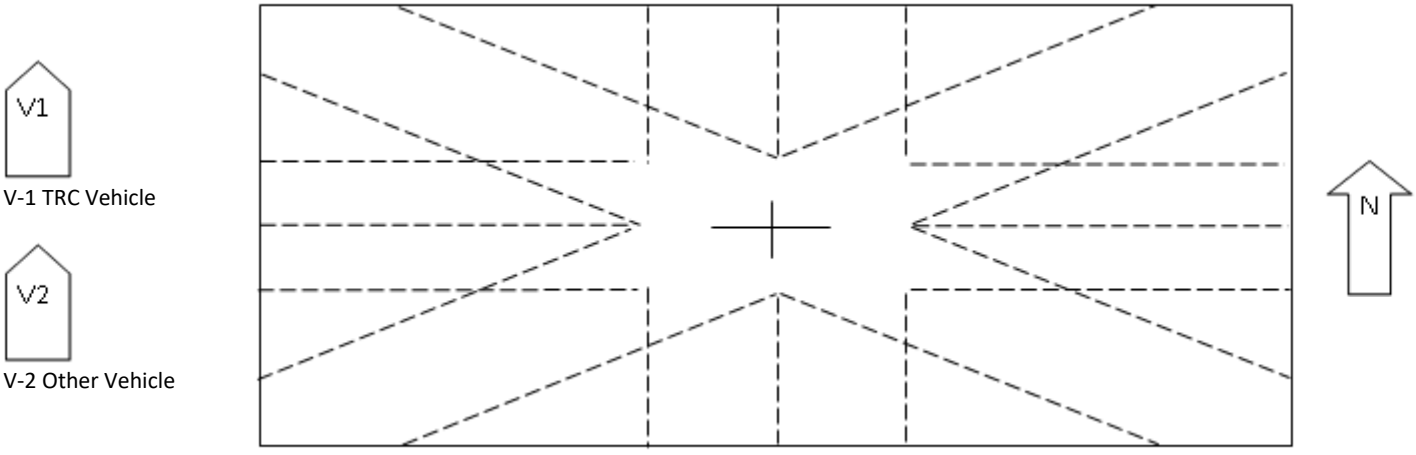
Insurance Company Name: _____ Policy Number: _____

Insurance Company Phone: ( ) _____ Number of Passengers in Vehicle: _____

List Persons Injured: _____

Were Any Other Vehicles Involved in Incident? ☐ Yes ☐ No If yes, provide details below:

PLEASE DESCRIBE THE INCIDENT AND COMPLETE THE DIAGRAM BELOW. Be sure to indicate as many details as possible (i.e., How many lanes in each direction; Were there any turn lanes; What kind of traffic controls were there – light, stop sign, yield sign, Positions of vehicles on impact).



Completed By: _____ Signature: _____

INCIDENT NOTIFICATION REPORT

(To be completed immediately after an Injury, Illness, Incident or Significant Near Miss by Employee's Supervisor and Employee involved)

Incident Category

☐ Injury/Illness ☐ Near Miss/Loss ☐ Property Damage ☐ Other

1 Incident Location: _____

2 Project #: _____

3 Client: _____

4 Date Incident Occurred: _____ Time: _____

5 Date Incident Reported: Time:

TRC Employee Information

6 Name: _____ Phone: _____

7 Office: _____ Address: _____

8 Supervisor Name: _____ Phone: _____

9 Title or Occupation: _____

10 Sector/Practice:

Incident Description

11 Task Performed/Description of Incident:

12 Conditions at the Time of Incident (weather, lighting, etc.):

13 Description of Property Damage:

Employee Injury or Illness Description

14 Describe the Injury or Illness:

15 First Aid/Medical Treatment Administered:

16 Was WorkCare Contacted? ☐ Yes ☐ No

17 Name of Doctor's Office, Clinic or Hospital: _____

18 Address: Phone:

INCIDENT NOTIFICATION REPORT

(To be completed immediately after an Injury, Illness, Incident or Significant Near Miss by Employee's Supervisor and Employee involved)

Subcontractor Involvement

19 Was a subcontractor involved? ☐ Yes ☐ No

20 Name of Company: _____

21 Address: _____

22 Contact Name: _____ Phone: _____

23 Description of the Incident:

Witness Information

24 Were there witnesses to the incident? ☐ Yes ☐ No

25 Name(s) Address(es) Number(s)

_____

_____

Immediate Corrective Actions

26 Describe the Immediate Corrective Actions Taken:

Client Notification

27 Is there a client incident notification requirement? ☐ Yes ☐ No

28 Contact Name _____

29 Date of Notification: _____ Time: _____

30 Notification Method:

Supervisor: _____ Signature: _____ Date: _____

Employee: Signature: Date:

Appendix I
Safe Catch Report

[illegible] [illegible] R[illegible]r[illegible]

[illegible]rd [illegible]d [illegible] [illegible]r [illegible] [illegible]d [illegible] [illegible]r [illegible]d [illegible] [illegible] [illegible]r [illegible] [illegible] [illegible]d [illegible]r [illegible] [illegible] [illegible]

Appendix J
Acknowledgement

PERSONAL ACKNOWLEDGEMENT

A component of the Health and Safety Plan (HASP), designed to provide personnel safety during this subsurface investigation requires that you receive training as described in the HASP prior to working at this site. Additionally, you are required to read and understand the HASP. When you have fulfilled these requirements, please sign and date this personal acknowledgement:

Name (Printed)	Signature	Date
Name (Printed)	Signature	Date
Name (Printed)	Signature	Date
Name (Printed)	Signature	Date
Name (Printed)	Signature	Date
Name (Printed)	Signature	Date
Name (Printed)	Signature	Date
Name (Printed)	Signature	Date
Name (Printed)	Signature	Date
Name (Printed)	Signature	Date

Appendix L
NYSDEC Post-Closure Monitoring and Reporting
Approval Letter Dated February 12, 2016

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau E
625 Broadway, 12th Floor, Albany, NY 12233-7017
P: (518) 402-9813 I F: (518) 402-9819
www.dec.ny.gov

FEB 12 2016

Mr. Walter Goyzueta, P.E.
Chief, Division of Residuals Operations
NYCDEP Bureau of Waste Water Treatment
96-05 Horace Harding Expressway
2nd Floor, Low Rise Building
Corona, New York 11368

RE: Brookfield Avenue Landfill (BAL)
Site No. 243006
Post Closure Monitoring

Dear Mr. Goyzueta:

The following changes to the BAL Post-Closure Monitoring, Sampling and Analysis Plan are acceptable to the New York State Department of Environmental Conservation:

1. Sampling for routine parameters will be performed annually (in rotating quarters, i.e., every fifth quarter) along with TAL Metals, TCL VOCs, TCL SVOCs and TCL Pesticides.

2. Sampling for TCL PCBs will be performed once during the five-year review period during the last sampling round.

3. Evaluation of the groundwater results will be included in the BAL Annual Report. Quarterly Reports will no longer be necessary.

4. A detailed review of the groundwater monitoring results will be provided in the Five-Year Review Report.

5. The BAL Five-Year Review Report will also serve as the Periodic Review Reports.

If you have any questions, please contact me at 518-402-9813.

Sincerely,

Michael A. Mason

Michael A. Mason, P.E.
Project Manager
Remedial Section A, Remedial Bureau E
Division of Environmental Remediation

ec: G. Burke, DER